

QANU research review
Teacher Training Institutes

April 2010

Quality Assurance Netherlands Universities (QANU)
Catharijnesingel 56
PO Box 8035
3503 RA Utrecht
The Netherlands

Phone: +31 (0) 30 230 3100
Telefax: +31 (0) 30 230 3129
E-mail: info@qanu.nl
Internet: www.qanu.nl

© 2010 QANU

Text and numerical material from this publication may be reproduced in print, by photocopying or by any other means with the permission of QANU if the source is mentioned.

Table of contents

Foreword	7
Preface	9
Introduction	11
1. The review Committee and the review procedures	11
Scope of the assessment	11
Composition of the Committee	11
Independence	11
Data provided to the Committee	11
Procedures followed by the Committee	12
2. General Remarks	13
Assessments per Institute and per Programme	21
3. University of Groningen (RUG)	23
3.1. Assessment at Institute level – University Centre for Learning and Teaching (UOCCG)	
3.1.1. Introduction	23
3.1.2. Leadership	23
3.1.3. Mission & Goals	23
3.1.4. Strategy & Policy	24
3.1.5. Resources	24
3.1.6. Funding Policies	24
3.1.7. Facilities	25
3.1.8. Academic Reputation	25
3.1.9. Societal Relevance	26
3.1.10. Balance of Strengths & Weaknesses	26
3.2. Assessment per programme – RUG	28
4. Utrecht University (UU)	31
4.1. Assessment at Institute level – IVLOS Institute of Education	31
4.1.1. Introduction	31
4.1.2. Leadership	31
4.1.3. Mission & Goals	31
4.1.4. Strategy & Policy	32
4.1.5. Resources	33
4.1.6. Funding Policies	34
4.1.7. Facilities	34
4.1.8. Academic Reputation	35
4.1.9. Societal Relevance	35
4.1.10. Balance of Strengths & Weaknesses	36

4.2	Assessment per programme – IVLOS	38
4.3.	Assessment at Institute level – Freudenthal Institute for Science and Mathematics Education (FIsmE)	40
4.3.1.	Introduction	40
4.3.2.	Leadership	40
4.3.3.	Mission & Goals	40
4.3.4.	Strategy & Policy	41
4.3.5.	Resources	42
4.3.6.	Funding policies	42
4.3.7.	Facilities	43
4.3.8.	Academic Reputation	43
4.3.9.	Societal relevance	43
4.3.10.	Balance of Strengths & Weaknesses	44
4.4.	Assessment per programme – UU FIsmE	47
5.	University of Amsterdam (UvA)	51
5.1.	Assessment at Institute level – Graduate School of Teaching and Learning (GSTL)	51
5.1.1.	Introduction	51
5.1.2.	Leadership	51
5.1.3.	Mission & Goals	51
5.1.4.	Strategy & Policy	52
5.1.5.	Resources	53
5.1.6.	Funding Policies	53
5.1.7.	Facilities	54
5.1.8.	Academic Reputation	54
5.1.9.	Societal Relevance	54
5.1.10.	Balance of Strengths & Weaknesses	55
5.2.	Assessment per programme – UvA	57
6.	VU University, Amsterdam	61
6.1.	Assessment at Institute level – Centre for Educational Training, Assessment and Research (CETAR)	61
6.1.1.	Introduction	61
6.1.2.	Leadership	61
6.1.3.	Mission & Goals	61
6.1.4.	Strategy & Policy	61
6.1.5.	Resources	63
6.1.6.	Funding Policies	63
6.1.7.	Facilities	63
6.1.8.	Academic Reputation	63
6.1.9.	Societal Relevance	64
6.1.10.	Balance of Strengths & Weaknesses	65
6.2	Assessment per programme – VU	68

7. Leiden University (LEI)	71
7.1. Assessment at Institute level – Interfacultair Centrum voor Lerarenopleiding, Onderwijsontwikkeling en Nascholing (ICLON)	71
7.1.1. Introduction	71
7.1.2. Leadership	71
7.1.3. Mission & Goals	71
7.1.4. Strategy & Policy	72
7.1.5. Resources	73
7.1.6. Funding Policies	73
7.1.7. Facilities	73
7.1.8. Academic Reputation	74
7.1.9. Societal Relevance	74
7.1.10. Balance of Strengths & Weaknesses	75
7.2. Assessment per programme – Leiden	77
Appendices	79
Appendix A: Curricula Vitae of the committee members	81
Appendix B: Schedule of the meetings	83
Appendix C: Explanation of the SEP-scores	85

Foreword

This report follows the Standard Evaluation Protocol 2003-2009 for Public Research Organisations (SEP) that was developed by VSNU, KNAW and NWO. The purpose of this report is to present a reliable picture of the research activities submitted for this review and to give feedback on the research management and quality assurance.

The review committee was supported by QANU (Quality Assurance Netherlands Universities). QANU aims to ensure compliance with the SEP in all aspects and to produce independent assessment reports with peer review committees of international experts in the academic fields involved.

QANU wishes to thank the chairperson and members of the review committee for their participation in this assessment and for the dedication with which they carried out this task. We also thank the staff of the units under review for their carefully prepared documentation and for their co-operation during the assessment.

Quality Assurance Netherlands Universities

Mr. Chris J. Peels
Director

Dr. Jan G.E. Veldhuis
Chairman of the Board

Preface

This report describes the independent external quality assessment of the research of the Teacher Training Institutes at five universities in the Netherlands. The assessment covers the period 2001-2008 and was conducted according to the Standard Evaluation Protocol 2003-2009 for Public Research Organisations (SEP).

The quality assessment was carried out by a review committee consisting of one chair and five members with expertise in the relevant areas of research.

As chair of the Committee, I greatly appreciate the commitment, the expertise and the excellent cooperation of my colleagues. The Committee wants to thank all persons involved in the thorough preparation and support of the review.

Prof. Joost Lowyck
Chairman of the Committee

Introduction

1. The review Committee and the review procedures

Scope of the assessment

The Review Committee was asked to perform an assessment of the research at the Teacher Training Institutes at the Rijksuniversiteit Groningen (RUG), Utrecht University (UU), University of Amsterdam (UvA), Vrije Universiteit Amsterdam (VU) and Leiden University (Lei). This assessment covers the research in the period 2001-2008.

In accordance with the Standard Evaluation Protocol 2003-2009 for Public Research Organisations (SEP), the Committee's tasks were to assess the quality of the institutes and the research programmes on the basis of the information provided by the institutes and through interviews with the management and the research leaders, and to advise how this quality might be improved.

Composition of the Committee

The composition of the Committee was as follows:

- Prof. Joost Lowyck, Catholic University of Leuven, chairman of the Committee
- Prof. Walter Doyle, University of Arizona
- Prof. Pamela Grossman, Stanford University
- Prof. Roger Säljö, University of Gothenburg
- Prof. Alan Schoenfeld, University of California at Berkeley
- Prof. Peter Tomlinson, University of Leeds.

A short curriculum vitae of the Committee members is included in Appendix A.

Roel Bennink of the Bureau of QANU (Quality Assurance Netherlands Universities) was appointed secretary to the Committee.

Independence

All members of the Committee declared that they would assess the quality of the Institutes and research programmes in an unbiased and independent way. Any existing personal or professional relationships between Committee members and programmes under review were reported and discussed in the 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 has received detailed documentation consisting of the following parts:

1. Self-evaluation reports of the units under review, including all the information required by the Standard Evaluation Protocol (SEP), with appendices;
2. Copies of three key publications per research programme.

Procedures followed by the Committee

The Committee proceeded according to the Standard Evaluation Protocol 2003-2009 (SEP 2003-2009). Prior to the Committee meeting, each programme was assigned to two reviewers, who independently formulated a preliminary assessment. The final assessments are based on the documentation provided by the Institutes, the key publications and the interviews with the management and with the leaders of the programmes. The meetings and interviews took place on November 15-20, 2009 (see the schedule in Appendix C) on a central location in Utrecht. No site visits to the Institutes were held.

Preceding the interviews, the Committee was briefed by QANU about research assessment according to SEP 2003-2009. On the same day, the Committee discussed the preliminary assessments. For each programme a number of comments and questions were decided upon. The Committee also agreed upon procedural matters and aspects of the assessment. After the interviews the Committee discussed the scores and comments. The texts for the committee report were finalised through email exchanges. The final version was presented to the faculties for factual corrections and comments. The comments were discussed in the Committee and led to changes in the report on a number of points. The final report was presented to the boards of the participating universities and was printed after their formal acceptance of the report.

The Committee used the rating system of the Standard Evaluation Protocol (SEP). The meaning of the scores is described in Appendix B.

Upon the initiative of the Institutes in this review, QANU organised a seminar at the end of the week of the meetings and interviews. In this seminar, four committee members presented some highlights of their own research and had a discussion with the participating researchers from the Institutes. The Committee found this an enriching experience that gave added value to the productive interaction of the review process.

2. General Remarks

This report covers the research in the Teacher Training Institutes (TTI) in Groningen, Utrecht, Amsterdam (VU and UvA) and Leiden. In the previous reviews in 1997 and 2003 the research at the Teacher Training Institutes of the technical universities (Eindhoven University of Technology, Delft University of Technology and Twente University) and at the Radboud University Nijmegen was also included, but for different reasons these groups did not participate in the current review.

Size and output of the Institutes

The table below is based on the data provided in the self-assessment reports and gives an overview of the research productivity of the Institutes.

<i>Institute</i>	<i>Total staff (fte)*</i>	<i>Tenured staff only</i>	<i>Total ICO publications</i>	<i>Total academic publications</i>	<i>Total ICO publications / Total staff</i>	<i>Total academic publications / Total staff</i>	<i>Total academic publications / Total tenured staff</i>	<i>Percentage ICO publications</i>
GSTL	68.6	26.8	153	259	2.2	3.8	9.7	59%
Flsme	62.0	46.0	68	245	1.1	3.9	5.3	28%
IVLOS	52.2	44.5	115	224	2.2	4.3	5.0	51%
ICLON	32.2	26.4	112	186	3.5	5.8	7.1	60%
UOCG **	25.0	25.0	41	66	1.6	2.6	2.6	62%
CETAR	21.6	14.2	69	102	3.2	4.7	7.2	68%
	<i>261.6</i>	<i>182.8</i>	<i>558</i>	<i>1083</i>	<i>2.3</i>	<i>4.2</i>	<i>6.2</i>	<i>52%</i>

*: Total staff includes tenured and non-tenured staff, and excludes PhD students and support staff.

** : The self-evaluation report of UOCG covers the period 2003-2008.

As the table shows, the research input in full-time equivalents ranges from 21.6 for CETAR to 68.6 for GSTL, with a total of 261.6 for all the Institutes in the period under review. The total number of academic publications produced in the period under review is 1083. ICLON has the highest number of academic publications per staff fte. CETAR has the highest percentage of ICO publications.

It should be noted that according to the rules of the Standard Evaluation Protocol (SEP), monographs are not listed as 'academic publications'. GSTL has produced a high number of monographs and 34 out of a total of 49 can be classified as academic. Adding these 34 to the number of academic publications in the table above, brings the total for GSTL to 293, which is a very high number, especially if we take into account that books often require considerably more effort than articles.

External quality assurance: change and continuity

This report is the third one in the continuous six-year cycle of external quality assurance and the first one in which the research review is not combined with the review of the teacher training programmes. Although also at the time of the previous reviews it was customary to assess the quality of education and research separately, the reason for combining them in the 1997 and 2003 TTI-reviews was that research, initial teacher training and in-service training can be regarded as the core activities of any teacher training institute, and that these three activities are intrinsically related and influence each other. Thus, given the importance of having a sufficient number of academically trained teachers available in higher secondary schools, who need

a strong evidence-based education in both subject-matter domains and educational matters in order to properly prepare their students for entry in research-based higher education, the previous reviews looked at both the teaching and the research. However, since the educational assessments play a role in the formal accreditation of the bachelor and master programmes, the research programmes and the teaching programmes are now assessed by different panels in separate reviews. Nevertheless, it seems interesting to look at the most important conclusions of the previous reports from the perspective of 2010, to shed light on the progress that has been made and at problems that may persist.

