Research review
Centre for Language and Cognition Groningen (CLCG)

February 2017

Report on the research review of the Centre for Language and Cognition Groningen (CLCG)

Contents

1. Foreword committee chair

The assessment of a complex research institution is not an easy task. For the reviewees, it means the preparation of a detailed self-assessment and a site visit by a reviewing committee, a task that consumes time and energy that otherwise would have been applied to their core business -- research, teaching and supervising. For the reviewers, it means familiarizing oneself with the complexities of an institution and identifying potential problems and hidden chances that the people involved may not have seen – which also eats away time and energy that could have been used otherwise.

The present committee expresses its thanks that the Centre for Language and Cognition Groningen made this difficult task a very rewarding one for the committee. The written reports were clear and concise, and the visit was very well organized. We had genuine discussion with many members of the CLCG about the potentials of this institute. We were also very pleased that the CLCG reacted proactively about potential threats and problems of the past; this allowed the CLCG to present itself overall in a very good state. The clarity of the reports and the willingness of CLCG members to engage in genuine dialog provided the committee with an excellent foundation upon which to reflect on not only the obvious importance of your work, but also to imagine opportunities for your research fields to impact today's society in general. We hope very much that the CLCG also found the evaluation process a constructive experience that helped, and will help, in shaping decisions for the upcoming years.

Manfred Krifka

Committee Chair

2. The review committee and the procedures

Scope of the review
The review committee was asked to perform a review of the Centre for Language and Cognition Groningen (CLCG). The CLCG is one of the three research institutes in the Faculty of Arts at the University of Groningen. It is the institutional home for the linguistic research carried out within the faculty. The review concerns the six-year assessment period 2010-2015.

In accordance with the Standard Evaluation Protocol 2015-2021 (SEP) for research reviews in the Netherlands, the committee's tasks were to assess the research quality of CLCG on the basis of the information provided by the research institute and interviews with its management, directorate, board, senior and junior members, and to advise on how its work might be improved.

Composition of the committee
The committee was composed of the following members:

- Prof. Phil. Manfred Krifka (chair), professor of General Linguistics at Humboldt-Universität zu Berlin and Director of the Leibniz-Zentrum für Allgemeine Sprachwissenschaft (ZAS)
- Prof. Harald Baayen, professor of Quantitative Linguistics, Alexander von Humboldt Professorship, Eberhard Karls Universität, Tübingen, Germany
- Prof. Fons Maes, professor and Head of the Department of Communication and Information Sciences, Tilburg University, Netherlands
- Prof. Anne Abeillé, professor of Linguistics at University Paris Diderot, France
- Dr. Karen Schriver (external member), consultant, researcher, and educator in information design and plain language, Pittsburgh, Pennsylvania, USA

The Curricula Vitae of the committee members are included in Appendix 2.

Drs. Erik van der Spek of Hendrikx Van der Spek was appointed secretary to the committee.

Independence
All members of the committee signed a statement of independence to confirm that they would assess the research quality of CLCG in an unbiased and independent way. Any existing personal or professional relationships between committee members and the research unit(s) under review were reported and discussed in the first committee meeting. The committee concluded that there were no unacceptable relations or dependencies and that there was no specific risk in terms of bias or undue influence.

Data provided to the committee
The committee had received the self-evaluation report of CLCG, including a number of appendices such as an assessment report of the Graduate School for the Humanities, a report of the previous research review of CLCG, and a midterm review. The committee members were given online access to key publications of the four research groups within CLCG.

In addition, the committee received the following documents:
- Terms of Reference
- SEP 2015-2021

Procedures followed by the committee
Prior to the first committee meeting, all committee members independently formulated a preliminary assessment of CLCG based on the written information that was provided.

The site visit took place on 1-2 December 2016 (see the schedule in Appendix 3) in Groningen. Preceding the interviews with management and representatives of CLCG, the committee was briefed by the secretary about research reviews according to SEP. The committee discussed the preliminary assessments and decided upon a number of comments and questions. It also agreed upon procedural matters and aspects concerning the focus individual reviewers would take during the review.

After the interviews with faculty, staff, and graduate students and the evaluation of the written materials provided by the CLCG, the committee held a final committee meeting in which it discussed its findings and formulated its assessment. This assessment was based on the documentation provided by the research school and the information gathered during the interviews. To conclude the site visit, the chair presented the committee's findings orally to representatives of CLCG.

After the site visit, the committee's findings were set out in a report. The draft report was presented to CLCG for factual corrections and comments, which were discussed by the committee. The final report was sent to CLCG, the coordinating Faculty and the Board of the University of Groningen.

3. Research review of CLCG

3.1 Introduction

The Centre for Language and Cognition Groningen (CLCG) is one of the three research institutes belonging to the Faculty of Arts at the University of Groningen. It is the institutional home for all linguistic research carried out within the faculty. Over the six-year reporting period 2010-2015 CLCG has increased its scientific staff from about 45 (2010) to 55 permanent faculty members; during the same period the number of PhDs grew from 45 to 70 students. The number of postdocs remained stable at 8. CLCG was founded in 1994 with Germen de Haan as its director. John Nerbonne succeeded him in 1999. Since 2012, Petra Hendriks has been the director of the institute.

CLCG now has four research groups (six during the previous assessment period). These four groups correspond with relevant linguistic subdisciplines and constitute natural discussion fora for research issues. The following description of these groups is taken from the self-assessment report:

- **Computational Linguistics** (Coordinator: Prof. Gertjan van Noord)
  The CL programme focuses on natural language processing by computers, both from a theoretical, experimental and applied perspective. Important research areas include computational dialectology, computational syntax and semantics, and language technology applied to Dutch.
- **Discourse and Communication** (Coordinator: Prof. John Hoeks)
  The D&C programme conducts quantitative and qualitative research on language and communication. Communication is investigated primarily in professional settings such as health care and education, but also in public and private organizations.
- **Neurolinguistics and Language Development** (Coordinator: Prof. Ben Maassen)
  The NLD programme investigates the organization of language in the brain, the way language is processed and how languages are learned. These topics are investigated through the study of aphasia and developmental language disorders, the interaction between semantics and cognition, and first and second language development and attrition.
- **Theoretical and Empirical Linguistics** (Coordinator: Dr. Mark de Vries)
  The TEL programme studies the syntax, semantics, morphology, phonology, and phonetics of a variety of languages and is concerned with cross-linguistic comparison and multilingualism. The aim is to enrich our empirical knowledge as well as our theoretical understanding of the nature of the human language faculty and the scope of language variation and change.

Mission
The mission of CLCG is to conduct and support high-quality linguistic research and to disseminate the results of this research to the international scientific community and to society at large. Research in CLCG focuses on the dynamics of language. From a variety of monodisciplinary and multidisciplinary perspectives, CLCG studies computational processing of language, processes in discourse and communication, neurolinguistic processing and language development across the lifespan, and variation and change in linguistic structure and meaning. The aim is to uncover the processes that underlie the use of language in individuals and society.

