

RESEARCH MASTER'S PROGRAMME
Cognitive Neuropsychology
Vrije Universiteit Amsterdam

Report on generic quality
March 2023

Content

1. Introduction	3
1.1 Panel.....	3
1.2 Assessment framework.....	4
1.3 Approach.....	4
1.4 Working method	4
2. Characteristics of the programme.....	6
2.1 Administrative data	6
2.2 Profile	6
3. Summary	7
4. Strong points	9
5. Recommendations	10
6. Assessment	11
6.1 Standard 1: Intended learning outcomes	11
6.2 Standard 2: Teaching-learning environment	13
6.3 Standard 3: Student assessment.....	19
6.4 Standard 4: Achieved learning outcomes.....	22
7. Appendices.....	24
7.1 Documents studied.....	24
7.2 Site visit programme	24

1. Introduction

This advisory report contains findings, considerations and judgements about the research master's programme Cognitive Neuropsychology (CNP) of the Vrije Universiteit Amsterdam (VU). The Accreditation Organisation of the Netherlands and Flanders (NVAO) bases its accreditation decision on this report.

1.1 Panel

The research master's programme Cognitive Neuropsychology of the Vrije Universiteit Amsterdam is part of the visitation group Cognitive Neurosciences (2), which comprises three programmes offered by three Dutch universities. The panel for the visitation group Cognitive Neurosciences (2) consists of seven independent experts, including two student members. The NVAO has approved the composition of the panel on 12 July 2022:

- Prof. Maarten Frens (chair), professor of Systems Physiology, vice dean education Erasmus MC, scientific director Erasmus MC Graduate School;
- Prof. Jean Vroomen, professor of Cognitive Psychology, Tilburg University;
- Dr Joris Koene, associate professor of Ecology & Evolution, Vrije Universiteit Amsterdam;
- Dr Anna van Duijvenvoorde, associate professor in the unit Developmental and Educational Psychology of the Institute of Psychology, Leiden University;
- Prof. Harold Bekkering, professor of Cognitive Psychology, Radboud Universiteit;
- Suraj Haryallsingh BSc (student member), student M Cognitive Neuropsychology (research), Vrije Universiteit Amsterdam;
- Dieta Gruppen BSc (student member), student M Behavioural and Cognitive Neurosciences (research) and M Biology – Modelling in Life Sciences, University of Groningen.

The panel had the support of drs Linda te Marvelde, who acted as the coordinator for the visitation group, and of Dr Floor Meijer and Dr Jetje De Groof, who were involved as secretaries.

The panel conducting the assessment of the research master's programme Cognitive Neuropsychology of the Vrije Universiteit Amsterdam consisted of:

- Prof. Maarten Frens (chair)
- Prof. Jean Vroomen
- Prof. Harold Bekkering
- Dieta Gruppen BSc (student member)

The panel was supported by Dr Floor Meijer, who acted as secretary.

1.2 Assessment framework

The three participating universities had their research master's programmes assessed in accordance with the Assessment Framework for Limited Programme Assessment (NVAO 2018, hereafter: 'the assessment framework') and the additional criteria for the assessment of research master's programmes (NVAO 2016).

1.3 Approach

The universities, programmes, panel, coordinator and secretaries have agreed on a 'development-oriented' approach to the assessments. This makes use of the opportunity offered by the assessment framework to place less emphasis on accountability and more on improvement and development. This methodology is based on trust and responds to the autonomy and ownership of the study programme as emphasised in the framework. Transparency, openness, and co-creation are key in this approach. Characteristic of the development-oriented approach is that the panel makes a preliminary statement about the generic quality of the programme on the basis of existing documentation. The subsequent site visit is – in part – dedicated to discussing the programme's own themes that are of importance to its development. This step-by-step approach aims to reduce the pressure traditionally placed on site visits. The programme knows in advance where it stands and thus experiences the opportunity to openly submit development themes to the panel. This promotes an equal dialogue between peers.

1.4 Working method

Eight weeks before the site visit, the panel received the documentation, including a reading guide, vision document and SWOT analysis, a student chapter, and a selection of fifteen recent graduation files (see appendix 7.1). These documents formed the basis for the assessment of the generic quality achieved. The panel studied the documents and organised a digital panel meeting three weeks before the site visit. In this meeting, the panel discussed its initial findings and provisional conclusions regarding the quality achieved on the four standards of the assessment framework. Part of the meeting was a (digital) consultation opportunity for students and lecturers who wanted to engage in conversation with the panel. No one took advantage of the opportunity to speak with the panel at this stage. Shortly after the meeting, the chair and secretary shared the panel's initial findings with the programme.

The site visit took place on 31 January 2023 in Amsterdam (see appendix 7.2). During the site visit, the panel spoke with delegations of students and teaching staff, representatives of the examinations board and programme management. The discussions were partly organised around the development themes that the programme itself identified: 1) workload in relation to (central) tasks, 2) alumni-tracking, and 3) online/hybrid/on campus education. These discussions also provided the panel with the opportunity to raise (remaining) questions regarding the generic quality of the programme with those involved. In addition, the panel requested to organise a discussion on CNP's profile and the practical implications

of including both a cognitive and a clinical trajectory in the programme. At the end of the visit, the panel drew up findings and recommendations. The panel's chair presented these orally to stakeholders of the programme.