1997: need for internationalisation and scientific coherence

The 1997 report points to a transition that was taking place regarding the research in teacher education institutions. During that review period, a beginning has been made with clustering teacher education, in-service training and research in central institutes. Research programmes were seen to serve the initial and in-service training by means of evidence-based outcomes as foundation of teacher education and teaching practice. Relevance for the professional field was the main objective of the work and, with some exceptions, the research was primarily oriented to national forums. The management perceived internationalization of research rather as a 'spin-off' than as the primary goal. The review committee strongly supported internationalization of research, not only to provide a transnational floor to the research outcomes, but also to confront the scientific output with high quality standards within the international community. This was expected to create a better balance between scientific and professional publications, by regarding the professional publications as spin-offs of the scientific ones. The review committee signalled a certain lack of coherence in the research programmes, caused by the fact that the research that individual researchers had already carried out within their faculties, was now brought under the umbrella of the Institutes' central programmes. The advice of the committee was to give a stronger profile to the research programmes and to increase the cohesion between sub-programmes. In order to strengthen the profiles of the Institutes, the committee highly valued cooperation and coordination between the programmes through national and international consultation. More synergy and complementarity in the programming should be reached through a well-designed organizational structure at the national level.

2003: less topics, more funding sources

The 2003 report signalled a clear move from fragmented and general research programmes toward more coherent, clearly profiled and well-managed research programmes. In the programmes, research on teaching, learning and teacher education was increasingly organized around specific topics and research themes. However, given the limited number of staff, a reduction of the number of research topics seemed necessary in order to create more synergy. In line with the 1997 report, the committee argued in favour of both increased national cooperation and interaction with the international community. Participation in the Interuniversity Centre for Educational Research (ICO) research school was perceived as a means to increase the number of international publications, although the degree of participation in ICO differed between the Institutes. However, given the societal responsibility of teacher training institutes, each institute regarded professional publications that translate research into practice, as an equally central task. In terms of research management, the committee observed a reduction and fragmentation in the staff. To bring finance and personnel to a sufficient level in order to warrant viability in the long term, second and third stream funding seemed absolutely necessary. In relation to that, the committee saw the need for the research management to realise an approach that would enable knowledge development aimed at scientific and practice-oriented objectives.

2010: no simple comparison

The current committee studied the results of the 2003 review very seriously, to establish a baseline of understanding and to focus attention on perceived strengths and weaknesses observed during the previous reviews, which then gave a lens through which to examine the current set of documents and to conduct the interviews. At the same time, the committee realised that much has changed, not only in the scale of the ratings (see appendix), but especially in the institutional context of many of the institutes, making direct comparisons difficult. This means that one should be cautious about direct comparisons between the previous review and this one, especially regarding the scores. The committee did its best to understand trends, as well as strengths and weaknesses; the scores can only give some indication, but the assessment text contains the substance.

National research cooperation and organizations

One of the remarks in the 1997 and 2003 reports considers necessary cooperation and coordination of the research programmes at the national level in order to increase focus, complementary programming, institutional profile, (international) productivity, and more optimal use of staff capacity. In the period under review, the following organizations played an important role:

a. ICL/VSNU

The Interdisciplinary Committee of Teacher Education Institutes (ICL) of the Association of Universities in the Netherlands (VSNU) is responsible for the Dutch Universities' national policy affairs regarding teacher education and research at the teacher training institutes. Besides education and research, knowledge transfer, international cooperation and universities as employers are important ICL focal points. ICL has played a coordinating role in the organisation of the current review.

b. ICO/KNAW

The Interuniversity Centre for Educational Research (ICO), formally recognized as a research school by the Royal Netherlands Academy of Arts and Sciences (KNAW), is the Dutch centre for excellent researchers in education and learning. ICO's main task is to offer the PhD candidates of the participating universities an educational programme of advanced courses. Given its demanding and internationally recognized criteria, evaluation committees regard ICO as a very important organization for enhancing the quality and productivity of research. University staff members who wish join the ICO research school must meet a set of criteria aimed at ensuring a high degree of quality. They must be employed at a university, hold a doctorate, and have produced six publications in peer-reviewed international journals (ISI-list and ICO-journal list) or in reviewed books in the English language in the five years prior to the date of admission.

With regard to the future of ICO, two tendencies are relevant: localization (decentralization) and internationalization. Several Dutch universities have recently decided to organise the coordination of their research programmes through local research schools or Graduate Schools. As a result, national research schools such as ICO may in the future act as 'research networks' that focus on the collective offering of specialized PhD courses, rather than on the accreditation of a joint research programme. Such networks do not necessarily need accreditation by the Royal Academy of Sciences (KNAW) and can be organized on the level of participating local graduate schools. At the same time, there is a tendency to increasingly organize PhD courses on an international level. For example, ICO is already organizing its summer/winter schools in close

collaboration with international partners, and its courses are open to international students. To cope with these new developments, ICO is currently setting up a research network (ICO Network or ICON) that is open to local Dutch graduate schools as well as international partners. The main aim of ICON is to prepare PhD candidates for doing high-quality educational research in an international context. Given the strong current position of ICO, it may be expected that the ICO network will continue to play an important role in educating young Dutch and European researchers also in the field of teaching, learning and teacher education research.

c. VOR

The Netherlands Educational Research Association (VOR) is the official professional association for educational research in the Netherlands. VOR provides an arena for discourse between experts from various educational disciplines and has a network of educational researchers preparing for their PhD. There are 10 divisions from which one is devoted to domain-specific aspects of education, in particular science and technology.

d. PROO/NWO

The Dutch Programme Council for Educational Research (PROO) of the Netherlands Organisation for Scientific Research (NWO) has been charged by the Deputy Minister of Education with drafting a research programme for educational research. Its research areas include primary education, general secondary education, (pre-) vocational education and teacher training institutes. On a regular basis, PROO invites researchers to apply for grants to carry out programme parts. From 2001 until 2009, 24 research projects referring to teaching and learning, teachers and teacher education have been allocated to the university teacher training institutes. The teacher training institutes have generally observed that the financial restrictions are such that not all strong research proposals have been awarded.

e. VELON

The Dutch Association for Teacher Educators VELON is an association with individual members, who are professionally involved in (both pre- and in-service) teacher education in the Netherlands. As an organization of professionals, VELON is committed to the enhancement of the professional quality of teacher educators. These include anyone who makes a substantial contribution to the professional development of teachers, whether initially or post-initially. In this respect there is no distinction between educators appointed at universities, colleges of higher education, in-service training institutions or schools. Because the VELON is an association of individual teacher educators, it is independent from schools, universities and colleges and their institutional interests; it is primarily concerned with professional support for educators. In working towards improving the quality of these educators, the VELON expects to contribute to the improvement of teacher education's quality.

New mechanisms for coordination?

At the time of this review, the independent position of the teacher training institutes, and consequently the relationship between research and teacher education programmes, was being reconsidered at most universities, with the exception of Leiden and VU Amsterdam. The trend to place teacher training institutes under the umbrella of faculties could affect the strong national collaboration between these institutes and the profile of their institutional research programmes. New strategies for coordinating national research programmes are needed because in such cases the institutes occupy a different place in the university organization and consequently in the decision-making processes.

State of the art 2010

Quality

In general, most institutes have proven to work at increasing the quality of their research programmes and to provide necessary conditions to realize their mission and goals. During 2001-2008 many changes occurred in the Institutes' environments which offered opportunities as well as threats. In its analysis of the quality of the research programmes, the committee found that high quality was, among other things, depending on the institutional policy to anticipate on and use opportunities offered by the Ministry of Education (DUDOC PhD students, grants for teaching and teacher related studies), the Netherlands Organisation for Scientific Research (proposals accepted by NWO/PROO), (European) organizations for contract research (participation in applied research fields, comparative studies) and higher professional education institutes (lectureships and PhD students). Of course, not only increasing resources contributes to the quality of a programme, but also matching the human resources and funds to the research programme's profile in order to avoid centrifugal tendencies and possible loss of coherence. The committee observed that quality was also to a high degree dependent on a genuine research climate, stakeholders' ownership of institutes' international ambitions, and strong leadership independent of concrete management style.

The committee encountered in all institutes continuing adaptation and innovation of the programmes to meet external and internal challenges. As mentioned above and in line with the observations of the former committees, increasing coherence of the programmes is a major concern given the necessary balance between focus and expansion, and the pressures of honouring a research agenda and having a positive impact on practice.

The increased internationalization of the work of the Institutes makes them sensitive to international shifts in research foci. For example, there has been a shift from studying beliefs and thoughts in isolation toward practice as the anchor for inquiry. There has also been a strong shift toward teacher quality and teacher assessment (value added). Such shifts seem to have affected the continuing direction of research programmes at some of the institutes that had invested heavily in teacher thinking.

Productivity

One of the observations in former reviews was the need for internationalization of teaching and learning research. As a consequence, the policy to publish in international journals as part of the ICO membership clearly contributed to productivity and international visibility of the Netherlands teacher education institutes. Although differences between institutions still exist, the trend toward internationalization is growing and putting research at a higher level. In addition, many staff members participate to an increasing extent in international editorial boards and international conferences. It has become clear that an increase in the number of international publications contributes to a solid knowledge-base, giving ground to implementations in the field of practice.

Increase of PhD students at the institutes is a parameter of future productivity. The committee encountered at some institutes very good examples of PhD student influx and of effective and efficient coaching as well as a decisive factor in delivering expected output. The tension between increase in PhD students and necessary staff for optimally coaching these students has been recognized in most institutes. In cases where non-tenured staff worked at the accomplishment of their PhD, the output was very restricted. This had to do with the often limited and fragmented research time available and the difficulty of practitioners to adapt to the research culture. Productivity of non-tenured staff is mostly found in professional publications.

Relevance

One of the criteria for relevance as depicted in the 1997 and 2003 reports concerns the ‘internal’ relevance of research for initial and in-service teacher training. The fact that the committees were responsible for the assessment of initial teacher training, in-service teacher training and research focused attention on this kind of relevance. In this review, it became clear that institutes differ in balance between scientific and professional impact. While some institutes have a strong focus on academic publications, others are more directed toward professional impact and some found a good balance between the two. Compared to the former review period, the institutes’ networking with (academic) schools and professional organisations is steadily growing and the societal impact is significant.

Viability

The previous reports welcomed the realisation of research programmes within centralized institutes for reasons of stronger programming, and programmatic synergy at the national level. This trend towards centralization of teacher education has recently shifted direction toward integration in faculties or university research tracks. Organisational complexity of Institutes apart from faculties as well as a risk of alienation of the Institutes from the faculties resulted at several universities in the integration of research programmes in faculties. This will undoubtedly affect the position of research programmes and its management as well. The committee recognizes opportunities of a better link with the faculties with research programmes in educational sciences. A possible threat is the blurring effect on teaching and learning research in more encompassing programmes. There is a need for new leadership that coordinates and manages teacher education and faculty in order to safeguard the identity and complementarity of the research in teaching and learning.

Personnel resources show a common and some different characteristics when compared over the institutes. Common is the relatively small number of staff at all institutes, and the limited amount of research time in full-time equivalents. Given the increase of external funding and contract research, tenured staff will be confronted with higher demands to write research proposals, manage contract research, find additional resources and coach an increasing number of PhD students.

Overall, research at Teacher Training Institutes is a small compartment in university research and, until now, directly financed by the University Board which gives a financial basis for doing research, often extended with additional funds. Nevertheless, great differences exist in the balance between direct and other sources of indirect funding and in the total budgets available. In most cases, with the exception of IVLOS, there was a decrease in direct funding (i.e. the funding provided by the University, mainly based on the number of students). In all institutes the funding from other sources increased. The committee observed that institutes with a strong, coherent programme and good leadership succeeded in obtaining external funding, also from NWO/PROO. Contract research increased in most institutes, though there are differences in the strategies for obtaining and using this kind of funding. Whereas in some institutes contract research is somewhat separate from the research programme, others only select contracts that fit into the main programme.