Developments during the assessment period
During the assessment period, substantial changes have occurred both for faculty and for the CLCG as a whole. Budget problems resulted in a faculty reorganization between 2012 and 2014, aimed at achieving a sustainable and more compact faculty. For the CLCG, the main impact of this reorganization was a staff reduction.

Additionally, the CLCG dealt with a change in its organizational structure. In the previous assessment period, CLCG consisted of six research groups. The reduction of staff (mostly in the previous assessment period) and

the necessity to accommodate new trends in language research have led to the decision to reduce the six research groups to the current four. This change also reflects a recommendation of the previous assessment committee. The new research group *Neurolinguistics and Language Development* was created by merging the (previous) research groups *Neurolinguistics* and *Language and Literacy Development across the Lifespan*; in the same fashion, the (former) group *Language Variation and Language Change* was combined with *Syntax and Semantics* to form the new group *Theoretical and Empirical Linguistics*.

Strengths and weaknesses as perceived by the institute
Among the strengths mentioned in the CLCG self-assessment are the increasing numbers in scientific productivity (from 8.4 to 9.6 research articles per FTE per year), in completed dissertations (from 34 during the previous assessment period to 73 currently) and in PhD students (currently 70). CLCG furthermore has been successful in generating grant applications and has been awarded a substantial number of scientific nominations, awards and prizes.

Weaknesses mentioned by CLCG are mainly concerned with funding. Although a substantial number of grants were secured during the assessment period, the dependency on external funding is growing. Moreover, there is no structural funding for postdoctoral positions or for small but recurring research costs, such as reimbursement for experimental participants. Other weaknesses include limited control over staff appointments (since appointments are mainly driven by teaching needs) and a heavy teaching load for scientific staff.

View of the assessment committee
The assessment committee found a blossoming research community within CLCG. The new division seems a logical step towards more cohesion and collaboration within the institute. CLCG now houses four strong and relatively large groups. Moreover, the committee learned of a substantial number of collaborative projects across the research groups. Individual researchers are connected by numerous teaching activities as well.

Funding is a crucial issue for every research institute and CLCG is no exception. Since the direct funding is primarily connected with student numbers, this funding suffers from the volatility that is inherent in the choices new students make each year. The growing numbers of completed dissertations represent good news in this respect, since these numbers also have a direct impact on funding. However, with the growing number of PhDs, the dependence of CLCG on external funding has grown as well. In the current situation, only 48% of the research costs are covered by direct funding. This means the larger part of funding has to come from external sources. The committee noticed that in general the CLCG-researchers have been successful in attracting external funding. As a result, the research capacity has risen during the assessment period. In the view of the committee this is quite a notable achievement.

3.2 Research quality, societal relevance and viability

In this section, we discuss the three main SEP-criteria: research quality, relevance to society and viability. An explanation of these criteria and the scale used can be found in Appendix 1. The committee has come to the following conclusions on these criteria:

SEP – Criterion	Score
1. Research quality	**Very good (2)**
2. Relevance to society	**Very good (2)**
3. Viability	**Very good (2)**

1. Research quality
In the previous external research assessment, the research quality of CLGC has been assessed as very good. Strong points mentioned in this assessment were the good position of computational linguistics and

neurolinguistics in the international research landscape and the strong international ties of the institute. Since then, a number of recommendations of the PRC have been taken up by CLCG, resulting in a new research structure in 2013.

During the current assessment period, CLCG has improved itself from an already high level on a number of criteria. The committee noted that the publication record overall is going up; as mentioned above, the average number of publications per FTE has increased from 8.4 in the previous assessment period to 9.6 in the current period. Also, the number of publications in reviewed international journals is going up. Another important indicator is the number of supervised PhDs, which doubled (from 30-40 in the previous assessment period to around 70 at the time of the site visit). Moreover, these PhDs generally manage to finish their dissertation in a reasonable time, about 4 years and 5 months (on average). This has resulted in a steep incline in the number of completed dissertations: from 34 to 73. This performance is quite exceptional and should be noted by the Groningen administration. Both graduating master students and PhDs appear to have good career prospects in academia or in industry, evidence that the CLCG programs enable students to take positions in professions with promising job trajectories.

Another important indicator of research quality is the number of grants landed by researchers. The committee has noted that the institute has been quite successful overall in attracting funds, from both Dutch and European funding sources. During the assessment period, these grants totaled an amount of M€18.5. These grants include two prestigious NWO Vici grants for Schmid (on language development; 2010) and Bos (on computational semantics; 2015). The downside of this is that a lot more time has to go into writing grant proposals, which again cuts into the research and teaching time. The committee appreciates that there is a funding officer to support these efforts for both researchers and PhDs.

During the site visit, the committee spoke with representatives of all four research groups. The committee asked these representatives in what way their research might be improved. A number of issues were brought forward several times:
- Research often relies on the availability of (large numbers of) human participants. Since these participants need to be paid a small remuneration, research can be hampered by lack of funds. The committee advises that the institute receive a budget for these relatively minor costs.
- In the same way, the committee recommends the creation of a budget for open access publishing. Researchers have to pay several hundred euros per publication. Most researchers pay this fee out of their individual research budget, but the committee believes a structural solution should be found to stimulate open access publications.
- Near the end of their PhD trajectory, graduates often need to apply for grant proposals. This is an important but also a difficult and time-consuming step. The committee advises to invest in support for these proposals, since grants are instrumental in keeping the research capacity at the current level.
- The institute uses three labs: an EEG lab, an Eye-tracking lab and a new Articulographic lab. The lab equipment, for instance, the neuro-imaging equipment and the eye-trackers, is funded by NWO. However, CLCG has no budget for additional costs, such as a lab coordinator. At the moment both the eye-tracking lab and the neuro-imaging lab are taken care of by PhD-students. The committee believes that a more structural solution should be found. We recommend the creation of a half-time position for a lab manager, who can also train the students and staff members in the use of the equipment.

In general, the committee assesses the research quality of CLGC as very good. The committee was particularly impressed by the achievements of the *Computational Linguistics* group, which is an internationally leading group in its field, and of the *Neurolinguistic and Language Development* group. For an assessment of the individual groups, see section 4.

2. Relevance to society
Since the previous external assessment, CLGC has been looking for ways to enhance the societal impact of its research. The assessment committee has seen a number of products and activities that result from these

efforts, for instance, tablet-based language diagnostic and intervention tools for language and speech disorders, novel approaches to assist in health communication with the elderly, activities to inform professionals and the general public about language acquisition and multilingualism, and software tools for computer applications in Dutch.