After the visit, the secretary drew up the advisory report. This report (presented here) contains the assessment of the programme's generic quality on the four standards of the framework and the additional criteria for research master's programmes. On the basis of this report, the NVAO takes an accreditation decision. After processing the panel's feedback, the secretary sent the advisory report to the programme for the purpose of fact-checking the text. The secretary has corrected factual inaccuracies identified by the programme in the final version. The executive board of Vrije Universiteit Amsterdam received the final report on 31 March 2023.

Representatives of the programme gathered their main findings concerning the development opportunities of CNP and submitted their insights to the panel as input for the development report. This report is not part of the application for renewal of accreditation, but rather discusses development opportunities identified during the site visit. The university will publish the report (on its own website) within a year of the NVAO's accreditation decision.

2. Characteristics of the programme

2.1 Administrative data

Name of the programme:	Cognitive Neuropsychology
Croho:	60510
Level and orientation of the programme:	academic research master's programme
Credits:	120 EC
Specialisations or tracks:	N/A
Location:	Amsterdam
Mode of study:	full time
Language of instruction:	English

2.2 Organisation

The research master's programme Cognitive Neuropsychology (CNP) is a two-year programme offered by the Faculty of Behavioural and Movement Sciences (*Faculteit der Gedrags- en Bewegingswetenschappen*, FGB). FGB provides education to about 4.000 students in sixteen different bachelor's and (research) master's programmes. These are divided across three clusters: (1) Psychology, (2) Educational and Family Studies, and (3) Human Movement Sciences. The Psychology cluster offers four research master's programmes. Apart from CNP these are Social Psychology, Clinical and Developmental Psychopathology, and Genes in Behaviour and Health.

Research at FGB takes place within sections. CNP started in 2007 as a joint initiative of the sections Cognitive Psychology and Clinical Neuropsychology and is firmly rooted in the research programmes of its founding sections. In turn, these research programmes are embedded in the VU Research Institute of Brain and Behaviour Amsterdam (iBBA). Its goal is to foster the exchange and development of advanced knowledge for neuroimaging and experimental methods of research.

The programme is led by a programme director. Together with two other leading staff members she is part of the coordinating team that oversees all substantive matters of the curriculum. The coordinating team regularly meets with a delegation of students ('year representatives') to discuss educational matters. The programme director has appointed an admission board, which is responsible for the admission of new students and meets on a monthly basis to evaluate running applications. There is a joint programme committee for the four research master's programmes of the Psychology cluster. Its members include (staff/student) representatives of all four programmes. As a rule, the programme committee meets six times a year. FGB has a central examinations board, with subcommittees for the three clusters.

3. Summary

The selective research master's programme Cognitive Neuropsychology (CNP) has a unique multidisciplinary profile that combines knowledge and methodologies from cognitive psychology, neuroscience, and clinical neuropsychology, aiming to connect lab and clinic. This profile was translated into fourteen adequately phrased intended learning outcomes, and a coherent and appropriately challenging two-year curriculum (120 EC). By choosing between a 'cognitive' or 'clinical' trajectory, students can place a variable degree of emphasis on either cognitive or clinical aspects, tailoring the programme to their interests. A distinctive feature of the latter trajectory is the clinical internship, which is followed only by (Dutch-speaking) students who meet its entry requirements. As a result of the duality in its profile, graduates end up pursuing both (academic) research careers and careers in evidence-based clinical practice. The panel highly appreciates CNP's profile. It encourages the programme to nurture integration of both cognitive and clinical aspects wherever possible, also giving non-Dutch-speaking students the opportunity to fully benefit from clinical content.

Suitably for a research master's programme, research skills are a central component of CNP's intended learning outcomes and well-delineated curriculum. The training of such skills takes place at a high level, by qualified staff members with an excellent research reputation. The panel further established that the programme is firmly rooted in its founding research sections at VU, which provide a supportive and high-quality research environment, where students are exposed to state-of-the-art facilities, the latest insights and methodologies in the field(s), and both junior and senior role models. Many of the chosen assessment methods (e.g., research proposals, papers, presentations) specifically prepare students for the research environment. The theses that result from second-year research projects, are of a high quality and attest to the thoroughness of the research training that students receive. CNP's student population is a further strength. Selective admissions procedures result in a driven and talented student population that staff members clearly enjoy working with.

A point of attention is that, as a small and well-performing research master's programme, CNP may not get as much attention within the faculty's formal structures for representation and quality assurance as larger bachelor's programmes do. This seems to be the downside of organizing such structures at a high level of aggregation. In particular, the panel found that the faculty-wide examinations board (EB) has a rather indirect and reactive approach to safeguarding the quality of assessment and the realisation of ILOs at programme level. While the panel would prefer to see a more invested approach, it has confidence in (informal) quality assurance structures at programme level. A continuous dialogue between management, students and staff ensures that issues are dealt with as soon as they arise. This appears to effectively set off the disadvantages of faculty and cluster arrangements.

Standard	Judgement
1 Intended learning outcomes	Meets the standard
2 Teaching-learning environment	Meets the standard
3 Student assessment	Meets the standard
4 Achieved learning outcomes	Meets the standard
Final conclusion	Positive

4. Strong points

The panel identified numerous strengths. The ones listed below stood out.