The committee strongly supports the latter strategy in order to avoid centrifugal tendencies in the research programmes. Relying too strongly on external funding is a potential threat to continuity and coherence, because it can make it difficult to build on previous work in coherent ways.

Conclusion

We can conclude that research on teaching and learning in the institutes that the committee has visited, is steadily growing in international productivity and impact. The research programmes are internationally more visible than before, mainly due to strong leadership and the international criteria used by ICO. Considering the relevance, researchers participate in many academic and professional networks which furthers the interaction between research and practice.

The main issue is now how changes in organisational structure will support this positive trend, both at the local and national level. The role of ICL/VSNU is of utmost importance in the new organisational position of the former institutes.

This international committee encountered not only a dynamic field of research, but highly motivated and knowledgeable scholars and teams as well.

ASSESSMENTS PER INSTITUTE AND PER PROGRAMME

3. University of Groningen (RUG)

3.1 Assessment at Institute level – University Centre for Learning and Teaching (UOCG)

3.1.1. Introduction

The research programme ‘Teaching and Teacher Education’ (TTE) is carried out by the University Centre for Learning and Teaching (UOCG) of the University of Groningen, which offers programmes for the training of (prospective) secondary school teachers. Along with their teaching task, UOCG staff members take part in the research programme.

Recently, the research programme has been updated and refocused. The aim of the new programme is to carry out research in the field of teachers’ professional development and to contribute to the development of effective teacher training programmes. The research programme that existed until 2008 is subject to this evaluation.

3.1.2. Leadership

The research programme ‘Teaching and Teacher Education’ is conducted in the University Centre for Learning and Teaching (UOCG) and forms since June 2004 a part of the Nieuwenhuis Institute for Educational Research, which falls under the Faculty of Behavioural and Social Sciences.

The research programme was founded around 2003. Prof. dr. J.J. Peters was initially the leader of the programme. After his retirement, he was succeeded by prof. dr. D. Beijaard, until July 2007, when he left for Eindhoven University of Technology. In the last six years, too many changes took place in the leadership of the research programme. In two out of six years, there was no programme leader. In December 2008, Prof. dr. W.J.C.M. van de Grift became the programme leader of the research programme.

The Faculty of Arts and the Faculty of Mathematics and Natural Sciences are represented by two professors each for 20% of their time. Since 2003, prof. dr. C.M. de Gopper (Faculty of Arts) and since 2004, prof. dr. M.J. Goedhart (Faculty of Mathematics and Natural Sciences) cooperate with the leader of the research programme. Together with the programme leader they work on the development of the research programme and are responsible for subject matter specific research projects. Once a month, the programme leader meets with both the above mentioned professors in order to discuss the progress made by the researchers, including problems that have occurred and measures that need to be taken.

3.1.3. Mission & Goals

The mission of the research programme ‘Teaching and Teacher Education’, when it was developed in August 2004, was to carry out research on three research themes:

1. Professional identity of teachers; (student) teachers’ perceptions of their professional identity as well as the development of this identity by student teachers are investigated in this research theme.
2. Quality of teachers; all the projects within this theme are subject-matter-related pertaining to student learning.
3. Professional development of teachers; within this theme, both student teacher learning and experienced teacher learning are investigated.

3.1.4. Strategy & Policy

In the strategy and policy of the programme, two periods can be distinguished, 2003-2005 and 2006-2008. During both periods, prof. dr. C.M. de Glopper and prof. dr. M. Goedhart (from September 2004), contributed to the management of the programme, as co-leaders and as supervisors of language, and mathematics and science related research projects.

The first period is characterized by a transition in leadership and the development of a new programme. Prof. dr. J.J. Peters served as programme leader from the start of 2003 until his retirement in April 2005. Peters was succeeded in August 2005 by Prof. dr. D. Beijaard, who developed a new research programme in the second half of 2005.

The second period saw the implementation of the new research programme and the departure of Beijaard. In the external midterm review of June 2006 considerable progress in the development of the research programme TTE was documented. The new programme was regarded as consistent. Problems that were noted by the Committee included the broad spectrum TTE aimed to cover, insufficient productivity and, in spite of clear improvements, the fragmentation of research tasks.

The departure of Beijaard in June 2007 caused an interruption in matters of strategy and policy from the middle of 2007 until the very end of 2008. The vacant position of programme leader was not filled until December 2008, when Prof. dr. W.J.C.M. van de Grift became the new leader of TTE. Under his leadership, the new research programme took shape.

In 2009 a new research programme 'Professional development of teachers' has been launched. This programme has five clusters of projects: (1) Professional development of teachers, (2) Student learning, (3) Antecedents of (Beginning) Teachers, (4) Interventions to Accelerate Professional Development, and (5) School context.

Evaluative remarks about Leadership, Mission and Goals and Strategy & Policy

The leadership hiatus during the review period seriously impeded the ability of the institute to achieve needed improvements in programme coherence and scientific productivity. There is currently new leadership and a new direction being forged. The Committee encountered an eagerness to address the issues of coherence, scientific productivity and relevance that need to be faced.

3.1.5. Resources

Most staff members could only spend a small amount of time on research. The majority of the 15-21 staff members had other duties in teacher training or in Faculties. A relatively large amount of time (about 50%) in the programme has been spent enabling staff members to acquire a PhD degree. During 2003-2008, a total of 10 PhD candidates worked on their PhD thesis. Two PhD theses were completed in 2008 and 2009.

	2003	2004	2005	2006	2007	2008
Full professors	0.6	0.67	0.77	0.9	0.7	0.53
Associate professors	0.4	0.4	0.4	0.4	0.4	0.4
Senior researchers (other)	0.7	0.7	0.7	0.7	1.0	0.8
<i>Total senior researchers</i>	1.7	1.77	1.87	2.0	2.1	1.73
PhD candidates (tenured staff)	1.4	2.4	2.7	2.8	2.48	2.0
Total research staff	3.1	4.17	4.57	4.8	4.58	3.73
PhD students	-	-	-	1.4	1.4	1.4

Table: Staff at programme level (in research fte)

3.1.6. Funding Policies

Until 2008, almost all the research in the programme was funded directly. In October 2006, a PhD project entitled ‘Looking at student work in teacher networks and its impact on teachers’ professional development’ was funded by the Dutch organisation of scientific research (NWO). In 2009, the research programme is extended with 7 external PhD candidates. In 2009, several projects are initiated on the induction of beginning teachers.

	2003		2004		2005		2006		2007		2008	
	k€	%	k€	%	k€	%	k€	%	k€	%	k€	%
Funding												
Direct Funding	274	100%	317	100%	346	100%	396	96.7%	403	93%	330	89.2%
Research Funds							13	3.3%	30	7%	40	10.8%
<i>Total funding</i>	274		317		346		409		433		370	

Table: Funding of the Institute

3.1.7. Facilities

The self evaluation report did not provide any information about the facilities. During the panel sessions, no problems with facilities were signalled.

Evaluative remarks about Resources, Funding Policies and Facilities

There is a move within the institute to expand funding sources beyond direct funding. There is also a substantial increase of PhD students during the last year. The Committee found that the new leadership is aware that a clear focus is needed to ensure that external funding will not pull the institute into even more diverse directions. The allocation of staff time to research remains relatively small and fragmented, which does not seem to provide an adequate foundation for making the changes that need to be made to increase coherence and productivity. The self-study recognises this problem.

3.1.8. Academic Reputation

Programme members are actively involved in various professional organizations, e.g.: the American Educational Research Association (AERA), the European Association for Research on Learning and Instruction (EARLI), the European Conference for Educational Research (ECER), the European Educational Research Association (EERA), the International Congress of School Effectiveness and Improvement (ICSEI), the International Study Association on Teachers and Teaching (ISATT), the Dutch Association for Educational Research (VOR), and the Dutch Association for Teacher Trainers (VELON).

Evaluative remarks about Academic Reputation

It is difficult to assess the academic reputation of the institute during the period 2001-2008 since key staff members have left in recent years and not all remaining staff have met standards of scientific productivity, except some of the remaining staff members. This is clearly an area that needs attention.

3.1.9. Societal Relevance

Dissemination of research results outside the scientific community occurs through professional publications read by teachers, school leaders and teacher educators. Many professional publications have been published by members of the programme. One of the members is very active in an important professional journal on language education. Another member organises a yearly conference on 'language, art and culture'. Members of the research group present results of their research on professional conferences (e.g., the VELON conference and conferences organized by teacher organizations), on workshops organized in schools and 'seminars' organized by schools and the department of 'Teaching and Teacher Education'. Researchers of the UOCG and schools collaborate in the project on 'academic schools', in which teachers carry out research in secondary education.

Evaluative remarks about Societal Relevance

The societal relevance of the area of research of the institute is high. The emerging interest in teacher quality and professional development is an important element in that respect. The professional publications that the Institute has produced and the work with the 'academic schools' are regarded as good contributions in that area.

3.1.10. Balance of Strengths & Weaknesses

In the self evaluation the following SWOT self-analysis is provided of which the headlines are provided in this report:

Strengths

- A joint mission has been developed with a strong relationship between the research focus and the teacher training programme.
- Being part of the Nieuwenhuis Institute implies the use of criteria for monitoring the research output of staff members.

Weaknesses

- The research projects running are still characterized by too much diversity based on individual preferences.
- From 2003 to 2008, not every staff member has met the ICO-criteria. (I.e.: In 5 subsequent years, every senior staff member should publish at least 6 articles in peer refereed scientific journals found on the list of (Social) Science Citation Index ((S)SCI) or the list of the Interuniversity Centre for Educational Research (ICO). Only one of these publications might be a peer refereed chapter in a scientific book.)
- In the last six years, too many changes took place in the leadership of the research programme. In two out of six years, there was no programme leader.

Opportunities

- After an absence of leadership of 19 months, the research programme has now a new programme leader.

- The combination of programme leader of the new research programme and head of the teacher training institute since 2009 offers opportunities to establish a stronger connection between research and pre-service and in-service teacher training.
- In 2009, the research programme is further extended with seven external PhD candidates.
- The research programme starts with a small focus and will be elaborated in a growth model when more funding is available.
- Several fund raising activities for research plans have been started to increase the resources for research by PhD's and senior staff. In the spring of 2009, an experiment on the induction of beginning teachers in the profession was funded with 1.5 million Euros by the Ministry of Education of the Netherlands. In the summer of 2009 another study on the induction of beginning teachers in the profession was funded with 400,000 Euros by the European Community. And in the summer of 2009 an international study on literature education was funded with 300,000 Euros by the European Commission.
- More strict selection and management based on output.

Threats

- The research group does not have a balanced staff composition. Academic positions such as assistant professor are underrepresented. A relatively large number of tenured staff is still working on their PhD thesis.
- Time for research is still too fragmented.

Evaluative remarks about Strengths and Weaknesses

The self-study demonstrates a realistic perspective on the issues the institute has experienced and how these issues have affected the coherence and quality of the output/impact. There is a clear enthusiasm for the new initiatives in 2009; it remains to be seen whether these will be sufficient to address the continuing concerns, but several steps have been taken in the right direction (see steps in 2009 as reported in the programme assessment in the next section). Indeed, the increase of external funding can in itself not be regarded as a remedy for the centrifugal tendency of the programme content.

3.2 Assessment per programme – RUG

Programme name:	Teaching and Teacher Education		
Programme director:	Prof. dr. W.J.C.M. van de Grift		
Research staff 2008:	3.73 tenured research staff and 1.4 fte PhD students		
Assessments:	Quality:	2	
	Productivity:	2	
	Relevance:	2	
	Viability:	2	

Short description

In this programme, research is carried out on three research themes:

1. Professional identity of teachers
2. Quality of teachers
3. Professional development of teachers

The first theme investigates the professional identity of teachers, (student) teachers' perceptions of their professional identity as well as the development of this identity by student teachers. The four projects in this theme are all general projects, viz. Pedagogical action in teacher education, Teachers' perceptions of their professional identity and how these are related to their work in practice, European knowledge and beliefs of Dutch prospective teachers and Students' professional identity development and the role of action research.