The committee notes that two of the three research priorities of the University of Groningen, Healthy Ageing and Sustainable Society, provide a useful frame for the research of the institute. The priority of Healthy Ageing, for example, has inspired a number of researchers in the research groups *Neurolinguistics and Language Development* (NLD) and *Discourse and Communication* (D&C). Their work includes research on acquired and developmental language disorders, research on language development across the lifespan, and research on second language acquisition, bilingualism and language attrition, all carried out by the *Neurolinguistics and Language Development* group. The *Discourse and Communication* group carries out research on health communication, both between doctors and patients (during consultation), and between health professionals themselves (e.g., surgeons during surgery), and also on informing people about ways to live a healthy life and convincing them to take action.

Of course, research activities with a visible societal relevance can also be found outside the health area. The *Computational Linguistics* group, for instance, has done a lot of work that is relevant for (machine) translation. The five-year project 'Lost in Translation – Found in Meaning' has resulted in the Parallel Meaning Bank. More generally, research on computational linguistics is relevant for natural language processing applications, such as question-answering systems. This relevance was acknowledged when Google bought and used the Lassy Treebank, a unique syntactic database for the Dutch written language.

These diverse research activities induce CLCG members to collaborate actively with various networks, both inside and outside academia. For instance the research on Healthy Ageing has resulted in collaboration with both the Neuroimaging Center Groningen (NIC) and the University Hospital (UMCG).

Members of the evaluation committee are confident that the focus on the university research priorities Healthy Ageing and Sustainable Society will provide further research opportunities in the years to come, especially considering the broad spectrum of methods available to the institute. The committee is pleased to report that CLCG has identified research areas in which linguistic research can make a difference, and that it has the means to bring those research interests to fruition.

3. Viability

Overall, the committee has seen a substantial improvement from the previous research assessment in 2010. The most important step CLCG has taken is, of course, the transformation from six to four research groups. This step has increased the viability of each of the four research groups and therefore of the institute as a whole. Even though the transformation process has been time consuming and has caused a temporary setback in some of areas, for instance, in the publication numbers, the overall results are quite positive.

Some other suggestions of the previous assessment committee have been implemented as well. For instance, the research capacity in the domain of discourse and communication has been strengthened by two new chair positions (Jansen and Koole). The committee has noted, moreover, that apart from these two chairs, a substantial number of new staff have been appointed. We mention the appointment of Bos as an Endowed Chair in computational linguistics, a position funded by the University of Groningen; and the appointment of Keijzer in a tenure-track position leading to a full professorship in the field of bilingualism and language attrition. Also quite a few younger staff members have been appointed.

However, some of the research groups have a significant number of staff close to retirement as well. For instance, in the *Discourse and Communication* group a number of researchers will be leaving in the coming years. In the *Theoretical and Empirical Linguistics* group, the position of Professor for European Linguistics remains to be filled, as this group suffered the most from recent retirements.

As mentioned before, the number of supervised PhDs went up from 30-40 in the previous assessment period to around 70 at the time of this site visit. This increase, and the increase in successful defenses, are clear signs of the viability of the CLCG in the coming years. However, the committee notes a certain imbalance in the number of PhDs among research groups. It is important for the stability of the institute that some research groups don't fall too much behind in attracting PhDs.

As a final point of attention, the committee believes that both the CLCG and the research groups should improve on their visibility – a matter mentioned in the institute's self-assessment as well. The presence of the institute and of the researchers on the internet still leaves room for improvement. Since the CLCG can use the expertise that is present in the *Discourse and Communication* research group, this should not pose a major problem. Also, we would like to see that the results of the institute receive more publicity in the media, both nationally and internationally.

3.3 Additional questions regarding CLCG's preparation for the future

In addition to the questions above that are prescribed by the SEP, the CLCG has asked the committee to specifically address the next two topics:
1. The qualitative assessment of the committee on the three SEP criteria for each of the four research units (*Computational Linguistics; Discourse and Communication; Neurolinguistics and Language Development; Theoretical and Empirical Linguistics*). This assessment is given in Section 4.
2. The chosen research focus, which seeks a balance between:
    a. the need for sufficient 'mass' and team co-operation on the one hand, and on the other, protection of productive individual research
    b. the need for coherence and focus on the one hand, and on the other, protection of the diversity of research as a condition for creativity and dedication and for the necessary link between research and education.

This second topic is discussed below.

The committee believes that with the division in four research groups, the viability of the CLCG has increased substantially. Each research group now has both a distinct research profile and sufficient mass to further develop this profile. The committee also notes that the profile of each research group naturally allows for a number of individual research interests; it is not a monolithic entity. In the view of the committee, this makes for a fruitful research environment and there seems to be no reason to limit the diversity in research.

The committee also notes that borders between research groups are mostly flexible. We saw a lot of collaboration across research groups, although there are differences between groups in this respect as well. The committee believes that collaboration between research groups should be encouraged further.

What is lacking in the view of the committee, however, is an inspiring research focus (or a number of inspiring research topics) for the institute as a whole. The top of the umbrella is currently constituted by the research focus 'dynamics of language'. The committee believes this could be replaced by a number of visible research interests that are more appealing to a broad international research community. To decide on these research topics, more discussion, strategy and vision across the entire CLCG community is necessary. The committee applauds the idea of freedom in research, but believes it could be more fruitful under a more substantial umbrella that gives both more explicit direction to the research and more resonance of the CLCG research agendas to those outside of Groningen.

The committee believes, finally, that these new research topics could and should be used to increase the visibility of CLCG. These topics may offer new ways of branding the institute, both for outsiders and for potential staff and students.

3.4 PhD training

PhD training is a joint effort by CLCG and the Graduate School for the Humanities (GSH). All GSH-members follow a 30 ECTS training program, which they compose themselves, in accordance with their specific needs. The GSH acts as a broker for these training programs, offering a number of in-house courses. The training program of GSH comprises 9 ECTS of compulsory modules and up to 14 ECTS from optional modules. Compulsory modules include *Ethical research practice*, *Managing your PhD*, *Communicating research, Self-profiling* and *Dissertation design*. An example of an optional module is *Didactic Skills* (5 ECTS). The remainder of the training program may consist of graduate courses, seminars, workshops, conferences and summer schools, offered by national research schools and international research networks.

Each PhD has a coordinator from GSH and a supervisor from CLCG; in addition, there is a coordinator at the GSH for all PhDs of the three research institutes. Before the official start of a PhD project, a Training and Supervision Plan (TSP) is drafted by the PhD and his or her supervisors. After the first year, a legally required formal evaluation takes place. This first-year review results in a 'go or no-go' decision.

