Future developments research master Brain and Cognitive Sciences

On 22 November 2022, the panel for the visitation group Cognitive Neurosciences visited the research master Brain and Cognitive Sciences (MBCS), as part of the reaccreditation process of the programme. The assessment followed a “development-oriented” approach that included discussions about new developments to further improve the quality and position of the programme.

Implementation of learning trajectories

The first discussion focused on learning trajectories. To foster that MBCS students can track and (if necessary) adjust their development across the curriculum, the programme wishes to implement visible learning trajectories (VLT). VLT have already been implemented in a number of bachelor programmes at the Faculty of Science. Course coordinators, programme management and the visitation panel discussed whether and how MBCS could benefit from an approach like this.

In principle, VLT can be useful for both students and curriculum designers. However, teachers with experience with the tool emphasized the importance of choosing one or the other: VLT that are helpful to educators are not necessarily clear to students. During the discussion, participants found that VLT should mostly clarify learning to students, because MBCS students have expressed their wish to get a better view of their learning. In addition to this, the programme management has the impression that students are not always aware of the (generalizable) skills they are learning. This is especially important for students who choose not to enter a doctoral programme after graduation and who might require additional skills, other than research skills which are engraved in the programme.

The added value of VLT is that they offer an intermediate level between highly specific course objectives and the rather abstract programme exit qualifications. VLT offers students the possibility to identify what the ‘objective behind the course objective’ is. For example, it currently might not be transparent to students that 'describe current debates in emotion research' in course 1 and 'compare and contrast findings from cognitive neuroscience and AI' in course 2 are two steps in learning how to evaluate scientific literature. VLT also strengthen the coherence of the curriculum.

One open issue is which learning trajectories are relevant to MBCS. Students in the programme follow a wide range of courses and engage in a variety of experimental research paradigms. Still, specific trajectories can be defined. For example, research skills, professional skills, ethics and interdisciplinarity can be identified in a clear manner.

The visitation panel suggested to use VLT to visualise development of students during their research projects. Currently, the implementation of VLT would not allow for such a fine-

grained view, but perhaps the setup of the Research Projects could be developed in parallel with the VLT. This idea was appreciated by the discussants. Teachers who also supervise projects indicate that they'd themselves benefit from this, too. The visitation panel urges the programme to ensure that this happens as a co-creation of students, teachers, management and advisory bodies.

In the end, the discussion panel was positive about implementing learning trajectories. The programme management will further discuss the learning trajectories project with relevant stakeholders (students, teachers, scientists, FNWI Teaching and Learning Center (TLC)) also with respect to the research projects.

Concrete action: MBCS management will organize meetings with students, teachers, researchers and TLC to further discuss the learning trajectories and what MBCS students should learn in terms of content, attitude and skills.

How can MBCS stay unique and innovative?

The aim of MBCS is to train the future generation of interdisciplinary brain and cognitive scientists. The ambition of MBCS is therefore to stay innovative in a field that is rapidly changing due to developments in various domains such as artificial intelligence (AI), neurotechnologyy and mental health. Moreover, “Healthy Future” is one of the topics in the UvA strategic plan for the upcoming years of the UvA Executive Board. There is also the impression among staff that MBCS students are interested in fundamental science but also in (connecting to) topics with societal impact. It is important for MBCS to consider how to adapt to these changes.

AI has led to both conceptual and methodological advances. Machine learning allows new ways of analysing neuroimaging data, artificial neural networks inform computational neuroscience and at the same time AI itself can benefit from insights that cognitive science and neuroscience have to offer. It seems an opportunity for MBCS to seek out partnerships that help foster such interdisciplinary collaboration.

However, teaching staff and the ABC community are satisfied with the content of the programme and how it connects to ongoing research. Since a strength of MBCS is that it is well-aligned with active research at UvA, it was concluded that the programme should carefully move with the research community, which has focused on predominantly on fundamental science. Of course, this community itself has been adapting to the changes listed above – with, for example, cognitive scientists studying misinformation or explainable AI. Many of these topics cover discovery science that may have societal impact and may therefore motivate a new generation of students to follow the programme.

Concrete action: The MBCS management will start discussions with staff and alumni the value of (further) connecting to domains such as AI, neurotechnology and mental health and how such changes can be implemented.