Within the theme quality of teachers, all the projects are subject-matter-related pertaining to student learning. The projects are: Problem-based writing and science learning in upper secondary schools, Stimulation of literary development in (upper) secondary education, Acquisition of case morphology in German by speakers of Dutch, Learning process of the concept of derivative in applications, The effect of computer supported help in solving applied physics problems by students of secondary schools, the physhint project (Nathint) and Cooperation in the chemistry classroom.

Within the third research theme, professional development of teachers, both student teacher learning and experienced teacher learning are investigated. Two of the projects are subject-matter related, the others are general projects. The projects are the following:

- Enhancing professional growth through the understanding of pupil learning: how student teachers can learn from gaining insight in the deeper learning of their pupils
- Quality of work-based learning in teacher education
- Teachers learning to design education for statistical investigations by students
- Looking at student work in teacher networks and its impact on teachers' professional development
- Diverse opportunities for learning to teach in the context of the mentoring relationship in practicum programmes.

Quality

Because of the serious leadership issues during the review period 2003-2008, the research programme lacked a consistent focus and strategy that would promote high quality work. Fragmentation of scarce resources and a lack of coherence in the research programme were

continuing problems during this period. Research projects seemed to be based on individual preference rather than a coherent strategy. Bringing in prominent new leadership at the end of 2008 has refocused the programme, but coherence remains a potential issue. During the review period, the overall originality, quality, and impact of the scientific output of the institute were relatively low, and no clear publication strategy was evident. UOCG being part of the Nieuwenhuis institute is expected to intensify the monitoring of the research output of staff members.

Productivity

The staff has produced professional publications, but the number of publications in high-impact journals, although increasing since 2006, remains relatively low per capita. It also appears that the output is not well distributed across staff members and several of them did not meet ICO criteria. Restructuring the place of the Institute within the Nieuwenhuis Institute and in relation to the Faculty of Education has potential to increase the quality of the scientific output if the coherence of the programme can be achieved. The number of Ph.D. students during the review period was low - only 2 since 2006.

Relevance

Although some researchers have contributed to the development and dissemination of knowledge, the overall academic impact of the programme has suffered from the lack of consistent management. At the moment most of the attention is given to professional rather than scientific outlets. Proposed work on the development of professional skills has promise for increasing the relevance of the work.

Viability

In view of management and performance issues and staff departures during the review period and the overall age and distribution of the staff, the prospects for the institute are not encouraging. Though there is some enthusiasm, especially among PhD students, for the new leadership, proposed directions, the evolving research climate, and new funding, it is hard to tell at this moment how these developments will affect programme coherence and scientific output/impact. The new research programme 'Professional development of teachers' with five project clusters remains very broad in view of staff with limited time for research. Similarly, it is not clear that affiliation with the Nieuwenhuis Institute will solve the core issues the institute faces.

Conclusion

The self-study demonstrates a realistic perspective on the issues the Institute has experienced and how these issues have affected the coherence and quality of the output/impact. This Institute has lacked critical leadership for an extended period and this circumstance has had a profound impact on the coherence, quality, productivity, and relevance of the research programme during 2003-2008.

At a minimum, the Institute needs to:

- craft a coherent research focus that can clarify and integrate the research programme
- balance the staff in terms of age and level of appointment
- increase the overall climate of research quality and productivity.

Since 2009, several steps in this direction have been taken:

1. In 2009, a new research programme has been launched. This new programme focuses on only one of the three research themes of the old programme. This theme is 'the professional development of teachers'. The following questions are central in the programme:
 - a. How do teachers' educational skills and pedagogical content knowledge develop in the course of their careers, from their initial education and their entry into the profession until they leave the profession?
 - b. Does the development of teaching skills result in better involvement of students and more learning gains and higher achievements of students?
 - c. How can we influence or even accelerate the professional development of teachers?
 - d. The programme leader believes that this new programme will sharpen the focus and further integration of the research programme.
2. There is a move within the institute to expand funding sources beyond direct funding. The externally funded projects have in common that they all gather data about the educational skills and pedagogical content knowledge of teachers. In this way a large dataset will be built for research on the development of teaching skills, which is central to the research programme. In this way the external funding is intended to support the productivity of the research programme.
3. There is a substantial increase of PhD students during the last year.
4. The programme leader has started a career trajectory for one of the staff members to prepare her for a leading role in supporting the PhD students and other staff members with their research activities.
5. It is recognised as important for the continuity in the research programme that new staff members now appointed on externally funded projects will get the opportunity to continue their research activities on a basis of direct funding.
6. All senior staff members with research tasks are now obliged to prepare each year at least 1 article for a peer refereed scientific journal listed in the (Social) Science Citation Index ((S)SCI) or the list of the Interuniversity Centre for Educational Research (ICO).

The Committee believes that these steps lead in the right direction. With adequate support and monitoring from the Faculty and the University, it should be possible to resolve the problems that have accumulated from the past.

4. Utrecht University (UU)

4.1 Assessment at Institute level – IVLOS Institute of Education

4.1.1. Introduction

Utrecht University comprises three institutes of education: IVLOS, the Freudenthal Institute for Science and Mathematics (FIsm), and the department of Educational Sciences (within the Faculty of Social Sciences). These three institutes cooperate closely. A few years ago, an informal network organisation was founded: Educational Sciences Utrecht (Onderwijswetenschappen Utrecht: OWU).

IVLOS Institute of Education (Interfacultair Instituut voor Lerarenopleiding, Onderwijsontwikkeling en Studievaardigheden) was established in 1988 and is a separate department (i.e. interfaculty institute) of Utrecht University, which includes teacher education programmes, educational research, study-skills training, services in the field of staff development in secondary and higher education, and educational support, design and development. IVLOS also performs contract work for universities, colleges of higher education, government institutions, and secondary schools. IVLOS advises the University Board and the faculties of Utrecht University on educational policy and innovation. The IVLOS Institute of Education research team is one of five teams together constituting IVLOS.

4.1.2. Leadership

The dean of IVLOS is appointed by the board of Utrecht University and given the responsibility for all activities. In turn, the dean is assisted by a management team consisting of 2 professors and a managing director. IVLOS is responsible for all teacher education programmes of Utrecht University.

Programme leaders during the review period were Prof. dr. T. Wubbels (until Dec. 1, 2002), Prof. dr. A. Pilot (Dec. 1, 2002 – Sept. 1, 2006) and Prof. dr. R.J. Simons (Sept. 1, 2006 – present).

The daily coordination of the research team is done by the team leader (Prof. dr. M. Brekelmans until Sept. 2007; Dr. P.C. Meijer since March, 2008). The team leader is also responsible for the research budget, all staff issues, and the organization of research meetings and trial defences.

IVLOS has a scientific committee, consisting of the three full professors, dr. P.C. Meijer as team leader, and dr. S. Akkerman as staff member. The scientific committee meets at least twice a year, and more often if required. The scientific committee is involved in establishing new research programmes, applications for research funds and contract activities, and advises the team leader regarding the recruitment and selection of personnel and the allocation of travel funds.

4.1.3. Mission & Goals

Before 2006, the IVLOS research programme comprised three partial programmes: “Teacher and pedagogy”, Domain-specific pedagogy (“Vakdidactiek”), “Teachers and their professional development”, and “Curriculum and ICT”. The main research themes during this period were:

- Teaching, teacher development and teacher education
- Curriculum development and evaluation
- Information technology in education
- Language teaching and learning
- Conceptual development and curriculum research in mathematics and the physical sciences

The research programme 2006-2008, *Activities and learning of teachers*, focused on the question: how can teaching be optimized? Primary object of study was the teacher. The following questions guided the programme:

1. What are effective ways of teaching domain X?
2. What kind of expertise (knowledge and skills) do teachers need in order to teach in that way?
3. How does this expertise develop over time?
4. What kind of interventions and learning environments stimulate this development?

The main question addressed by this programme is: How can teachers' learning and expertise throughout their careers be optimized in order for them to be able to live up to the professional challenges encountered in their educational practice?

The IVLOS research programme aims at contributing to theory on fostering teacher learning and expertise based on empirically grounded knowledge of current and required practice, as well as based on careful experimentation with and evaluation of improvement of educational practice.

4.1.4. Strategy & Policy

In 2005/2006, IVLOS was faced with a reorganization that resulted in an approximately 40% reduction of university research funding. As a result, the period 2005/2006 was one of turbulence, uncertainty, establishing a new focus and developing new ways of working. One of the aims was to apply for additional external funding in order to maintain the high research standards. This was done concurrently with the development of a focused research programme. In 2006, the partial programmes were integrated into one combined research programme, which was a first step in trying to create more focus. The number of professorships was reduced accordingly.

Since 2006, the integrated programme was developed into a programme entitled "Teacher learning and expertise throughout the professional career" (see Appendix A), which forms the basis of IVLOS research since 2008. Several initiatives contributed to the development of the programme:

- IVLOS Research programme 2006-2008
- Joint research programme of IVLOS and FIsmc
- Development of Ph.D. projects in close collaboration with various Utrecht University Faculties (Veterinary medicine, Humanities, Medicine, Geophysics) in the field of domain-specific research questions
- Collaboration within ICO and VOR to establish shared interests and indicate specific areas of expertise
- International cooperation.

The IVLOS research programme 2008-2014 focuses on teachers' learning and expertise throughout their professional careers. The programme mainly concentrates on secondary school teachers, but also includes research on teachers in higher education. The objective is to understand and explain how teacher learning and development takes place, as well as to get to know how learning and development can be optimized. These matters need to be investigated in the setting of the educational field. Given this dynamic field, there has been an increasing attention to teacher learning and development throughout their professional careers.

Evaluative remarks about Leadership, Mission and Goals and Strategy & Policy

As part of a reorganization of the Institute, in 2006, the three primary strands of research were integrated in a single line of research on teacher learning and expertise across the career. This strategy followed a dramatic reduction in direct funding from the university and subsequent departure of several productive senior faculty members. The leadership was faced with difficult challenges during this turbulent period, but has managed to increase significantly the external funds available to support research. The integration of research strands over the past few years into a single line of research has supported the clarity of its mission. IVLOS has benefited from very high quality leadership during this period, and has followed a strategy that is designed to support a high-quality research programme.

4.1.5. Resources

	2001	2002	2003	2004	2005	2006	2007	2008	
Full professors	-	-	-	-	-	-	-	-	
Associate professors	-	-	-	-	-	-	-	-	
Assistant professors	-	-	-	-	-	-	-	-	
<i>Total tenured staff</i>	<i>7.54</i>	<i>6.98</i>	<i>6.31</i>	<i>5.73</i>	<i>5.17</i>	<i>3.83</i>	<i>4.39</i>	<i>4.51</i>	<i>44.51</i>
PhD students	2.13	3.90	5.02	5.31	6.20	5.78	4.52	3.91	36.77
Other non-tenured staff	0.50	1.20	0.80	0.90	1.45	0.85	0.70	1.33	7.73
<i>Total non-tenured staff</i>	<i>2.63</i>	<i>5.1</i>	<i>5.82</i>	<i>6.21</i>	<i>7.65</i>	<i>6.63</i>	<i>5.22</i>	<i>5.24</i>	<i>44.5</i>
Total research staff	10.17	12.08	12.13	11.94	12.82	10.46	9.61	10.00	89.21

Table: Staff at department level (in research fte)

	2001	2002	2003	2004	2005	2006	2007	2008
Programme Domain-specific pedagogy								
Total tenured staff	2.72	2.43	2.00	1.88	1.30			
PhD students	1.40	1.50	1.38	1.38	1.00			
Other non-tenured staff	0.20	0.20	0.00	0.00	0.00			
Total	4.32	4.13	3.38	3.26	2.30			
Programme Teachers and their professional development								
Total tenured staff	2.40	1.94	1.76	1.38	1.67			
PhD students	0.13	0.00	1.00	1.00	2.00			
Other non-tenured staff	0.30	1.00	0.80	0.80	1.35			
Total	2.83	2.94	3.56	3.18	5.02			
Programme Curriculum and ICT								
Total tenured staff	2.42	2.61	2.55	2.47	2.20			
PhD students	0.60	2.40	2.64	2.93	3.20			
Other non-tenured staff	0.00	0.00	0.00	0.10	0.10			
Total	3.02	5.01	5.19	5.50	5.50			

Programme Activities and learning of teachers								
Total tenured staff						3.83	4.39	4.51
PhD students						5.78	4.52	4.16
Other non-tenured staff						0.85	0.70	1.33
Total						10.46	9.61	10

Table: Staff at programme level (in research fte)

4.1.6. Funding Policies

During the period 2001 to 2008, direct funds for research were reduced, from 90.6 per cent to 50.7 per cent of the budget. Research funds and contract research were increased, so after a decrease of the entire budget in 2006 and 2007, it is now increasing again. Direct funding is now at about half of the entire budget.