- 1. Unique profile** – CNP offers students a multidisciplinary approach, combining knowledge from cognitive psychology, neuroscience, and clinical neuropsychology. The combination of cognitive and clinical aspects is a unique feature that is not found in other programmes in cognitive neuroscience within the Netherlands.
- 2. Focused curriculum** – CNP has an attractive, coherent and well-delineated curriculum that ties in well with the research of the FGB sections that it is rooted in.
- 3. Research environment** – CNP is sustained by a supportive research community with an excellent international track record. Students are embedded and supervised in high-quality research groups where they get a real-life taste of an academic career.
- 4. Student population** – CNP's admission procedures help build an academically inclined and highly driven population of students that enjoys an excellent reputation with staff and supervisors at VU and beyond.
- 5. Thesis (procedures)** – The FGB faculty has set out appropriate requirements for the supervision and assessment of thesis projects, which are carefully observed within CNP. The quality of the theses themselves is beyond dispute.

5. Recommendations

The panel makes a number of recommendations to aid with the further development of the programme. These do not detract from the positive assessment of the generic quality of the programme.

1. **Safeguard and promote integration** – Hold on to the unique signature of combining cognitive and clinical aspects and, where possible, strengthen it even further by actively seeking integration.
2. **Formalise contacts with clinical partners** – Devise a more structural approach to contacts with clinical partners to further open up to the outside world and expand non-academic career paths for graduates.
3. **Make clinical aspects (more) accessible** – Conceive of ways to ensure that all students, including non-Dutch-speaking students, can fully benefit from clinical aspects in the curriculum.
4. **Promote innovative teaching methods** – Further explore innovative teaching methods, including a flipped classroom and blended learning. This will ultimately help reduce the workload of staff.
5. **Extend formal quality assurance structure** – Increase quality assurance activities of the examinations board at programme level, by extending the sample size within thesis screening and providing in-depth feedback on course assessment files. Ensure a careful reporting of findings.
6. **Alumni tracking** – Implement a simple, low maintenance system for tracking and staying in touch with graduates. For example, involve current students in creating the alumni network.

6. Assessment

6.1 Standard 1: Intended learning outcomes

The intended learning outcomes tie in with the level and orientation of the programme; they are geared to the expectations of the professional field, the discipline, and international requirements.

Findings and considerations

The two-year research master's programme Cognitive Neuropsychology (CNP) combines the disciplines of neuroscience, cognitive psychology and clinical neuropsychology to comprehend how the processes that play out in our minds relate to the structure and function of our brains. The resulting domain of cognitive neuropsychology has a broad, multidisciplinary scope. It not only demands knowledge and insights from underlying research areas, but also the skill to apply different approaches, including behavioural, neurophysiological, computational, and clinical methods. In training the next generation of researchers, CNP's aims to deliver graduates who can apply their knowledge and methods of investigation both in cognitive neuropsychological research environments and in evidence-based clinical practice, thus building bridges between lab and clinic.

Graduates are qualified to work as independent researchers, capable of successfully completing a PhD trajectory, and suited to work in applied research environments such as research institutes, hospitals, rehabilitation centres, and elderly care. Students who fulfil the entry requirements for a clinical internship in their first year can, upon completion, apply for a Certificate Psychodiagnostic Assessment (*Basisaantekening Psychodiagnostiek*, BAPD). This means that after graduation they are eligible for enrolment in post-master training to become a licensed mental healthcare psychologist.

The panel highly appreciates the programme's profile. The purposeful integration of cognitive and clinical aspects makes CNP quite unique compared to other research master's programmes in the cognitive neurosciences. Staff and students clearly recognise and appreciate this profile as an important asset. For the students that the panel spoke with, it was the decisive reason to apply for the programme. By choosing between a 'cognitive' or 'clinical' trajectory within the curriculum, students can place a variable degree of emphasis on either clinical or cognitive aspects. This practice ties in well with the different interests of students. After the previous evaluation, CNP considered formalising the two sides to the programme into two separate tracks, i.e., a 'cognitive' and a 'clinical' track. Ultimately, this was decided against. The programme sees the level of integration made possible by the current trajectories as preferable to separation. In the panel's opinion this is a sensible decision. It strongly feels that CNP should hold on to its unique signature and, where possible, strengthen it even further by actively seeking integration.

The programme's fourteen intended learning outcomes (ILOs) are grouped under the five Dublin descriptors. Appropriately, they cover knowledge of (the limitations of) concepts, theories and methods from both cognitive psychology and clinical neuropsychology. As CNP is a research master's programme, particular emphasis is placed on research skills. Upon graduation, students are expected to be able to independently complete all consecutive steps of the research cycle, from research design to the communication of results to specialist and non-specialist audiences. All the while, students must adopt a critical attitude and be conscious of good research practices, conforming to integrity and ethics standards. All in all, the panel is confident that realising all ILOs will lead to graduates entering the labour market at the level of starting PhD candidates. It recognises the ILOs as reflective of the level and orientation of an academic (research) master's programme, with their contents matching the expectations of the professional field, the discipline, and international requirements.

The ILOs were last adjusted in 2020 in response to a recommendation made by the previous panel. This panel suggested to emphasise the separate clinical and cognitive components by translating them into specific ILOs. Accordingly, the programme added a specific ILO for both the clinical and the cognitive trajectory (ILOs 2.3.1 and 2.3.2). The panel does not object to this pragmatic approach but believes that a joint formulation of ILO 2.3 would have served both trajectories equally well. An additional minor remark concerns the operationalisation of the fifth Dublin descriptor ('learning skills'). In the panel's opinion, this could have been done more thoroughly, thus gearing the ILOs more towards the future employability of graduates both in and outside of academia. By making explicit that a goal is for students to develop transferable skills that are useful in a wide variety of careers, CNP can actively influence how its graduates position themselves in the labour market.