The committee spoke with a number of PhDs, as well as representatives from GSH and supervisors. In general, the PhDs are very satisfied with their positions at Groningen. Among the strong points of the CLCG that they mentioned are excellent PhD supervision and easy access to their supervisors. Within the research groups, informal communication is easily established, often in weekly sessions. Contact across the research groups is less well developed, although linguistic lunches are organized at CLCG level, and the TABU-day (centered around a former linguistics magazine) is held every year.

The committee discussed with both the PhDs and the supervisors whether more compulsory data skill workshops would be useful to prepare the PhDs for a future outside academia. The committee believes that general data skills, such as data mining and scripting, might be useful tools for the emerging job market. The PhDs, however, doubt whether this would be a good idea, since many of these skills are already being taught in the master programme. Moreover, the data skills needed for PhDs differ because individuals have radically divergent research interests.

Teaching is not generally a part of the PhD training. Only PhDs with a special PhD teaching contract teach classes; in their case, the teaching load is 40%. For other PhDs, teaching experience is generally restricted to guest lectures and supervision, although they can do a course on didactic skills. In the new system, the University of Groningen will receive bursary PhD students, who are not allowed to teach legally, complicating matters further. However, both PhDs and supervisors mention the importance of the Basiskwalificatie Onderwijs (BKO), the mandatory certificate for all teaching staff at Dutch universities. Since teaching is an important aspect of academic careers and career advancement, the committee believes it would be a good idea if PhDs would have the opportunity to obtain this BKO during their training period.

A final issue is the grant proposal most PhDs have to draw up to apply for a postdoctoral or other research position at the end of their stay. Several PhDs mentioned that it would be very useful to have support in the final year in writing grant proposals to continue their career in academia. The committee fully supports this request.

3.5 Research integrity

CLCG's research is conducted within an ethical framework that follows the policy set out by the three Humanities faculties of the University Groningen (Arts, Philosophy, and Theology and Religious Studies). If the research concerns human participants, the Ethical Review Committee examines whether the proposed research project complies with the ethical rules for the given type of research.

The Ethical Review Committee is mainly concerned with the treatment of participants in research experiments. During the assessment period, no incidents have occurred. The committee receives the research proposals and checks whether the participants are treated with decency and whether they are informed properly. Participants have to be able to withdraw at any moment without any consequences. The committee members answer most proposals individually, so there is no need to meet often.

The main issue during the assessment period is the storage, curation and access to research data. At the faculty level, a Research Data Management Committee is in operation. This committee advises research directors on drawing up and implementing a Research Data Management Plan. The basic principle is 'Open, unless...'. The faculty has developed a Research Data Management System, partly together with the university library. This system is currently being implemented; it is still work in progress.

4. Research review of the research groups

4.1 Computational Linguistics (CL)

Research quality
According to the committee, the CL research group is the strongest research group in the field of computational linguistics in the Netherlands; it is also one of the best places to go if you want pursue a PhD in this field. The group has gained recognition at both national (Wieling at the Dutch Young Academy) and international level (Van Noord has been elected president of the Association for Computational Linguistics); they also received a number of best paper prizes and a European Young Research Award for Wieling. Their excellent research quality is witnessed by the number of high publications, the quality and number of PhD dissertations, and their success in getting external funding.

The group is quite unique in the strong emphasis on linguistic structures, deep parsing, and precision grammars. The CL researchers show a unique expertise in the automatic processing of Dutch, and on the quantitative study of European dialects (dialectometry), which is supported by a new articulographic lab. The group is very coherent, with a good balance between younger and older staff. The committee has seen that the CL group is quite well integrated in the CLCG, showing good collaboration with the other groups, especially the *Discourse and Communication* and *Theoretical and Empirical* research groups.

Societal relevance
The societal relevance of the CL group can be witnessed in their natural language processing applications, such as machine translation and question-answering systems. Their prominence in this field was acknowledged when Google bought and used the Lassy Treebank, which is a unique syntactic database for the Dutch written language. The Alpino parser is used in the Dutch website www.redekundig.nl, which is aimed at Dutch school children.

The committee appreciates that the CL group is also moving to more diverse types of language data, for instance, analyzing social media and legal big data, in collaboration with colleagues from the Law Faculty. Their work on speech articulation has already had a remarkable impact on the classification of English accents and Dutch dialects. The CL group recently received a grant from the Dutch Blindeninstituut (blind people association) for comparing the speech of sighted and blind people, with promising applications for improving automatic speech recognition for blind people.

The CL group has a clear open data policy. The group promotes open science, with a semantic database (Meaningbank) fed by citizens playing (serious) games online (Wordrobe). Overall, the CL group maintains a very good balance between fundamental and applied research

Viability
The committee notes that the CL group is fully aware of new challenges that have risen as a result of big data and machine-learning techniques. In the opinion of the committee, the group should keep its strong focus on language structure, with a strategic eye on different language modalities (speech and co-speech gestures).

The committee appreciates that the CL group is very open to collaborations with other faculties. The CL researchers are involved not only in the Linguistics Master programme, but also in the Master in Information Science and in the new Master in Digital Humanities, which secures a substantial number of incoming students in the near future. The prospects for future funding are also very good.

4.2 Discourse and Communication (DC)

Research quality
The discourse and communication group has undergone a number of organizational changes, with many colleagues who left the group and two excellent faculty hires that have improved the group's overall profile. Together with these new staff members, the group has spearheaded two promising research foci (health communication and learning in the secondary schools) for faculty and graduate students, enhancing the group's research profile. Taken together, the group's current work has been good—moving toward very good—especially given their teaching load, which appears to be high.

Generally speaking, the group's research is of high quality, but it is more driven by applied than by theoretical research questions. Although there are examples of fruitful cooperation with other research groups, more connections are possible, especially with the *Neurolinguistics and Language Development* research group, where collaboration might improve cross-group coherence. We view the group's steady progress as crucial and recommend that they strive for more improvement in terms of the number of publications, especially international journal publications.

The discourse and communication group now focuses on the very promising domains of health literacy and secondary education; however, there are interesting opportunities using similar methodologies that could further bridge boundaries across areas of persuasion, understanding, and learning in diverse contexts. Additionally, it would be interesting to see the group's work expanded to include online and multimodal communication and to include disabled and immigrant populations. Certainly they have already identified places where they can make a difference and have the methods and tools to bring these interests to fruition.

Societal relevance
Medical communication, especially doctor-patient communication, is valuable to Dutch people and to society in general. Helping people take better care of their health as they age is extremely relevant to society, making the health literacy research from Groningen important for influencing approaches to health communications around the world. The committee is of the opinion that the DC's achievements in this field are excellent. The focus on learning and low-literate populations is also quite important, especially in light of growing numbers of immigrants. At present most of the work has focused on written text and graphics, but as mentioned above, it will be important to expand this work beyond printed materials and beyond able-bodied Dutch populations. The research priorities of the DC group appear to be quite scalable and will position them well over the next years, enabling them to make a significant and lasting impact.