The research programme “Domain-specific pedagogy” was funded directly by the university. No additional funding was found for this programme, and its direct funding was also reduced. Direct funding for the research programme “Teachers and their professional development” was also reduced, but the research funding was increased to constitute about a quarter of the funding by 2005. Funding of the programme “Curriculum and ICT” was first increased, and later stayed about the same, despite reductions of direct funds. Additional research and contract funding was found for this programme.

It is expected that direct funding will be further reduced. More effort will be put in applications for research funds and contract research, also internationally. The target is to keep the total budget at level with the average budget of about 800 kEuros.

	2001	2002	2003	2004	2005	2006	2007	2008
	%	%	%	%	%	%	%	%
Funding								
Direct Funding	90.6	82.6	74.6	72.4	60.6	59.5	59.5	50.7
Research Funds	4.5	14.9	21.4	21.8	32.4	34.7	33.4	35.3
Contracts	4.9	2.5	4.0	5.9	7.0	5.9	7.1	14.0
Other	-	-	-	-	-	-	-	-
Total funding	100	100	100	100	100	100	100	100

Table: Funding of the Institute

<i>Programme: Activities and learning of teachers</i>	2006	2007	2008
Direct funding	59.45%	59.51%	50.71%
Research funds	34.70%	33.37%	35.31%
Contracts	5.85%	7.12%	13.98%
Total	100.00%	100.00%	100.00%

Table: Funding at the programme level

4.1.7. Facilities

The self evaluation report does not provide information about the facilities.

Evaluative remarks about Resources, Funding Policies and Facilities

During the period from 2001 to 2008, the amount of direct funding provided to IVLOS declined rather dramatically, as did the number of tenured staff. Direct funding decreased from 90.6% of

the budget to 50.7% of the budget, while external research funds increased from 4.5% to 35.3% of the overall budget. The number of tenured staff members also decreased during this period, from 7.54 FTE in 2001 to 4.86 FTE in 2008. While the Institute has succeeded in increasing external funding for research, the resources available to the Institute declined during this period. During this same period, the Institute has increased the numbers of PhD students, creating additional work for tenured staff, but also capacity for research and publication. This has been a challenging period for IVLOS in terms of resources and funding policies, but the Institute has adapted to changing circumstances and has managed to stabilize its situation in the past three years.

4.1.8. Academic Reputation

Through their membership of the VOR, IVLOS researchers are automatically members of the EERA (European Educational Research Association). Every year, some IVLOS researchers, including Ph.D. students, visit the AERA, EARLI and other international conferences to present their research. IVLOS staff members have been opponents at many PhD defences at almost all Dutch universities, but also abroad at for example the universities of Edinburgh, Durham (UK), Helsinki and Turku (Finland). IVLOS staff members are members of the editorial boards of several international journals.

Evaluative remarks about Academic Reputation

The committee recognizes IVLOS as a well-established centre that is well known for its high quality educational research and teacher preparation programmes. Researchers at IVLOS regularly participate in international conferences and publish their work in high quality international journals, and their work is visible both nationally and internationally. The committee agreed that IVLOS has a strong academic reputation.

4.1.9. Societal Relevance

Because IVLOS is not only concerned with conducting research, but also with the education of beginning - and experienced teachers, as well as educational advice to and support of higher education students, many research results are directly used and tested in practice. In order to promote and maintain a mutual benefit from validating research and practice, collaboration between the research team and the other teams of IVLOS is close. Next to collaboration at team level, several Ph.D. researchers work simultaneously as a teacher educator or advisor. Members of the research programme join in projects outside IVLOS based on their skills as researchers, for example, by joining academic pilots with secondary schools wishing to conduct collaborative research.

A secondary focus of research activities is the writing of professional publications accessible to the educational field (teachers, schools, et cetera), in addition to the academic publications which are mainly written in English. The same goes for organizing lectures and workshops at schools, or at other parts of the university, aiming at improving their education.

Evaluative remarks about Societal Relevance

The committee believes that IVLOS has identified a research programme that has very strong relevance for society. The emphasis on teacher learning across the career is strongly connected to its teacher education mission, as well as to the preparation of teachers for higher education. IVLOS has also established collaborative relationships that make it more likely that its research will have an impact on the quality of practice in schools and universities. Finally, IVLOS has made it a priority to make its research available both to the academic community, through academic publications, and to practitioners, through its professional publications, written primarily in Dutch. The committee sees this as a strength of the Institute.

4.1.10. Balance of Strengths & Weaknesses

In the self evaluation the following SWOT self-analysis is provided of which the headlines are provided in this report:

Strengths

- The IVLOS research programme has developed into a programme with a strong and coherent focus (viz. the learning and expertise of teachers throughout their professional careers), which is felt as a major improvement. The recent programme builds on insights from research carried out in the three previous programmes, and has brought together the strongest expertise developed in those programmes.
- The IVLOS research programme is carried out in close collaboration with other IVLOS teams, and with departments and institutes outside IVLOS, within the broader Utrecht University, as well with national and international partners.
- All kinds of pressure and hectic periods such as reorganization and serious budget cuts have only moderately influenced the scientific output of the IVLOS research programme(s).
- Next to institutionally organized research collaboration, there has been a strong tendency for externally financed Ph.D. students to come to IVLOS with their own budget, asking IVLOS to supervise the Ph.D. work.
- IVLOS has a strong research community in which Ph.D. students, postdocs, and tenured staff participate.

Weaknesses

- Due to budget cuts within other faculties, collaboration with the Faculty of Humanities has declined in the last ten years.
- Due to many changes in the research programme, the connection with the scientific output and the research programme is not always clear. The recent research programme is expected to lead to more focused output in the years to come.
- Not all Ph.D. students are required to participate in the ICO educational programme for Ph.D.s.
- Supervising external Ph.D. students is more difficult, because there is often no budgetary provision for a daily supervisor in the finances of the funding institutes. Also, the relationship between their projects and the research programme is not always obvious. As a result, not all external Ph.D. projects contribute to the research programme, and these Ph.D. students are not always closely supported within the research programme. Although the focus is more and more on writing theses that consist of scientific articles, external Ph.D. students still mainly write monographs. Although most external candidates publish their work in scientific journals one or two years after the thesis defence, the problem of writing monographs is that the dissemination of the research in terms of scientific articles is much more difficult. Without a day-to-day supervisor, Ph.D. students find it difficult to write scientific articles.

Opportunities

- The Utrecht University Board decided to install a committee to write a proposal for a research programme on education. The IVLOS research programme will be an important part of this research programme.
- The funds for external Ph.D. research are increasing. Although competition is tough, IVLOS has a good reputation for research, and for that reason also had many external Ph.D. candidates.

- The recognition of the importance of highly qualified teachers is increasing. This recognition results in new and increased funding of projects in which teacher professional development is focused on academic qualifications.

Threats

- The funding of educational research has been gradually diminishing for the last ten years. The reduction of direct funding by the university was planned to be followed by an increase of the funding through NWO. Until now, this has not happened.
- The biggest threat in the years to come, are the expected cutbacks in finances coming directly from the university. Although IVLOS has a good reputation in applying for non-university funding, the expected cutbacks result in more uncertainty.

Evaluative remarks about Strengths and Weaknesses

The Committee agrees with the Institute's assessment of strengths, weaknesses, and threats. Overall, the committee sees IVLOS as a well-established center that is well known for its high quality educational research and teacher preparation programmes, that has faced significant challenges in terms of funding and resources. The period from 2001 to 2008 included dramatic reduction in direct funding from the university and subsequent departure of several productive senior faculty members. The leadership was faced with difficult challenges during this turbulent period, but has managed to increase significantly the external funds available to support research. However, as the report suggests, external funding is more difficult to procure, and the uncertainty around external funding creates additional challenges.

In part due to these challenges, beginning in 2010, IVLOS will cease to exist as an autonomous department and will be integrated into the Faculty of Social Sciences. The research programme will be integrated into a new Focus and Mass programme on expertise. This new reorganization will create additional challenges, including maintaining an identity and visibility for educational research, but may also provide additional resources for research. The Focus and Mass programme on expertise is a natural home for work on teacher learning across the career, and should provide opportunities for more interdisciplinary work on this topic. Whether or not researchers are able to sustain a clear programme of research around teacher learning within this center is still unknown.

4.2. Assessment per programme – IVLOS

Programme name:	Activities and learning of teachers		
Programme director:	Prof. dr. Robert-Jan Simons		
Research staff 2008:	9.80 fte		
Assessments:	Quality:	4	
	Productivity:	4.5	
	Relevance:	4	
	Viability:	4	

Short description

The research programme Activities and learning of teachers (2006-2008) focused on the question: how can teaching be optimized? Primary object of study was the teacher. The following questions guided the programme:

1. What are effective ways of teaching domain X?
2. What kind of expertise (knowledge and skills) do teachers need in order to teach in that way?
3. How does this expertise develop over time?
4. What kind of interventions and learning environments stimulate this development?

These four questions were studied in interaction, based on the idea that teaching is a complex matter, requiring complex research incorporating various perspectives. The following perspectives played a vital part in studying the four questions:

- A content or subject matter perspective, in which teaching is conceptualized in terms of concepts and procedures teachers use to explain (problems in) the subject they are teaching;
- An interpersonal perspective, in which teaching is conceptualized in terms of the relationships and interactions between teachers and students; and
- A learning activities perspective, in which teaching is conceptualized in terms of the type of learning activities (cognitive, affective, and meta-cognitive) teachers stimulate in their students, and how they do so.

Quality

The IVLOS Institute has a long history of high-quality research and a strong publication record in international journals. Researchers within IVLOS are well known and respected, and the Institute has a strong reputation both nationally and internationally. The Institute has weathered a period of dramatic change in recent years, with reductions in direct funding and in academic staff. Yet despite these changes, IVLOS has managed to maintain the quality of its research programmes. Over the past few years, the Institute has begun to define a common research agenda around teacher learning across the career; this agenda takes advantage of existing lines of research within the Institute, while creating a greater sense of coherence among research projects. The quality of their doctoral programmes is also very strong, as evidenced by the PhD theses produced. Finally, the Institute has had very high quality leadership over the past several years.