Finally, the panel has considered CNP's interaction with the professional field. As a research master's programme, CNP primarily prepares students for academic careers. Therefore, its professional field largely consists of relevant areas of academia. Suitably, the programme fosters close contacts with its two founding research sections at FGB, Cognitive Psychology and Clinical Neuropsychology. Senior staff members of these sections, particularly those that also teach in the programme, actively think along about the programme's profile, making sure that it stays up to date with the latest developments in the domain. The programme also receives wider academic input, since students complete research projects at research groups elsewhere in the Netherlands and abroad. Because of the clinical trajectory, and especially the clinical internship, there are also valuable contacts with clinical partners. These are as yet unformalised. To facilitate a further opening up to the outside world, the panel could envisage a more structural approach to involving these contacts.

To sum up, the panel is convinced that CNP has a unique and attractive profile. It applauds the programme for its decision to safeguard the coherence and integrality thereof. CNP's ILOs are fit for purpose, as are its contacts with the professional field.

Conclusion

Meets the standard

6.2 Standard 2: Teaching-learning environment

The curriculum, the teaching-learning environment and the quality of the teaching staff enable the incoming students to achieve the intended learning outcomes.

Findings and considerations

CNP is a selective, small-scale programme with a student intake that has fluctuated somewhat over the years. In recent years, there has been an increase, with 37 students admitted in 2021. Roughly half of the student population is international. CNP's Board of Admissions selects students based on their academic merit, which it considers the best predictor for success. A completed bachelor's degree (or the equivalent) in a closely related subject area (i.e. Psychology, Cognitive Science, Artificial Intelligence, Biology, Medicine) is required, as is a GPA of 8.0 and proficiency in English as proven by an internationally recognised exam. The panel concludes that these selection criteria result in a high-achieving student population with an above-average interest in academic research. Staff repeatedly stressed that CNP students are a pleasure to work with because of their academic rigor.

The panel established that CNP offers students a coherent, focused and sufficiently challenging two-year curriculum (120 EC) that gradually prepares them for meeting the programme's ILO's. It consists of 9 mandatory courses (54 EC), 2 elective courses (12 EC), and 2 research projects (54 EC), or alternatively: a research project (30 EC) and a clinical internship (24 EC). Judging from course descriptions in the study guide and the course files of sample courses (cf. appendix 7.1) the range of mandatory courses is appropriate and their content topical and up to date. Courses focus both on research methods and knowledge about the research area of cognitive neuropsychology, giving students insight in cognitive models and theories and hands-on experience with patients with neuropsychological disorders and neuroimaging techniques. Without exception, the courses are well-evaluated in student evaluations.

The panel also appreciates that students are offered the opportunity to pursue personal interests and career objectives by choosing one elective per year. This is done from a pool of (eleven) pre-approved electives shared between (research) master's programmes of the Psychology cluster. Some of these courses are taught bi-annually. Alternatively, students can propose relevant non-FGB courses, but such courses must be approved by the examinations board. In case of elective courses from regular master's programmes, CNP students fulfil the same requirements as other students; there are no additional requirements. The panel finds this acceptable since such courses make up only a small part of the course portfolio. Students mentioned that the level of FGB electives is somewhat

variable, which seems almost unavoidable because of the different entry levels of students. Nonetheless, students also appreciate that electives present an opportunity to learn with and from students with different disciplinary backgrounds.

The majority of students follow the 'cognitive' trajectory and complete two substantial research projects, both in year 1 (24 EC) and year 2 (thesis proposal + thesis, 36 EC). The first-year research project is usually an internal internship at one of the two research sections associated with CNP. During the internship students complete a research project in collaboration with their supervisor, while at the same time following the course Practical Skills for Researchers (PSR). In a total of eleven meetings, PSR provides students with the necessary practical skills to design, carry out and present a research project in cognitive neuropsychology, clinical neuropsychology or cognitive neuroscience. An average of 5-10 students per year opt for the 'clinical' trajectory and exchange the first-year research project including PSR for a clinical internship (24 EC). The set-up of the second-year research project (which results in the thesis) is the same for both the cognitive and clinical trajectories.

The clinical internship is a distinguishing feature of CNP. It offers students an attractive introduction to the work of a neuropsychologist within a clinical setting (such as a nursing home, rehabilitation center, general hospital/medical centre or psychiatric institution). During the internship, students learn to independently carry out the psychodiagnostic process and are involved in treatment where possible. Students told the panel that they consider this a very valuable experience. The panel further learned that hosting organisations appreciate students' strong analytical skills and aptitude for evidence-based patient care. The panel is also pleased with the design of parallel training, which invites students to set personal and professional goals and take part in peer-to-peer intervision during which dilemmas and challenges (such as: time management, communication issues, dealing with high expectations) are discussed. Since the internship requires pre-existing knowledge and is done in a Dutch clinical context, it is reserved for Dutch-speaking students who have taken clinical courses during their (Psychology) bachelor's degree and meet the criteria for obtaining the BAPD. While international students are informed of this limitation before enrolling, some do regret not having the opportunity to choose this option.