Viability
The group has established itself quite well after the restructuring. The committee saw a lot of progress in the research trajectory and considerable enthusiasm from the PhD students. We are concerned, however, that some of the key faculty members are reaching retirement age, and once those retirements occur, it will be important not to lose the momentum now gained. The group will need to decide whether to promote from within or hire new full professors. The CLCG will need to think carefully about new hires in order to continue the fruitful lines of research of health communication and education. To enable a smooth transition, a strategic plan needs to be created immediately. The DC research group has developed strong networks and good chances of funding. Those networks need to be mined and further developed in the future.

4.3 Neurolinguistics and Language Development (NLD)

Research quality
The NLD research group has an outstanding research record, with an average of 11 publications per research FTE per year, with many contributions to high quality journals such as *Aphasiology, Language, Cognition and Neuroscience, Neuroreport, Frontiers in Psychology, Frontiers in Behavioral Neuroscience, Linguistic Approaches to Bilingualism, PLoS ONE, Journal of Speech, Language, and Hearing Research, Journal of Child Language,* and *Cortex.* Both within the Netherlands and internationally, the NLD belongs to the world's top research groups addressing language processing and language use in subpopulations with language impairments—ranging from aphasia and dyslexia to cognitive decline and dementia.

Researchers in the NLD research group are well-connected to other research groups, not only within the Faculty of Arts, but also to research groups within the Health Sciences and Social Sciences. Considered as a whole, the research output of the NLD shows a very good balance between fundamental research addressing the organization of language in the brain, and applied research focusing on language processing under various impairments.

Societal relevance
The NLD's research addresses a wide range of research questions that have immediate relevance for society. Their work on language impairment (aphasia, dyslexia, cognitive decline) using a variety of experimental techniques (including EEG, fMRI, and eye-tracking), is resulting in new protocols and methods for improving communication by means of the spoken or written word. Examples include early detection of dyslexia and training in a second language as a means of protecting against cognitive decline in ageing. Thus, the research of this group fits very well with the university-wide research priority on Healthy Ageing.

Viability
This research group has excellent viability, with currently 46 ongoing PhD students. The NLD group has a very good track record in obtaining external funding, while at the same time attracting many students to their BA and MA programmes. With the passing away of Professor Laurie Stowe, the group lost a central figure who played a crucial role in facilitating the interdisciplinary research between NLD and the BCN. However Dr. Simone Sprenger has been added to the permanent staff to take over this important role, and two further permanent positions have been created (Tops, Loerts), resulting in a staff that shows excellent diversity in age.

4.4 Theoretical and Empirical Linguistics (TEL)

Research quality
The TEL research group has experienced considerable changes since the last review, with major reorganizations and a high number of retirements. Although these changes have affected the research quality, it remains good: the TEL group has acquired one ERC starting grant (De Vries) and two NWO grants (both by Dotlacil). Twelve PhD dissertations were defended in the assessment period, and currently there are five doctoral dissertations being supervised. With 9,6 publications per FTE per annum, the group contributes in an average way to the overall publication record of the CLCG, where first-rate journal publications appear a bit underrepresented, and a certain decline in absolute numbers is evident in recent years.

The research topics in the group include syntax, semantics, morphology and phonology of natural languages. There is a natural focus on Dutch and English, furthermore on other Germanic languages and on other European languages, including Ancient Greek, and a few languages outside Europe. Research on Frisian (and Grunnings) deserves special mention. In this area, the CLCG is making unique contributions; as this includes sociolinguistic aspects, this also broadens the empirical base. The research topics of the TEL group include important themes in syntax (e.g., parentheses, right dislocation, and ellipsis), semantics (e.g., polarity items,

information structure), and prosody; work in these areas is theory-oriented, but also empirical (typological studies, corpus-linguistic studies, linguistic field work).

Theoretical work in linguistics that is grounded in good empirical research is essential for a doctoral program in linguistics. Often, work in more applied areas cannot be done without a sufficient understanding of theoretical aspects of language. We found that this fundamental role of the TEL group could and should be strengthened. This can be done in two ways: first, theoretical research on features of human language can require empirical methods beyond introspection, questionnaires and other fieldwork techniques that are available in the other three areas, in particular, advanced methods of corpus linguistics in CL and experimental methods in NLD. Secondly, topics of high theoretical interest may be developed out of concerns coming from applications. One example would be textual, conversational and other pragmatic phenomena, as investigated in D&C. For this, the TEL group would have to expand its research interest to include phenomena related to discourse and communication, e.g., information structure, prosody, and anaphoric uptake, especially as motivated by interclausal and conversational dependencies. We recommend that researchers in the TEL group strongly consider the rich possibilities of cooperation that could be enabled by working more closely with other groups within the CLCG.

Societal relevance
Because the TEL group is mostly concerned with fundamental research issues, it is not always easy for theoretical linguists to make clear the relevance of their work to society. It is generally relevant in more indirect ways, by providing basic insights to research areas with a research agenda more specifically geared towards applications. However, the TEL group has proved its relevance to society beyond that. There is the book *The syntax of Dutch* (Jan-Wouter Zwart), which gives an in-depth description of Dutch syntax and should be of great importance beyond linguistics in a more narrow sense. The database and search engine Paracrawler for parenthetical construction is a useful tool offered to the scientific research community in general.

There is the laudable work on Frisian, on Grunnings and Lower Saxonian which already has considerable outreach to local citizens and governments and can be seen as a model for dealing with minority languages in academia (regular columns in local newspapers, work in the Bureau Groninger Taal en Cultuur and the festival "Multilingual Fryslân"). The selection of Leeuwarden as cultural capital of Europe in 2018 is an upcoming opportunity to boost these activities. Work on other minority languages or endangered languages can be harnessed in such a way as to raise their relevance for their unique cultures. There are a number of other examples of making theoretical research relevant, e.g., the creation of teaching materials (one example being a textbook for the study of Ancient Greek). This shows that in addition to serving as the basis to research with an applied focus, the TEL group can increase its relevance to society by making the greater public aware of the intricate properties of human language, and the variability and restrictions that we find in the different human languages.

Viability
The TEL group has experienced major changes since 2010, with seven full professors (including Zwarts) and eight other members having left. In addition, Wakker serves as dean of Faculty and Zwart serves as director of Groningen School of Humanities, which also reduces the amount of research and supervision available in this group. The new professor for European Linguistics will be vital for the future development of this research group. The committee expresses the hope that this position will develop links between the different research areas within the TEL group (theoretical research in syntax, semantics, phonology; research on local minority languages; research on classical European languages). Furthermore, there are ways to increase the viability of this research group that have already been mentioned — by employing a greater variety of empirical methods (especially those provided by the other research groups), by selecting research topics that are of greater relevance for applied research, and by finding ways to disseminate knowledge about language to a greater variety of people.