Productivity

Researchers within IVLOS have been quite productive during the period of 2001-2008. Over this period, the publications were increasingly likely to appear in high quality refereed jour-

nals, which is a notable strength. 2005 was clearly the high water mark for scientific publication, with articles in *American Educational Research Journal*, *Teaching and Teacher Education*, *Journal of Research in Science Teaching*, *Educational Psychologist*, and other highly rated journals. While publication fell a bit with the departure of several full professors, including some very prolific researchers, in 2008, there were 21 academic publications in refereed journals, which is very respectable, given the reduced size of the Institute. IVLOS has been very productive in terms of its numbers of doctoral students. From 2006-2008, there were 17 completed PhD theses, which is a very impressive number. The number of PhD students actually seems quite high, given the relatively small number of senior faculty available to supervise them. It should be added that IVLOS has produced a large number of professional publications reporting research findings of relevance to teacher training and related fields of study as well as to the general debate about teaching and learning. In a professional field, researchers need to be responsive both to scholars and practitioners. IVLOS seems to have struck a good balance in responding to both audiences.

Relevance

The research produced by IVLOS has both scientific and professional relevance. The professional relevance focuses on the improvement of teaching in both secondary and higher education. The research in higher education teaching is immediately relevant to colleagues across the university, while the work on secondary school teaching is highly relevant for classroom teachers. One of the strengths of IVLOS lies in its relationships with other departments across campus and with local secondary schools. These relationships help ensure the relevance of the research. The scientific relevance is also very high, as there is a great deal of interest in issues of teacher learning and development both nationally and internationally.

Viability

In this ranking, we focus on the viability of the research agenda within IVLOS, as the Institute will cease to exist as an independent department beginning in 2010, according to the latest re-organization plan. The focus on a single, broad line of research on teachers' learning and expertise development is a clear strength; this is crucial research area that is receiving attention internationally as more and more research identifies the teacher as one of the most critical determinants of student achievement. The opportunity to join with other researchers who focus on expertise, as part of the newly developed Focus and Mass Center, will certainly strengthen the opportunities for external funding.

Conclusion

The committee appreciates the ability of IVLOS to continue its tradition of high quality research during a turbulent period, with reductions in funding and in tenured staff. The committee also recognizes the excellent leadership during this period and the strategic focus on streamlining the mission and goals of the research programme. The committee also commends the attention to societal relevance and the commitment of IVLOS to ensuring that the work of the Center is accessible to practitioners and policymakers. With the move to the Faculty of Social Sciences, planned for 2010, IVLOS will cease to exist as an autonomous Institute. The committee hopes that this move will provide additional resources and stability for the research programme of Institute staff. However, we are concerned that every effort be made to preserve the strong relationships between the research programme and the teacher education programmes, as well as the relationships between IVLOS and local schools and universities.

4.3 Assessment at Institute level – Freudenthal Institute for Science and Mathematics Education (FISme)

4.3.1. Introduction

The Freudenthal Institute for Science and Mathematics Education (FISme) is part of the Faculty of Science of Utrecht University. FISme is an institutional cooperation of four research groups which investigate mathematics education, physics education, chemistry education and biology education respectively.

As remarked in the section about IVLOS, Utrecht University has three institutes of education: IVLOS, FISme and the Department of Educational Sciences. These institutes cooperate closely in an informal network organisation: Educational Sciences Utrecht (Onderwijswetenschappen Utrecht: OWU).

4.3.2. Leadership

During the first part of the review period (2001-2006), the mathematics education unit at the University of Utrecht (the Freudenthal Institute, or FI) and the (natural) Sciences education unit at the Centre for Science and Mathematics Education at the University of Utrecht were not united in one institute (see Section 4.3.3). Each group had its own leadership. The leader of the mathematics education research programme was Prof. dr. J. de Lange with Prof. dr. K. Gravemeijer as the leader of the research team. The leaders of the science education research programme were Prof. dr. P.L. Lijnse, Prof. dr. K.T. Boersma and Prof. dr. A. Pilot.

FISme (Freudenthal Institute for Science and Mathematics Education) was founded in December 2006. The director of FISme is appointed by the Dean of the Faculty of Science of Utrecht University and is responsible for all activities. The director is assisted by a management team consisting of four professors from the different discipline groups and a representative of IVLOS.

During the evaluation period, several changes took place in the programme management: Prof. Lijnse and Prof. Boersma both retired. Prof. de Lange took partial retirement, ending his work as director of FISme mathematics. Prof. Van Maanen was appointed as new director of FISme mathematics and Prof. Van den Heuvel-Panhuizen was appointed at FISme mathematics as well. Prof. Waarlo, Prof. Van Koppen and Prof. Kuiper were appointed at FISme science. Prof. Gravemeijer left FISme for the Technical University of Eindhoven.

The present leader of the FISme research programme is FISme's director Prof. dr. A. Pilot. To guide and stimulate the development of an integrated research programme, a Research Committee has been established which consists of nine FISme staff members. The IVLOS Institute also has a representative on this Research Committee. The FISme Research Committee, chaired at present by Prof. dr. M. van den Heuvel-Panhuizen, discusses the research programme, research proposals, and initiatives for new research projects and possibilities for funding, and advises the director of FISme.

4.3.3. Mission & Goals

The mission of FISme is to study and enhance science and mathematics education through research, education and advisory activities. The FISme research programme includes research in pre-school settings, primary education, general secondary education, prevocational and vocational education and teacher education. FISme's research has a dual aim: firstly to under-

stand how students and teachers learn and how they develop themselves professionally and, secondly, to understand how learning and teaching can be optimised in the innovation processes which are currently taking place in science and mathematics education.

The general research mission is currently organised into four themes:

1. Context-based science and mathematics education;
2. Modelling and representation with computer tools;
3. Elementary learning of mathematics and science,
4. The learning of science and mathematics teachers in curriculum innovation.

The research within these four thematic categories contribute to theories about student learning and teacher learning and expertise in science and mathematics education, based on empirical studies of current and intended practice. A broad range of qualitative and quantitative methods is used in these studies. A special role is played by design-based research which reinforces a further theoretical understanding and offers prototypical products which can be used in classroom innovation and in the professional development of teachers.

4.3.4. Strategy & Policy

In 2001, at the time of the first peer review of the research programme, two research programmes existed: on science education and on mathematics education. The review was positive about the unique integration of research, curriculum development, policy development, and teacher training of the science and mathematics groups. The review was more critical about the coherence of the research programme in science education, which has resulted in a new strategic research policy and the development of the more sharply focused combined programme of science and mathematics education. The productivity regarding academic articles in refereed journals and book chapters was seen as a cause for concern as well as the number of PhD theses. Steps have been taken to enhance the productivity of the research programmes.

In December 2006, FIsmc was established after the merging of the Faculties of Mathematics and Computer Science, Physics and Astronomy, Chemistry, Biology and Pharmacy into one Faculty of Science. The establishment of the institute led to more cooperation between the mathematics and science education groups. A research committee was established to steer the development of the FIsmc research programme.

This strategy towards a greater cooperation in research has resulted in combined activities and studies, and the discussion of new PhD proposals. To create a sharper focus, one research programme was created with four themes that transcend the separate disciplines:

1. Context-based science and mathematics education
2. Modelling and representation with computer tools
3. Elementary learning of mathematics and science
4. The learning of science and mathematics teachers in curriculum innovation.

FIsmc research aims at a synthesis of theoretical expertise, empirical knowledge and practice-based experiences in the area of learning and teaching science and mathematics. The research questions and methods reflect multidisciplinary approaches in connection with a strong intertwinement of theoretical and practical perspectives. Many FIsmc researchers are simultaneously active as teacher educators, or curriculum and software designers, or teacher advisors

in the domains of science and mathematics. Moreover, in many studies, FIsmc researchers collaborate with science and mathematics teachers and other school staff.

Evaluative remarks about Leadership, Mission and Goals and Strategy & Policy

The Committee acknowledges the unique integration of research, curriculum development, policy development and teacher training in both the science and mathematics groups within FIsmc. The strategy to increase cooperation between science and mathematics, and to focus increasingly on research, is applauded. The changes in leadership appear to have been well managed. The challenge will be to build synergy between mathematics and science, exploiting the developmental strengths of the mathematics group and the research production of the science group.

4.3.5. Resources

The years 2007 and 2008 show an increase of staff and funding, which was mainly caused by the national DUDOC programme (Didactisch Universitair onderzoek van DOCenten [Didactical Scientific Research by Teachers]) established in 2007. The DUDOC programme generated national funding for 20 PhD students. FIsmc was successful in obtaining these PhD projects. As a result nine extra PhD students joined FIsmc. At the same time, collaboration with research groups ('lectoraten') at the Universities of Applied Science ('Hogescholen') and other external research groups also resulted in new PhD projects. These projects are funded externally, but are supervised by FIsmc professors.

	2001	2002	2003	2004	2005	2006	2007	2008	
Full professors	1.7	1.5	1.51	1.6	1.6	1.18	1.3	1.28	
Associate professors	0.94	0.71	0.75	0.71	0.51	0.24	0.86	1.11	
Other tenured staff	4.48	3.30	2.82	3.25	4.03	4.08	3.52	3.04	
<i>Total tenured staff</i>	7.12	5.51	5.08	5.56	6.14	5.50	5.68	5.43	46.02
PhD students	7.1	6.23	3.95	5.13	5.58	6.1	6.75	13.3	54.14
Other non-tenured research staff	2.47	1.07	1.20	1.20	0.85	1.48	3.62	4.43	16.02
Total staff	16.69	12.81	10.23	11.89	12.57	13.08	16.05	23.16	

Table: Research staff

4.3.6. Funding policies

	2001		2002		2003		2004		2005		2006		2006		2008	
<i>Funding</i>	fte's	%	fte's	%	fte's	%	fte's	%	fte's	%	fte's	%	fte's	%	fte's	%
Direct Funding	9.74	58%	7.94	62%	7.27	71%	9.04	76%	9.51	76%	7.92	61%	7.93	49%	10.39	45%
Research Funds	2.2	13%	2.9	23%	1.02	10%	0.9	8%	1.58	13%	3.85	29%	4	25%	3.7	16%
Contracts	4.75	28%	1.97	15%	1.94	19%	1.95	16%	1.48	12%	1.31	10%	4.12	26%	9.07	39%
<i>Total Funding</i>	16.69	100%	12.81	100%	10.23	100%	11.89	100%	12.57	100%	13.08	100%	16.05	100%	23.16	100%

Table: Funding of the Institute

4.3.7. Facilities

Until now the mathematics and the science education groups have been accommodated in two different places. FIsme considers this to be a problem, which, however, will be solved in 2010, when the mathematics education group will move to the Uithof campus. In the library, researchers have free access to electronic publications of all major journals in this field. The laboratory facilities of the Faculty of Science are considered to be good. Recently, a small laboratory in the Buys Ballot Laboratory building has become available for small experiments which are used in research projects on innovative learning materials. IT-facilities at FIsme enable analyses and research which are related to web-based innovations and the use of video materials in the professional development of teachers. Software for monitoring students in online activities is available, as is video equipment for the registration and editing of children's activities.

Evaluative remarks about Resources, Funding Policies and Facilities

From the information provided in the self-assessment report and the interviews, the Committee concluded that the University has taken steps to provide stability for the mathematics and science groups, by integrating them and providing sustained resources. At present the funding policies and facilities of the Institute are in good shape. The move of the mathematics education group in 2010 to the Uithof campus will be a significant stimulus toward the coherence of the Institute as a whole.

4.3.8. Academic Reputation

The self-assessment report provides a selective overview of prestigious academic functions held by FIsme staff in the period 2001-2008. These include editorships of academic journals, memberships of scientific boards, rewards and prizes, international conferences to which FIsme staff member contribute and many national and international universities with which FIsme is collaborating.

Evaluative remarks about Academic Reputation

Before the merge into FIsme in 2006 the original Freudenthal Institute had a long-standing reputation as one of the world's most highly respected centres of mathematics education. FI pioneered a form of theory-based instructional design, grounded in Realistic Mathematics Education (RME) that has consistently produced instructional materials of the highest quality. Such products are often not given high credit in formal academic reviews, in contrast to the credit given to refereed papers. Thus the Freudenthal Institute has historically been at a disadvantage when judged by current criteria.