During the site visit, the panel extensively discussed the design of the clinical and cognitive trajectories with CNP stakeholders. It was pleased to learn that, in line with the integrated profile, study paths of individual students are never solely clinically or cognitively oriented. Some of the mandatory courses (e.g., Medical Neuroscience and Neuroanatomy; Neuropsychiatry) require active application of the course content. To this end, these courses seek engagement with practice, patients and tests, literally bringing clinical aspects into the classroom – much to the delight of students, who seem to particularly appreciate these hands-on components and would like to see the patient perspective represented in even more courses. As part of PSR, students can opt to do more clinically oriented or more

cognitively oriented research. Appropriately for a research master's programme, research is always an intrinsic part of every study path.

A way to carry integration even further, is to encourage exchange between the clinical internship and PSR, as was suggested by students during the site visit. Allowing 'clinical' students to sit in on relevant parts of PSR would help them to expand their research toolkit. Conversely, incorporating aspects of the clinical internship (notably: personal goal setting, intervision, patient contacts) in PSR would aid the personal growth of 'cognitive' students. The panel firmly supports this proposal to provide all students with the best of both worlds and was pleased to note that CNP's management is also open to the idea. An additional suggestion that the panel would like to make, is to give non-Dutch speaking students increased access to clinical components, and ultimately to the clinical internship. The internship constitutes a unique opportunity that all students who consider a career in clinical research can really benefit from. To facilitate this, the panel recommends making more use of English-speaking patients in the increasingly internationally oriented capital city and working with a small number of preferred international internship providers.

As is to be expected of a research master's programme, CNP's curriculum is embedded in a high-quality research context. This consists to a large extent of the two founding sections and the adjacent section of Developmental Psychology, which provides internship opportunities for students. The quality, relevance and viability of Psychology research at VU was deemed exemplary during the last research evaluation (2017). The panel notes that Cognitive Psychology, which represents the fundamental part of the programme, is internationally reputed for its highly focused research on the (neural) underpinnings of core cognitive processes and their mutual interplay (on e.g., perception, attention). This focus is also clearly visible in CNP, giving the programme a distinct flavour. Clinical Neuropsychology, on the other hand, is much broader in scope, with different research foci. As far as the panel is aware, the integration that is aimed for at CNP level, is not (yet) a specific goal for research done in the sections. Further stimulating such integration at the departmental level could provide CNP with an even richer research environment.

Courses are all delivered by active researchers, most of whom are at senior or professorial level and boast excellent international reputations. Conversations made clear that staff proactively look for ways to integrate the latest developments in their field in their teaching. Because of the speed of developments in the field, in many cases this means that annual updates of courses are required – making the teaching quite intensive. According to staff, this is compensated for by the job satisfaction and the energy that comes from teaching a highly driven student population. Some of the daily supervision is done by upcoming talent (postdocs and PhD candidates). In the panel's opinion, this exposure to both senior and junior role models is highly beneficial to students.

The curriculum itself is research-intensive and the level to which research skills are taught is appropriate. Sample materials and conversations with staff and students confirmed that CNP gives ample attention to the successive steps of the research cycle and to the skills necessary to complete them. Building on the generic research skills taught in the first semester courses (notably: Seminar Experimental Psychology), subsequent courses move on to more specific skills and advanced methods, including in statistics and programming (Python). If so desired, R and MATLAB can be learned in self-proposed elective courses. Students also gain hands-on experimental experience in courses such as Cognitive Electrophysiology, where they learn to perform a cognitive electroencephalography (EEG) experiment, and Brain Imaging, where they complete a functional magnetic resonance imaging (fMRI) analysis. During a brief lab tour the panel established that the Cognitive Psychology section has excellent eye-tracking, virtual reality and EEG facilities on site. State-of-the-art (f)MRI facilities are available at the Spinoza Centre for Neuroimaging. Students are satisfied with their access to research facilities, which is usually arranged through the supervising staff member.

The panel further found that good research practices (i.e., pre-registration, replicability, sound sample choices, responsible data management), ethics and integrity are sufficiently covered. A plan mentioned in a conversation with staff is to design a learning line on open science principles (and specifically: reproducibility) to ensure that the subject is touched upon in each course. This is a proposal that the panel fully supports. Commendably, there is also growing attention for the influence that diversity aspects (such as gender or socio-ethnic/cultural differences) have on research topics and practices.

Students of both the clinical and cognitive trajectory confirmed that they are gradually prepared for the final research project which results in the thesis. The thesis process starts with a course in which students complete a research proposal in the format of an NWO grant proposal. This is then defended in front of a 'committee' of staff members. Students consider this a very useful exercise. After a successful defense, students can start their research. While students are in the lead for choosing a topic and venue, CNP staff are involved in matching the interests of students to projects within and outside of the sections. Through their active liaising, many students find projects at (international) universities, research organisations or companies. The aim for the thesis research is to immerse students in an active research community, where they complete an original (sub)project that uses state-of-the-art theories and methods. This the panel finds appropriately ambitious. It also learned that students experience participating in a research group as very instructive, while supervisors see great added value of hosting talented and motivated research master's students.

Notably, the time frame for the thesis is quite short, with the research proposal written in January and the research/thesis writing done in the second semester. This puts limits to the extent to which students can collect their own data, especially in clinical settings where this

process takes a long time. To ensure that students who work on existing datasets do complete every step of the empirical cycle at end level, they are usually engaged in data collection for upcoming projects parallel to conducting their own analyses. Although perhaps not the ideal scenario, the panel does accept this as a pragmatic alternative to completing the consecutive steps of the research cycle in sequence. The time frame for the thesis is also too short for students to see their results published in a peer-reviewed journal. Nonetheless, CNP does encourage students to contribute to a journal publication, usually with a PhD candidate as first author. Publication is, however, not a primary goal – and rightly so in the panel’s opinion.