5. Recommendations

General:

- The committee advises CLCG to work on improving its visibility. The presence of the institute on the internet and the work of its many researchers shows room for improvement. Also, we encourage researchers to continue in making their intellectual contributions more accessible to the general public, thereby promoting CLCG's work and garnering more publicity in the media.

- The committee advises CLCG to think about a number of visible research interests that are more appealing to larger communities. To decide on these research topics, more discussion, strategy and vision across the entire CLCG community is necessary.

- CLCG research often relies on the availability of (large numbers of) human participants. Since these participants need to be paid a small remuneration, research can be hampered by lack of funds. The committee advises to the development of a budget for these relatively minor costs.

- The committee advises the creation of a budget for open access publishing. Most researchers pay this fee out of their individual research budget, but the committee believes a structural solution should be found to stimulate open access publications.

- The committee advises to invest in support for grant proposals for PhD candidates at the end of their trajectory, since grants are instrumental in keeping the research capacity at the current level.

- The institute employs three labs: an EEG lab, an Eye-tracking lab and a new Articulographic lab. We recommend the creation of a half-time position for a lab manager, who can also train the students and staff members in the use of the equipment.

- The committee advises the CLCG to offer their PhDs more (optional) courses in data skills, such as basic scripting and text mining, that can be useful for their future careers.

- The committee also views teaching as a valuable skill for any PhD student and suggests that the faculty create more opportunities for PhD students to acquire hands-on classroom experience.

Research groups:

- The committee recommends that the *Discourse and Communication* research group strives for more improvement in terms of the number of publications, especially international journal publications.

- Since some of the key faculty members in the *Discourse and Communication* group are reaching retirement age; the CLCG will need to think carefully about new hires in order to continue the fruitful lines of research of health communication and education. To enable a smooth transition, a strategic plan needs to be created immediately.

- The committee recommends that researchers in the *Theoretical and Empirical Linguistics* group connect more effectively to the rich possibilities for cooperation that are present within the CLCG. We also suggest that the group includes textual phenomena in its research.

Appendices

Appendix 1: Explanation of the SEP criteria and categories

There are three criteria that have to be assessed.

- Research quality:
    - Level of excellence in the international field;
    - Quality and Scientific relevance of research;
    - Contribution to body of scientific knowledge;
    - Academic reputation;
    - Scale of the unit's research results (scientific publications, instruments and infrastructure developed and other contributions).

- Relevance to society:
    - Quality, scale and relevance of contributions targeting specific economic, social or cultural target groups;
    - Advisory reports for policy;
    - Contributions to public debates.

The point is to assess contributions in areas that the research unit has itself designated as target areas.

- Viability:
    - The strategy that the research unit intends to pursue in the years ahead and the extent to which it is capable of meeting its targets in research and society during this period;
    - The governance and leadership skills of the research unit's management.

Category	Meaning	Research quality	Relevance to society	Viability
1	World leading/excellent	The unit has been shown to be one of the most influential research groups in the world in its particular field.	The unit makes an outstanding contribution to society.	The unit is excellently equipped for the future.
2	Very good	The unit conducts very good, internationally recognized research.	The unit makes a very good contribution to society.	The unit is very well equipped for the future.
3	Good	The unit conducts good research.	The unit makes a good contribution to society.	The unit makes responsible strategic decisions and is therefore well equipped for the future.
4	Unsatisfactory	The unit does not achieve satisfactory results in its field.	The unit does not make a satisfactory contribution to society.	The unit is not adequately equipped for the future.

Members Peer Review Committee
Centre for Language and Cognition Groningen (CLCG)

Prof. dr. Phil. Manfred Krifka (chair)
Professor of General Linguistics and Director of the Zentrum für Allgemeine Sprachwissenschaft (ZAS) at the Humboldt-Universität, Berlin

Affiliations:

2006 – present	Founding member of the Berlin School of Mind and Brain, Germany
2001 – present	Direktor, Zentrum für Allgemeine Sprachwissenschaft (ZAS) Berlin
2000 – present	Professor für Allgemeine Sprachwissenschaft, Institut für deutsche Sprache und Linguistik, Humboldt-Universität zu Berlin
1997 – 1998	Fellow, Institute for Advanced Studies, Hebrew University of Jerusalem, Israel
1995 – 1996	Fellow, Center for Advanced Study, Stanford University, USA
1993 – 2000	Associate Professor, University of Texas at Austin, USA
1990 – 1993	Assistant Professor, University of Texas at Austin
1986 – 1989	Lecturer, Universität Tübingen, Germany
1984 – 1986	Assistent, Universität München, Germany
1983 – 1984	Lecturer, Universität Konstanz, Germany

Prof. dr. R.H. (Harald) Baayen

Professor of Quantitative Linguistics, Alexander von Humboldt Professorship

Affiliations:

2011 – present	Professor of Quantitative Linguistics, Eberhard Karls Universität, Tübingen, Germany.
2007 – 2011	Professor of Quantitative Linguistics, University of Alberta, Edmonton, Canada.
2006 – 2007	Professor of Quantitative Linguistics, Radboud University Nijmegen, The Netherlands.
1998 – 2005	Postdoctoral Fellow, Radboud University Nijmegen.
1990 – 1998	Member of Scientific Staff, Max-Planck-Institut für Psycholinguistik, Nijmegen.
1989 – 1990	Postdoctoral Fellow, VU Amsterdam, The Netherlands.
1985 – 1988	Teaching Fellow, VU Amsterdam, The Netherlands.
July 1980	Teaching Assistant, Summer Institute of Linguistics, UK.

Prof. dr. A.A. (Fons) Maes
Full Professor and Head of the Department of Communication and Information Sciences, Tilburg School of Humanities at Tilburg University. He studies the interaction of visual and verbal sign systems in human communication.

Affiliations:

2008 – present	Head of Department Communication and Information Sciences, Tilburg School of Humanities, Tilburg University, The Netherlands
2002 – present	Full Professor Communication and Cognition, Arts Faculty, Tilburg University
2012 – 2014	Director Tilburg center for Cognition and Communication (TiCC), Tilburg University

2004 – 2007	Head of capacity group Communication Science, Tilburg University
2002 – 2004	Head of section Communication and Cognition, Faculty of Arts, Tilburg University
1999 – 2002	Coordinator Teaching Program Business Communication and Digital Media, Arts Faculty, Tilburg University
1993 – 2002	Assistant and Associate Professor Discourse Studies, Arts Faculty, Tilburg University
1984 – 2002	Lecturer Discourse Studies, Department Translation Studies, University Gent, Belgium
1983 – 1993	Lecturer, Language Center (Talencentrum), Arts Faculty, Tilburg University
1982 – 1984	Lecturer Language Proficiency, Technicon (Groep T), Leuven, Belgium
1977 – 1983	Lecturer Language Proficiency, Law Faculty, Leuven University
1977 – 1982	Lecturer Dutch Linguistics, Literature & Language Proficiency, Teacher Training Institute ('lerarenopleiding'), H.Grafinstituut, Turnhout, Belgium
1976 – 1977	Lecturer Linguistics, Leuven University

Prof. dr. A. (Anne) Abeillé
Professor of Linguistics (University Paris, Diderot) with main research focus on the structure of natural language.