4.3.9. Societal relevance

Researchers make the results of their research available to educational professionals through publications in professional journals and presentations for teachers and schools. These presentations are carried out on a regular basis at annual conferences of teachers in science and mathematics. Members of the department participate in conferences organised by the Netherlands Educational Research Association (VOR) for educational professionals (ORD-conference), and carry out substantial work for the Ministry of Education, Culture and Science. Publications for teachers, trainers and others outside the scientific community mainly appear in *Wiskrant*, *Panamapost*, *Volgens Bartjens*, *NVOX* and *Didaktief*, monthly published professional journals for schools and teachers. Moreover, all project deliverables (e.g., reports, working papers, specifications, etc.) are made available on the FIsme websites.

In addition to taking part in and carrying out fundamental scientific research, the research group is a member of a consortium (with IVLOS and Educational Sciences) which participates in a programme administered by the National Educational Advisory Centres (in Dutch: LPC). This programme is meant to stimulate research which answers questions and tackles bottlenecks in educational practice and praxis with the ultimate aim of improving education. The project results are published as a brochure for schools and teachers. Members of the research group publish regularly in other professional journals (see overview of publications).

Members of the research group are regularly involved in the production of books and other materials for secondary and primary schools on science and mathematics programmes. They work together with committees on new programmes for science and mathematics education, teachers and publishers, using the expertise acquired in the research programme.

Evaluative remarks about Societal relevance

Improving the quality of teaching and learning in science and mathematics is a matter of enormous societal relevance. The contributions of the Freudenthal Institute in this regard have been important, both via the research aimed at questions of educational practice and via professional publications and curricular products for schools and teachers. The activities of the Institute provide a good example of productive interactions with various stakeholder groups in society, including policy makers. FIsmе's contributions to national curriculum innovations and to the professional development of teachers are cases in point.

4.3.10. Balance of Strengths & Weaknesses

The institute has provided a SWOT self-analysis of which the headlines are provided in this report.

Strengths:

- The establishment of FIsmе in 2006 has strengthened the cooperation of groups in mathematics and science education and has enabled the development of one sharply focused research programme.
- FIsmе has the advantage of doing research in mathematics and science education within the Faculty of Science enabling it to participate in teaching programmes with a sound reputation.
- FIsmе has a multidisciplinary team of researchers with a diverse range of expertise who are linked to national and international networks, in which FIsmе often plays a central role.
- FIsmе has an international reputation for the innovation of mathematics and science education.
- FIsmе research has made a significant contribution to national curriculum innovations and the professional development of teachers. In particular, the DUDOC programme offers a good opportunity to bridge theory and school practice.
- FIsmе research staff, especially the number of PhD students, is increasing.

FIsmе has the advantage of close cooperation in research and teaching in mathematics and science education with the IVLOS Institute of Education at Utrecht University.

Weaknesses:

- Overall productivity on papers in scientific journals has increased, but could be higher. FIsmе intends to keep working on this aspect of performance. In the past, design-based research produced both practically and theoretically relevant results, but publication of these results in international scientific journals turned out to be difficult.

- The synthesis of theory-driven research and practice-oriented research demands a continued balancing effort.
- Strict timelines in PhD projects have proven difficult to adhere to. Intake procedures, supervision and educational programmes are now reconsidered.
- The methodological expertise of FIsmE needs further development. The attention to design-based research requires the build up of new methodologies and new ways of structuring the design, evaluation and publication of studies. In addition, the methodological expertise of FIsmE needs a broadening of perspective and inclusion of qualitative and quantitative research methods of high quality.

Opportunities:

- The FIsmE research programme has been increasingly successful in the acquisition of external funding.
- The new research programme provides opportunities for more focused research and a higher quality and quantity of the research output.
- Strengthening the relationship with mother disciplines in the Faculty of Science provides good opportunities for research on new topics in mathematics and science education; for example by connecting research to the educational programme of the Junior College Utrecht.
- Domain-specific educational research has received more attention which offers many opportunities for new research initiatives and makes cooperation and staff exchange easier.
- Within a year or two the research groups will be concentrated at one location. Cooperation will benefit from this new situation.

Threats:

- FIsmE staff members have a broad range of tasks in research, education and advisory activities. Scientific output is very important as are the other tasks, in particular those tasks concerning the valorisation of knowledge. However, the combination of research, education and advisory activities might threaten the focus and quality of research efforts.
- Within a few years, a number of senior staff members will retire while we have few possibilities to appoint junior staff members in a senior position at the moment. This threatens the continuity of research, supervision of PhD students and acquisition.

Evaluative remarks about Strengths and Weaknesses

As indicated above, the original Freudenthal Institute pioneered a form of theory-based instructional design, grounded in Realistic Mathematics Education (RME) that has consistently produced instructional materials of the highest quality. Although such materials often have a pronounced impact on the practice of education, such products are often not given high credit, in contrast to the credit given to refereed papers. (For example, the FI's mathematics materials gave rise to the highly regarded and widely used Mathematics in Context middle school curricular materials in the United States. This is a sign of significant international impact, which is not at all counted in standard measures of productivity.) In sum, the Freudenthal Institute has historically been at a disadvantage in academic reviews. The report of the previous review stated that the Mathematics and the Science groups within FIsmE each had their strengths and weaknesses. The Mathematics group, drawing on the legacy of Hans Freudenthal and RME, had a distinctive approach that produced high quality materials, but it produced comparatively little research in refereed journals. The Science group produced more refereed papers.

The Committee is encouraged by the steps that have been taken to strengthen the cooperation of the groups in mathematics and science education, and the efforts to develop one sharply focused research programme. The intention to strengthen the relationship with mother disciplines in the Faculty of Science seems promising. The link with the Junior College Utrecht could be very fruitful. The challenge is to bolster the number of research publications while maintaining and extending the group's significant impact on practice.

Flsme participates in the establishment of a new Focus and Mass programme on educational expertise. This will create the challenge of maintaining an identity and visibility for educational research, but may also provide additional resources for research. The Focus and Mass programme on expertise is a natural home for work on teacher learning across the career, and should provide opportunities for more interdisciplinary work on this topic. Whether the researchers will be able to sustain a clear programme of research within this centre remains to be seen.

4.4. Assessment per programme – UU FIsme

Programme name:	Research programme of the Freudenthal Institute for Science and Mathematics Education
Programme director:	Prof. dr. Albert Pilot
Research staff 2008:	23.16 fte (from 13.08 in 2006)
Assessments:	Quality: 3
	Productivity: 3
	Relevance: 4.5
	Viability: 3

Short description

The research within FIsme is carried out in one research programme, which consists of four themes. The self-assessment report describes the themes as follows.

1. Context-based science and mathematics education:
This theme focuses on design principles and instructional structures for meaningful and effective context-based science and mathematics education. The studies within this theme aim at a better understanding of the ways in which meaningful contexts contribute to students' learning of science and mathematics, and how they promote the development of scientific and mathematical knowledge and skills that are relevant to further study, work and daily life.
2. Modelling and representation with computer tools:
Modelling is a core activity in the everyday professional practices of mathematics, science and engineering, and these models frequently play a role in societal debate. Therefore, modelling deserves a place in secondary schools as an orientation on study, vocation and citizenship. However, many modelling activities draw heavily on high level cognitive skills, interactive classroom processes and specific teaching competences. The research in this theme investigates how to foster the teaching of scientific and mathematical modelling.
3. Elementary learning of mathematics and science:
Research within this theme addresses learning mathematics and science at an early age and mainly encompasses the learning that takes place at pre-school and primary school ages. The early learning of mathematics and science is vital to children's understanding of the world and their attitude to the environment in which they live. Moreover, it is widely recognised that in the early years of children's development in mathematics and science the foundation is laid for later learning. Therefore, knowledge about this early learning and education's role in it is of great relevance. Researching this learning phase is also essential for a more thorough picture of the learning and teaching of mathematics and science in general.
4. The learning of science and mathematics teachers in curriculum innovation:
FIsme and IVLOS have formally joined forces for this fourth research theme. The theme addresses teachers' learning and continuous professional development and is strongly related to the three other themes. The research in this theme takes place within the national setting of curriculum innovations for the sciences and mathematics, and focuses on various aspects of curriculum innovation in science and mathematics education.

Quality

During the review period FIsme has brought together the efforts in mathematics and science education. Although still physically separated, the groups have been working on a common agenda; plans are to unify the groups physically in 2010. FIsme has defined a focused and integrated agenda covering mathematics and science. The areas of research focus (context-based science and mathematics education, modeling and representation with computer tools, elementary learning of mathematics and science, and the learning of science and mathematics teachers in curriculum innovation) are coherent and mutually reinforcing, drawing upon FIsme's traditional strengths; it remains to be seen, however, if there will be true synergy across mathematics and science.

During the review period the group's research staff increased in numbers (mostly Ph.D. students), and, since 2008, FIsme has been quite successful in obtaining additional contract funding, an indicator of quality.

FIsme joined ICO in 2007. FIsme faces the challenge of elucidating its theoretical underpinnings and building coherence across mathematics and science, and the elaboration of its research methods. The codification of methods will not only contribute to the quality of the work, it will contribute to the research canon. There has not been as much contribution from practice oriented studies to theory driven research as would be preferable. This raises questions about the group's contributions to research, above and beyond design; the number of academic papers produced by FIsme has fluctuated, although the number of ICO publications has increased. We note that the base exists for increased research productivity: the educational research community is increasingly concerned with design experiments. The challenge for FIsme is to write up design experiments in ways that are seen as contributing to the literature.

Productivity

The category of productivity includes three dimensions: advancement, dissemination, and implementation of knowledge. This has traditionally been problematic for FIsme, given its great strengths in implementation (one dimension out of three) but its lesser emphasis on research production. Over the review period FIsme has increased its production of papers in refereed ICO journals, which should help with its visibility; the production of professional materials remains high, though not as high. The challenge for the Institute's research productivity is to cast much of the group's high quality design work as design experiments, and to show how it contributes to theory as well as design. Some of this has been done in the past, and the potential clearly exists. Such work is almost always done, but often tacitly: the group has a local theory regarding understanding in a domain, and it produces and refines materials intended to change understanding. In formal design experiments, the group re-examines its theoretical assumptions as well as the design. This kind of elaboration of local theory is a contribution to knowledge and should be publishable in mainstream research journals that would not be amenable to pure design papers. Given that there is an increase in the number of Ph.D. students in FIsme, one hopes for increased productivity along the theoretical as well as applied direction in the years to come.

Relevance

Here we note that "relevance" is often taken to be indirect: "can this research product be seen to have implications for practice?" By contrast, the relevance of FIsme's materials development is direct: FIsme produces high quality materials that have significant impact in practice. FIsme's curricular impact in the Netherlands is well known, as is the quality of its design work;

one measure of FIsme's overall impact is the fact that FIUSA, the outreach branch of the FI in the United States, was the main design arm behind the middle school curriculum *Mathematics in Context*, one of the best-known curricula in the US. The Freudenthal Institute has always been strong with regard to relevance, especially in the construction of instructional materials; the science education group has had a solid record of relevant publications. The potential synergy of mathematics and science, and the current efforts with JCU, should help to maintain and expand these strengths.

Viability

If the unification of the mathematics and science groups works well, it should help to make the FIsme more robust and viable. Productivity, funding, quality, and relevance are moving in the right directions. What is needed at this point is increased coherence, both theoretically and programmatically. As more senior staff retire, there needs to be a "succession plan." Given the retirement and departure of some highly productive academically oriented staff, attention must be given to maintaining scholarly production and maintaining and strengthening the ties not only between theory and practice, but making sure that scholarly papers result from those ties.

Conclusion

The merge between the mathematics education and the science education groups adds value to FIsme. It is expected that cooperation between both groups will fertilize their research endeavours. While the mathematics education group has a direct impact on relevant design, but needs to strengthen the scientific publications, the science education group with its tradition in scientific research and publications can improve the societal impact. The move of the mathematics education group in 2010 to the Uithof campus will support more intensive cooperation. In addition, the participation of FIsme in the new Focus and Mass programme on educational expertise can provide opportunities for even more interdisciplinary work on this topic. It is a challenge for FIsme to make ample use of this new context.