CNP aims for intensive, small-scale education in a flexible, open and informal setting that allows frequent individual contact between students and staff. Its didactic model intends to encourage active participation by promoting classroom discussions, presentations and practicals. An examination of course material pointed out that many courses indeed use activating teaching methods, yet lectures are also a prominent mode of instruction. In some cases (Neuropsychiatry, Advanced Data Analysis) they are the only teaching method used. A conversation with management and staff during the site visit showed that CNP is open to educational innovation. Building on that conversation, the panel would like to encourage CNP to explore the advantages of methods such as flipping the classroom and blending online learning with teacher-led classroom learning – being careful not to reinvent the wheel but to make clever use of what has been developed elsewhere. While innovation is likely to take time and energy at first, it can help reduce staff workload in the long run. Moreover, it is in line with the FGB-wide policy (initiated since the pandemic) of stimulating online learning alongside onsite education. Finally, the structural inclusion of online elements would convenience students, who often live far from Amsterdam because of the difficult housing situation.

The student chapter and conversations with students and the study advisor highlighted that students experience some feasibility issues as a result of scheduling. Courses are spread out across the entire week, which means that students must come to VU for an average of two hours a day – often involving a lot of travel. Understandably, they would prefer to see a more condensed schedule. Students also noted that in some cases there is a lack of availability in elective courses, which means that they cannot take the course of their choice. Students of the clinical trajectory mentioned that finding a clinical internship at the right time is difficult, which can lead to study delays. On average students take 27.5 months to complete the programme, which is hardly excessive but still a bit long for a research master’s programme. The panel encourages CNP to look into this. Overall, the panel has no concerns about the workload of students, which appears evenly spread across the two years and is neither too high nor too low.

As a programme that primarily prepares students for careers in international research environments, CNP’s orientation is evidently international. Around half of its students are from outside the Netherlands, courses take an international perspective in terms of their

content and the literature that is used, and students are encouraged to go abroad for research projects. All teaching is done in English and lecturers' proficiency is at least at C1 but mostly at C2-level, which implies effective operational proficiency. CNP recognises that international students face some challenges, including finding a place to live. This is emphasised in information provided to prospective students. Even so, students would like to see a bit more sensitivity to the practical difficulties that they run into.

Generally, the panel is pleased with the level of care and attention for students. It established that a mentoring system is in place, comprising three scheduled meetings a year and the option to make additional arrangements based on need. An option to consider is to also introduce a buddy system in which second-year students support and provide counsel to first-year students. In the panel's experience students generally benefit from such an additional support structure. The panel was pleased to note from its conversations with students that there is a good sense of community that extends across the two trajectories. Students also feel represented and heard, with their feedback taken seriously and acted on. This is largely due to CNP's own quality assurance system, which comes on top of faculty- and cluster-wide structures. The programme provides for frequent meetings between annual representatives and management and generally encourages students to raise issues as soon as they come up, so that they can be dealt with promptly. The panel feels that this practice is an appropriate and viable addition to the representation offered by the joint research masters' programme committee.

CNP's teaching staff consists of a coherent team of thirteen lecturers who are all active, established researchers with irrefutable expertise in relevant fields. The panel is also confident of the didactic qualities of staff. Nine staff members have acquired a university teaching qualification (UTQ) and one is in the process of obtaining one. The remaining three staff members are long-serving professors with good educational track records. Students described the teaching staff as a strength of the programme because of their enthusiasm, approachability and high involvement. Although staff have a high workload, which has grown with the increase of student numbers, they do not perceive this as a result of the teaching itself. Rather it is seen as related to increasing administrative tasks. Keeping everyone aligned with what is expected of them is a main task of the programme director, who has frequent one-on-one contacts with all staff members. Team meetings are less common, and some staff feel that overall alignment would benefit from more group meetings. Nonetheless, the panel has the overall impression that the teaching staff operates as a team, feels involved in the programme and is well-informed on current affairs.

In summary, the panel notes that the teaching-learning environment support students in realising the ILOs. CNP has a focused and in-depth curriculum that is arguably at its best where true integration of cognitive and clinical perspectives is realised. Small-scale didactics, mentoring and close contacts with staff and management ensure that students do well and feel listened to. Both the driven and talented student population and the highly

qualified and involved staff are clearly strengths of the programme. Opportunities for improvement mostly lie in solving scheduling issues, making clinical aspects (more) accessible to more students and exploring innovative (and in the end: workload-reducing) teaching methods.

Conclusion

Meets the standard

6.3 Standard 3: Student assessment

The programme has an adequate system of student assessment in place.

Findings and considerations

CNP adheres to the principles for assessment as laid out in the VU assessment policy (*VU Toetskader*) and FGB's assessment framework. Building on these frameworks, CNP has drawn up a concise assessment plan. The panel established that this plan is effectively implemented and leads to valid, reliable, and transparent student assessment. As a rule, the principle of constructive alignment is applied appropriately: learning outcomes at course level are aligned with specific ILOs at programme level. Assessment within a course is in turn aligned with its respective learning objectives and modes of instruction. Small shortcomings that were observed in the cross table designed for that purpose could easily be fixed with the help of the faculty's assessment expert who was enlisted by FGB's examinations board to aid programmes in perfecting their constructive alignment.