Affiliations:

2011 – present	Head of the Laboratoire de Linguistique Formelle (UMR CNRS 7110)
2000 – present	Professor in Linguistics (University Paris 7), classe exceptionnelle in 2011
1999 – 2001	Head of the Linguistics department of Paris 7
1994 – 2000	Associate Professor in Linguistics (U Paris 7)
1991 – 1994	Associate Professor in Linguistics (U Paris 8 Saint Denis)
1988 – 1991	Teaching Assistant U Paris 7
1987 – 1988	Research Assistant, CIS Department , U Pennsylvania, Philadelphia, USA

Dr. K.A. (Karen) Schriver (external member)
Karen Schriver is a consultant, researcher, and educator in information design and plain language. She employs research-based principles to inform the design of everyday communications. She has taught at Carnegie Mellon University, the University of Utrecht (Netherlands), the University of Washington (Seattle, Washington), and the University of Stellenbosch (South Africa).

Affiliations:

1990 – present	President of KSA Communication Design & Research, Inc., Pittsburgh, USA
2005 – present	Board member of the Communication Research Institute Limited, Melbourne, Australia
2003 – 2013	Board member of the Centre for Plain Language, Washington D.C., USA
1987 – 1995	Assistant Professor of Rhetoric and Document Design, Carnegie Mellon University, Pittsburgh, USA

E. (Erik) van der Spek, MA (secretary)
Erik van der Spek regularly acts as secretary of accreditation panels for the NVAO (Dutch-Flemish Accreditation Organization) and QANU (Quality Assurance Netherlands Universities). Since 2016 he is also a lecturer in the Master's degree in Communication and Organization at the University of Utrecht.

Appendix 3: Programme of the site visit

time	location	event	persons
time	*location*	*event*	*persons*
Wednesday 30 November			
16.00 – 18.00*	Bestuurskamer Harmonie, 1315.0331. Address: Oude Kijk in 't Jatstraat 26.	PRC Preliminary meeting	PRC (6)
From 18.30	Bistro 't Gerecht. Address: Oude Boteringestraat 19.	*Opening dinner*	*PRC (6)*
Thursday 1 December			
09.00 – 09.45	Van Swinderen Huys, Bestuurskamer. Address: Oude Boteringestraat 19.	Formal opening: meeting with Faculty Board and CLCG Director	PRC + Prof. G.C. (Gerry) Wakker (Dean); Prof. D.C.M. (Daan) Raemaekers (vice Dean); M.C. (Maarten) Schunselaar (Policy Officer); Prof. J. C. J. (John) Hoeks (Chair CETO); Prof. P. (Petra) Hendriks (CLCG Director); A.Y. (Alice) Pomstra (CLCG coordinator). (12)
09.45 – 10.15	Van Swinderen Huys, Bestuurskamer.	Meeting with Advisory Council	PRC + Prof. C.M. (Kees) de Glopper (Chair Advisory Council); Prof. J. (Johan) Bos, Prof. C.J.M. (Carel) Jansen; Prof. B.A.M. (Ben) Maassen, Prof. M.H. (Marjolijn) Verspoor; Dr. M. (Mark) de Vries. (12)
10.30 – 11.15	Van Swinderen Huys, Bestuurskamer.	Meeting with PhD's	PRC + J.A. (Joëlle) Ooms, MA (member PhD Council & PhD member CLCG Advisory Council); B. (Bernat) Bardagil-Mas, MA; H. (Hessel) Haagsma, MA; R. (Ruth) Koops van 't Jagt, MA; S. (Srdjan) Popov, MA. (11)
11.30 – 12.15	Van Swinderen Huys, Bestuurskamer.	Meeting with GSH Academic Director and CLCG promotores	PRC + Dr. K. (Konstantin) Mierau (Programme Director GSH); Prof. Y.R.M. (Roelien) Bastiaanse; Prof. J. (Jack) Hoeksema; Prof. G.J.M. (Gertjan) van Noord; Prof. M.H. (Marjolijn) Verspoor. (11)
12.30 – 13.45	*Prinsenhof. Adsress:* Martinikerkhof 23	*Lunch*	*PRC (6)*
13.45 – 14.45	Van Swinderen Huys, Bestuurskamer.	Meeting with RG 1: CL (coordinator, supervisors, postdocs)	PRC + Prof. G.J.M. (Gertjan) van Noord (Coordinator CL); Dr. G. (Gosse) Bouma; Dr.. M. (Malvina) Nissim; Dr.. M.B. (Martijn) Wieling. (10)
15.00 – 16.00	Van Swinderen Huys, Bestuurskamer.	Meeting with RG 2: D&C (coordinator, supervisors, postdocs)	PRC + Prof. J. C. J. (John) Hoeks (Coordinator D&C); Prof. C.M. (Kees) de Glopper; Prof. A.J. (Tom) Koole; Dr. M. (Mike) Huiskes; Dr. Y.P. (Yfke) Ongena; Prof. G. (Gisela) Redeker. (12)
16.00 – 17.00**	Van Swinderen Huys, Bestuurskamer.	PRC discussion	PRC (6)

From 18.30	Land van Kokanje. *Address: Oude Boteringestraat 9*	*Dinner*	*PRC (6)*

Friday 2 December			
time	*location*	*event*	*persons*
10.15 – 11.15	Van Swinderen Huys, Bestuurskamer. Address: Oude Boteringestraat 19.	Meeting with RG 3: NLD (coordinator, supervisors, postdocs)	PRC + Prof. B.A.M. (Ben) Maassen (Coordinator NLD); Prof. P. (Petra) Hendriks; Dr. M.C.J. (Merel) Keijzer; Dr. W.M. (Wander) Lowie; Dr. S.A. (Simone) Sprenger. (12)
11.30 – 12.30	Van Swinderen Huys, Bestuurskamer.	Meeting with RG 4: TEL (coordinator, supervisors, postdocs)	PRC + Dr. M. (Mark) de Vries (Coordinator TEL), Prof. G.C. (Gerry) Wakker; Dr. D.G. (Dicky) Gilbers; Dr. N.H. (Nanna) Hilton; Dr. R. (Bob) de Jonge; Dr. R.M. (Remco) Knooihuizen. (12)
12.30 – 13.30	Land van Kokanje. Address: Oude Boteringestraat 9	*Lunch*	*PRC (6)*
13.30 - 13.45	Van Swinderen Huys, Bestuurskamer.	Possible follow-up questions	PRC (6)*****
13.45 – 16.45	Van Swinderen Huys, Bestuurskamer.	PRC discussion	PRC (6)
16.45 – 17.15	Van Swinderen Huys, Bestuurskamer.	PRC presentation and formal closing	All people who participated in one of the earlier sessions were invited to the PRC presentation and formal closing
17.15 – 18.15	Van Swinderen Huys, Bar (ground floor)	Drinks	PRC + CLCG representation
From	*t.b.d.*	*Closing dinner*	*PRC (6)*