A newly implemented FGB policy is to keep an assessment file for each course, containing an annually updated collection of documents that provides insight into the assessment and evaluation. The self-evaluation report brought to the panel's attention that not all individual course coordinators currently fulfil the requirement to keep course assessment files and course assessment matrices up to date, with the programme director doing this work in their place. Some course coordinators apparently see this responsibility as an unwelcome addition to their already substantial workload and need to be convinced of the value of record keeping. The panel is satisfied that the programme director is sufficiently on top of this and will ensure that requirements are met in the future.

Checks and balances have been put in place to assure the quality of assessment at the individual course level. The examinations board appoints examiners based on a set of appropriate requirements. An important instrument that is used throughout FGB to promote assessment quality is peer review. CNP recommends its examiners to have written tests and associated answer models checked by a colleague ('four eyes principle'), with the name of the colleague involved mentioned on the cover sheet of an exam. Furthermore, in the case of written papers, literature reviews, and research reports, examiners are expected to use standardised assessment forms. Rubrics are also commonly used to promote

reliability of results. To ensure transparency, students are entitled to receive sample assessments and corresponding answer keys. In case the final grade is based on a combination of assessment methods, the weighting of these is specified in the course manual. The specific grading criteria are also provided. From its desk research of the assessment files of sample courses, the panel concludes that written examinations and other forms of assessment have proper rubrics, answer keys or grading criteria. The course manuals indeed provide the necessary detail on the course's goals, assessment forms and grading.

To guarantee the validity and the reliability of its assessments, CNP aims for a well-balanced combination of assessment methods. These include exams, essays, oral presentations, practical reports, research proposals, and literature reviews. The panel notes that many assessment methods – particularly research proposals, reports and oral presentations – are reflective of the research-oriented nature of the programme. These assessment modes purposefully invite students to apply their knowledge and understanding, demonstrate problem-solving abilities, formulate judgements and motivate and communicate their conclusions. The panel also appreciates that many courses use a mix of multiple assessment modes. Nonetheless, there is one course that fully relies on multiple choice exams (Medical Neuroscience and Neuroanatomy) and two courses that only rely on assignments (Programming for Psychologists; Advanced Data Analysis). While FGB has produced a guideline on formative assessment, the use thereof is not yet widespread within CNP and could be further explored – as was confirmed by the faculty's assessment expert.

CNP's stakeholders seem pleased with assessment procedures and quality. In the 2022 National Student Enquiry (NSE), students gave assessment a score of 3.8 on a 5-point scale. To verify the quality of assessment, the panel examined samples of written exams and their answer keys, as well as assignments/reports and their corresponding assessment forms. This desk research showed that the exam used in Neuropsychiatry (70% of final mark) is rather focused on reproducing knowledge and could perhaps be better aligned with the course's learning objectives. Otherwise, the panel was quite satisfied with the quality of assessment. It found that the sample exams and assignments are in line with the material covered in the courses. The panel also reviewed a sample of reports from the first-year research project and from the clinical internship. The level and content of these reports are appropriate. The first-year research project is clearly an adequate preparation for the second-year project. With respect to the clinical internship, the panel would prefer to see a clearer justification of the assessment given (in line with what is current for the thesis project).

The procedure for thesis assessment follows FGB requirements and seems to function well. Appropriately, it involves two independent examiners. Both are required to hold a PhD and be a staff member of VU. Requirements also stipulate that supervisors must not be involved with both the first-year research project and the thesis project of the same student.

Nonetheless, the previous supervisor often does play a role in finding a suitable thesis supervisor, which the panel considers helpful and indicative of the close involvement of staff. In case of an external project with an external supervisor, the course coordinator will function as first examiner, with another VU staff member acting as second examiner. The second examiner is always appointed early on and already present for the presentation of the research proposal. Second examiners are, however, not involved with the project itself. Whereas supervisors assess both the student's work attitude and the project's academic merit, second readers focus solely on the latter. In the panel's opinion this is appropriate.

The panel also agrees with the grading procedure. It established that both examiners independently fill out their form and determine a grade. For external projects, the external supervisor fills out the form, which is checked and (usually) ratified by the course coordinator. Fittingly, the grades of the two examiners are averaged to determine the final grade. Should the grades differ more than one point, a third examiner is appointed who determines the final grade. From its conversation with examiners, the panel learned that this rarely happens. Generally, examiners grade much along the same lines, which testifies to a shared quality standard. The FGB-wide assessment form is functional and includes a clear rubric.

CNP students generally receive high thesis grades (with an average of approximately 8). As a result, around 48% of students graduate with honours. According to management and examiners, this should not be seen as the result of insufficiently stringent criteria, but rather as indicative of CNP's talented and highly motivated student population. Due to its selective nature it is to be expected that grades in CNP are higher than in regular master's programmes. It was stressed that external supervisors of master's theses have consistently expressed a high opinion of the level of students and awarded high grades for their theses. The panel is satisfied with this explanation. In its own examination of sample theses, it did not come across final projects with unjustly inflated marks. In some cases, the panel would have even considered a higher grade than the one given by the examiners.

Finally, the panel considered activities undertaken by the faculty-wide examinations board (EB) to safeguard the quality of assessment and the final level of the programme. It found that the central EB and its three sub-boards at cluster level operate at quite some distance from individual programmes. Annual screenings of assessment plans, student evaluations, examination results and sample theses are more procedural than content-driven. Only when outliers are found, the (sub)board will take additional steps. Annual reports contain very little specific information on individual programmes, and forms used for screening (arguably small) samples of theses do not offer a substantiation of findings. As part of a recent pilot the (sub-boards of the) EB started screening course assessment files. A conversation with EB representatives revealed that, under its 'new working method', the board mainly relates to programme directors and not to individual examiners. This means that programme directors are expected to be in control of quality assurance and are held

responsible for following up on recommendations made by the EB. This approach is in line with what the VU Assessment Framework states about the duties and responsibilities of the EB, programme directors, and examiners.

The panel would prefer to see a more hands-on and individualised approach to quality assurance from the EB. It notes that a small and well-functioning research master's programme could easily be forgotten within a cluster that also includes a very large bachelor's programme. Particularly, the panel recommends that the EB extends its annual thesis screening to at least 3-4 products, covering the full range of grades and that it adopts a forward approach to screening assessment quality at course level. In both cases, a detailed reporting of findings is called for. However, the panel sees no direct risk for CNP as a result of the board's approach. This is mostly because CNP, as described above, has its own checks and balances in place. From its conversations with staff and management, the panel is confident that informal mechanisms within CNP work well. Staff are in close contact and informally calibrate results, year representatives have sensitive antennae, and the programme director is well-informed. By consequence, (potential) issues are identified and addressed quickly, with adequate reporting mechanisms in place.

To sum up, the panel concludes that student assessment at CNP is valid, reliable and transparent. Assessments are of sufficient variety to measure progress towards the ILOs and of a level appropriate for a research master's programme. Thesis assessment procedures are exemplary. While informal structures for safeguarding assessment quality appear to work well, the formal structure as represented by the EB could be improved.

Conclusion

Meets the standard

6.4 Standard 4: Achieved learning outcomes

The programme demonstrates that the intended learning outcomes are achieved.

Findings and considerations

To check whether CNP delivers graduates that have achieved the ILOs, the panel studied a selection of fifteen recent theses written as part of the second-year research project (36 EC). The panel is very pleased with the quality of the work. Clearly, the theses are the result of substantial research projects that have taken place in high quality research groups within the Netherlands and beyond, using the latest research methods in cognitive psychology, clinical neuropsychology and neuroscience. Usually, they cover all steps of the empirical cycle, with students demonstrating that they can develop a relevant research question, correctly interpret literature, set up an experiment, analyse data and report results in academic English. As a rule, the theses are very well-written, and some are of

submittable/publishable quality. In cases where students worked on existing data sets, they were (as previously described) involved in collecting data for follow-up projects.

The panel also established that theses generally deal with important topics that are in line with the research foci of the VU research sections. While the clinical and cognitive trajectories may lead to a slight difference in focus, the panel could not detect any quality differences. A minor comment is that the panel did not observe true integration of clinical neuropsychology and cognitive psychology within the theses. Approaches seem quite standard to either one field or the other: clinical research that is informative for theories of cognition, and theoretical/cognitive research applied to patients diagnosis or treatment was rare. An admittedly ambitious next step could be for CNP to strengthen the synergy between its constituting domains by inviting excellent students to look for connections.

The panel finds the labour market position of graduates appropriate. It notes that the programme's dual focus on research and clinical practice is clearly reflected in graduates' career paths. Of the last two cohorts, an average of 39% enrolled in a PhD project (with a further 10% working in other research positions), while 29% opted to pursue a career in clinical practice. In the 2022 NSE, students were positive about labour market preparation (score of 3.7 out of 5). The panel concludes that CNP adequately prepares students for both research and clinical careers.

CNP has not yet succeeded in developing a consistent system for tracking its alumni, many of whom leave the Netherlands after graduation. The panel believes that relatively simple solutions, such as asking current students to join the programme's LinkedIn page, could help the programme to track and stay in touch with alumni. The panel also encourages CNP to periodically involve graduates, e.g., in events with current students. This could help the programme in establishing a wider network of academic and non-academic partners.

All in all, the panel is fully convinced that CNP delivers high-quality graduates that are qualified for the academic and non-academic labour market.

Conclusion

Meets the standard

7. Appendices

7.1 Documents studied

The panel studied a wide selection of documents relating to the programme's profile and intended learning outcomes, its teaching-learning environment, assessment and end level. The documentation included the following components:

- Self-evaluation report
- SWOT analysis
- Student chapter
- Course files of:
 1. Neuropsychiatry (mandatory course, year 1);
 2. Practical Skills for Researchers (PSR, mandatory course for students of 'cognitive' trajectory, year 1);
 3. Seminar Cognitive Neuroscience (mandatory course, year 2).
- Sample of clinical internship reports and first-year research project reports
- Master's theses of fifteen graduates (student numbers available on request)

7.2 Site visit programme

31 January 2023

08.30 – 09.45	Internal panel meeting
09.45 – 10.00	Walk-in, Atrium
10.00 – 10.30	Meeting with management
10.30 – 11.30	Meeting with staff and students about the two trajectories
11.45 – 12.30	Meeting with teaching staff
12.30 – 13.30	Lab tour and lunch
13.30 – 14.15	Meeting with students
14.30 – 15.00	Meeting with examinations board
15.15- 15.45	Meeting Theme 1: workload in relation to (central) tasks
16.00 – 16.30	Meeting Theme 2: alumni-tracking
16.45 – 17.15	Meeting Theme 3: online/hybrid/on campus education
17.15 – 18.15	Internal deliberation visitation panel + possible meeting with management for final questions
18.15	Preliminary feedback