Appendix 4: Quantitative data

SEP table D3a: Research staff CLCG 2010 - 2015

Average amount of FTE dedicated to research per year

	2010	**2011**	**2012**	**2013**	**2014**	**2015**
	# / FTE	# / FTE	# / FTE	# / FTE	# / FTE	# / FTE
Scientific staff:						
Full professors	14 / 6.0	15 / 5.8	15 / 5.6	16 / 5.8	16 / 5.8	17 / 6.2
Associate professors	14 / 5.4	14 / 5.3	14 / 5.1	14 / 5.1	14 / 5.1	12 / 4.5
Assistant professors	17 / 5.7	18 / 5.9	23 / 7.7	25 / 8.8	28 / 9.7	26 / 8.9
Total scientific staff	45 / 17.1	47 / 17.0	52 / 18.4	55 / 19.7	58 / 20.6	55 / 19.6
Other research staff:						
Postdocs	8 / 6.1	7 / 4.9	7 / 5.2	5 / 4.0	6 / 4.8	7 / 4.4
PhD students*	45 / 40.5	71 / 63.9	72 / 64.8	69 / 62.2	78 / 70.2	69 / 62.1
Total research staff	**98 / 63.7**	**125 / 85.7**	**131 / 88.4**	**129 / 85.9**	**142 / 95.6**	**131 / 86.0**
Support staff	2 / 0.7	2 / 0.7	2 / 0.7	2 / 0.7	2 / 0.7	2 / 0.7
Total staff	**100 / 64.4**	**127 / 86.4**	**133 / 89.1**	**131 / 86.6**	**144 / 96.3**	**133 / 86.7**

SEP table D3b: Research Output

CLCG (all programmes)	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**Total**
Journal articles	49	72	76	78	71	73	419
Book chapters	37	48	46	45	17	19	212
Conference papers	38	26	6	15	22	14	121
Books	1	2	1	-	3	3	10
Non-refereed publications	22	11	19	6	11	6	75
Reviews	3	-	4	5	4	2	18
Edited journals	-	4	3	-	1	1	9
Edited books	6	8	6	1	5	1	27
Doctoral dissertations	**11**	**11**	**14**	**13**	**5**	**19**	**73**
Professional publications	19	11	22	18	11	9	90
Popular publications	-	1	2	2	15	1	21
Total output	**186**	**194**	**199**	**183**	**165**	**148**	**1,075**
Total research FTE CLCG	17.1	17.0	18.4	19.7	20.6	19.6	112.4
Publications per research FTE	**10.9**	**11.4**	**10.8**	**9.3**	**8.0**	**7.6**	**9.6**

SEP table D3c: Funding

	2010	**2011**	**2012**	**2013**	**2014**	**2015**
Funding:	FTE / %	FTE / %	FTE / %	FTE / %	FTE / %	FTE / %
Direct funding (1)	16.1 / 69.7	16.6 / 75.7	19.6 / 83.1	19.0 / 85.4	21.7 / 85.6	20.8 / 87.2
Research grants (2)	5.8 / 25.1	3.9 / 17.9	2.6 / 11.0	1.8 / 8.3	2.2 / 8.9	1.4 / 5.7
Contract research (3)	0.7 / 3.0	1.3 / 6.4	1.4 / 5.9	1.4 / 6.3	1.4 / 5.5	1.7 / 7.1
Other (4)	0.5 / 2.2	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
Total funding	23.1 / 100	21.8 / 100	23.6 / 100	22.3 / 100	25.4 /100	23.9 / 100
Expenditure in k€:						
Personnel costs	1577 / 98	1685 / 98	1703 / 98	1823 / 98	2038 / 98	2038 / 98
Other costs	38 / 2	34 / 2	31 / 2	33 / 2	32 / 2	39 / 2
Total expenditure	1615 / 100	1719 / 100	1734 / 100	1856 / 100	2070 / 100	2077 / 100

1) *Direct funding.*
2) *Research grants: NWO, KNAW, Fryske Akademie.*
3) *Contract research: EU, government ministries, charitable organizations or industry.*
4) *Other.*

SEP table D3d: PhD Candidates

CLCG	Enrolment			Discontinued		Success rates (years to graduation, cumulative numbers)			
Starting year	**Total #**	**Female #**	**Non-Dutch #**	**in 1st year**	**after 1st year**	**Graduated after ≤ 4 years**	**Graduated after ≤ 5 years**	**Graduated after ≤ 6 years**	**Graduated after ≤ 7 years**
2007	18	14	13	0	3 / 17%	0	6 / 33%	8 / 44%	10 / 56%
2008	13	8	5	0	0	1 / 8%	10 / 77%	11 / 85%	11 / 85%
2009	7	3	5	0	0	3 / 43%	4 / 57%	4 / 57%	4 / 57%
2010	9	6	4	0	0	2 / 22%	7 / 78%	8 / 89%	-
2011	24	20	12	0	0	1 / 4%	10 / 42%	-	-
2012	11	6	6	0	1 / 9%	0	-	-	-
2013	11	7	7	0	1 / 9%	-	-	-	-
2014	12	6	4	0	0	-	-	-	-
2015	9	7	2	0	0	-	-	-	-

* The table includes only fixed-term PhD candidates, and does not include PhD candidates not working under any time constraints.

SEP table D1: output indicators

Assessment Dimension	Quality Domains	
	Research quality	**Relevance to society**
Demonstrable products	1. Research products for peers: - Peer-reviewed scientific publications; - Dissertations.	4. Research products for societal target groups: - Professional presentations and publications; - Coverage in general media (TV, radio, print, online).
Demonstrable use of products	2. Use of research products by peers: - Citations; - Use of software tools, resources, datasets and tasks by peers.	5. Use of research products by societal groups: - Use of software tools and resources by societal groups; - Projects in cooperation with societal parties.
Demonstrable marks of recognition	3. Marks of recognition from peers: - Research grants; - Scientific nominations, awards and prizes.	6. Marks of recognition by societal groups: - Membership of civil society advisory bodies; - Valorisation funding.