5. University of Amsterdam (UvA)

5.1. Assessment at Institute level – Graduate School of Teaching and Learning (GSTL)

5.1.1. Introduction

The research programme of the Graduate School of Teaching and Learning (GSTL) started on 1-1-1992 under the title 'Learning and instruction of cognitive strategies'. In the evaluation period, two consecutive research programmes existed: the programme Strategy-oriented learning and instruction: Skills in secondary education from 2000-2005 and the programme Skills related to knowledge acquisition in secondary education from 2006-2010.

GSTL's research covers the areas of educational science, educational psychology and school-subject methodology ('vakdidactiek') with a focus on learning and instruction. A large part of the research is orientated towards learning in the context of specific school subjects.

5.1.2. Leadership

GSTL is an interfaculty institute, directly positioned under the Board of the University of Amsterdam. Head of the GSTL is the rector (Prof. dr. G. ten Dam). The institute's organisation consists of two sections:

1. the Teacher Education section (initial teacher training and educational development)
2. the Research section.

GSTL has established an Advisory Committee, which advises the rector of the GSTL about policy matters in education and research. Members of this committee emanate from faculties of the University of Amsterdam and from different national institutes that have a relationship with secondary education and educational research.

At the end of 2009, the GSTL will be combined with the Faculty of Social and Behavioural Sciences of the University of Amsterdam. The Research section of the GSTL will, as a separate Research Programme, be part of the research institute for Pedagogical and Educational Sciences. The current director of the Research section, Prof. dr. B. van Hout-Wolters, who is the programme leader of the GSTL research programme, will continue as the programme leader.

The programme leader is responsible for the thematic leadership and the quality and the quantity of the research carried out within the programme, including the mutual co-ordination of the projects and themes within the research programme. The programme leader is assisted by a programme advisory team of full and associate professors (Prof. dr. G. ten Dam, Prof. dr. G. Rijlaarsdam, Dr. W. Admiraal, Dr. C. van Boxtel). This team supports the programme leader in various thematic and policy matters, discusses the progress of current research projects and evaluates the plans for new projects

5.1.3. Mission & Goals

The GSTL research programme focuses on the learning processes of secondary school students, with the aim of improving these processes via innovative instructional arrangements in various school subjects. The research concentrates on learning and instruction of students' domain-specific and domain-exceeding skills. Subject matter knowledge, related to these students' skills, is explicitly involved in the research.

The research mission has both a fundamental and an applied orientation: GSTL aims to contribute to scientific developments in the field of learning and instruction, as well as to the innovation of practice in secondary education and the quality of the GSTL teacher-education programme.

The research programme follows a multi-disciplinary approach, deriving from educational science, educational psychology and school-subject methodology. In order to optimize the balance between theory and practice, researchers co-operate with secondary-school teachers, GSTL-teacher educators and GSTL-student teachers.

The research concentrates on the improvement of domain-specific and domain-exceeding skills of secondary school students. The researchers come from a variety of scientific disciplines, which makes it possible to work on this research theme from different perspectives.

5.1.4. Strategy & Policy

Starting in 1992, the research has been organized in the following programmes:

- ‘Learning and instruction of cognitive strategies’ (1992-1999),
- ‘Strategy-oriented learning and instruction: Skills in secondary education’ (2000-2005),
- ‘Skills related to knowledge acquisition in secondary education’ (2006-2010).

Although the successive research programmes place new accents, the research areas have remained the same: learning and instruction of domain-specific and domain-exceeding skills of secondary school students. The focus on students’ skills is based on the awareness, from educational science and educational practice, that students should not only acquire domain knowledge, but skills as well (e.g., Collins, Brown, & Newman, 1989; Pressley & Harris, 2001).

In the future, focus will remain on domain-specific and domain-exceeding skills of students in secondary education in relation to their domain knowledge. Special attention will be paid to the reciprocal relationship between research and practice: educational practitioners should profit from the results and products of the research, while researchers should benefit from the practitioners’ expertise.

Evaluative remarks about Leadership, Mission and Goals and Strategy & Policy

The Committee found that GSTL was highly regarded and well supported by the Administration of the University of Amsterdam. GSTL began from a position of strength, having been highly rated in the 2003 review. They have, appropriately, undertaken an evolutionary view toward their program, building on their current strengths and choosing mainstream areas of intellectual focus.

5.1.5. Resources

	2001	2002	2003	2004	2005	2006	2007	2008	
Full professors	0.99	0.99	0.99	0.99	0.99	0.99	0.90	0.90	
Associate professors	0.68	0.66	0.69	0.57	0.48	0.95	0.95	0.95	
Assistant professors	1.75	1.79	1.60	1.76	1.37	1.45	1.80	1.68	
<i>Total tenured staff</i>	3.42	3.44	3.28	3.32	2.84	3.39	3.65	3.53	26.87
PhD students	6.07	7.01	6.94	6.74	5.93	3.49	5.02	6.41	
Other non-tenured staff	3.02	4.09	5.63	5.97	7.25	6.37	4.34	5.09	41.76
<i>Total non-tenured staff</i>	9.09	11.10	12.57	12.71	13.18	9.86	9.36	11.50	
Total research staff	12.51	14.54	15.85	16.03	16.02	13.25	13.01	15.03	

Table: Staff at department level (in research fte)

5.1.6. Funding Policies

GSTL has its own financial budget that is directly derived from the Board of the University of Amsterdam. The total GSTL budget is internally divided into 70 % for the teacher training section and 30 % for the research section. The research section also contributes 30 % to GSTL overheads (management, control, and administration). In 2006, the University of Amsterdam introduced a new financial model leading to an increase in the direct funding budget. This increase gave GSTL the possibility of extending the research programme with research within the Social Science subjects in secondary education.

As of 2008, the funding is related to the amount of the teacher-training bachelor and master certificates, the amount of dissertations, and the amount of indirect research funding (NWO), contract education and contract research activities. The direct funding budget for GSTL research in 2001-2008 was as follows:

	2001	2002	2003	2004	2005	2006	2007	2008
Direct Funding in K€	470	493	482	502	511	630	613	610

Table: Direct funding for GSTL research

The following tables present the number of fte per source of funding. Because of changes in the financial system, more specific financial information over the period 2001-2008 was not presented in the self-evaluation report.

Funding (in fte's)	2001	2002	2003	2004	2005	2006	2007	2008
Direct Funding	6.09	6.42	6.32	6.31	5.14	5.84	7.87	7.99
Research Funds	4.17	5.72	7.29	7.36	8.54	6.45	4.18	3.75
Contracts	2.25	2.40	2.24	2.36	2.34	0.96	0.96	3.29
<i>Total Funding</i>	12.51	14.54	15.85	16.03	16.02	13.25	13.01	15.03

Table: Amount of FTEs for direct funding, research funds and contract research

Funding (Percentage fte's)	2001	2002	2003	2004	2005	2006	2007	2008
Direct Funding	48.7	44.2	39.9	39.4	32.1	44.1	60.5	53.1
Research Funds	33.3	39.3	46.0	45.9	53.3	48.7	32.1	25.0
Contracts	18.0	16.5	14.1	14.7	14.6	7.2	7.4	21.9
<i>Total Funding</i>	100	100	100	100	100	100	100	100

Table: Percentages of FTEs for direct funding, research funds and contract research

GSTL's policy is to strive for 45% to 55% external resources for research. A minimum of 45% is necessary to have enough capacity to carry out a long-term coherent research programme, and a maximum of 55% is advisable in order to prevent too many risks in the balance between tenured staff and insecure financing from external resources. Moreover, there should be sufficient supervision available for the PhD students. In practice, GSTL succeeds in achieving this goal.

5.1.7. Facilities

Research at GSTL does not require much special software or hardware. As most data are collected in secondary schools, some specific hardware is necessary, such as video cameras to tape classroom practices, voice recorders to tape think-aloud sessions, and laptops to gather digital data on the site. In addition, software to analyse qualitative as well as quantitative data is required (SPSS for quantitative data, MLWin and Mplus for multi-level analyses, Agree for inter-observer agreement, Atlas.ti for qualitative analyses, Inspiration for concept maps, Camtasia for video-based data, and Inputlog for key-stroke logging). Costs for this kind of software (which is general software for research in Social sciences) may decrease in the future because of the centralization of computer facilities at the University of Amsterdam.

Evaluative remarks about Resources, Funding Policies and Facilities

Over the review period, GSTL has managed to maintain a steady level of funding within the parameters it has defined as optimal – a balance of direct funding that provides continuity, and research funds and contracts that allow for taking advantage of new opportunities and building new strengths. The Committee is impressed by GSTL's funding record.

5.1.8. Academic Reputation

The research programme was positively reviewed in the last external Assessment (2002) and external Audit (2004). After that, a new research programme was developed, linked to the variety of scientific positions of the researchers. The self-evaluation report gives an overview of the academic reputation of the GSTL researchers, in terms of editorships, memberships, invited addresses and keynotes. The list also includes practice oriented activities.

Evaluative remarks about Academic Reputation

The Graduate School of Teaching and Learning (GSTL) of the University of Amsterdam is a well-known and well-managed academic institution which was established in 1988. The research section was established in 1992. GSTL is well integrated into national and international collaborative activities. The doctoral programme is part of the national research school ICO, where GSTL staff members have been active in leadership functions. Extensive international collaboration with universities in many parts of the world is documented. This international character of GSTL is also evident in the publication patterns. GSTL is highly productive and well regarded in academic terms.

5.1.9. Societal Relevance

Various outcomes and products of GSTL research are being used in educational practice. Various lesson series have been developed, for many school subjects and areas of learning, such as on argumentative writing for the subject of Dutch, on learning to interpret literary texts, on inquiry-learning in the Language and Physics domains, and on moral education in History and Biology.

GSTL researchers are encouraged to disseminate the results of their research through publications in books and journals aimed at the professional field. They write text books and other

lesson materials for students, and professional publications for teachers in secondary schools and teacher-training institutes. Together with the teacher-education section of the University of Applied Sciences Amsterdam, the GSTL has its own professional publication series: the Kohnstamm publications.

GSTL researchers are involved in teacher-training activities in several ways, both within GSTL teacher education and within several forms of post-graduate teacher training service. Researchers give lectures and workshops about their research, stimulate teachers to work with research products and supervise the GSTL students in their educational research.

The GSTL frequently organizes workshops and conferences that focus on educational practice. Examples are the symposia and workshops that are related to the Kohnstamm publications, such as the Dutch symposium 'About the gap between educational research and practice'.

GSTL research contributes to educational policy, too. For example, researchers on Language and Literature and on Economics and History have been asked to become members of committees dealing with national curricula, tests and exams in secondary education. The GSTL also performs evaluation studies of the new examination programmes for secondary education on Economics and History.

GSTL researchers are frequently invited to take up professional positions in which they can use their knowledge and research outcomes. For example, positions on advisory boards and programme boards, boards of school-subject methodology organisations, boards of teacher-training organisations, and editorial boards of professional journals.

Evaluative remarks about Societal Relevance

GSTL research covers areas of education, educational psychology and subject-matter methodology (vakdidactiek) in several school subjects. A wide variety of products have been generated that are used in educational practice, in curricula of language, science and social science subjects. The products include learning tasks, computer assignments, series of lessons, measurement instruments, practice-oriented publications, software and websites. Their practice oriented activities include lectures, workshops, teacher training, supervision, practice-oriented conferences, and evaluation of innovations. The focus of the research is on issues of teaching, learning and the development of skills. GSTL follows the traditional model of producing high-quality, instructionally relevant, publications in these areas. In addition to basic research in these areas, GSTL is involved in applied research, in school development at the secondary level, and in teacher education. The Committee regards the contribution of GSTL to these important societal areas as appropriate and relevant.

5.1.10. Balance of Strengths & Weaknesses

In the self evaluation the following SWOT self-analysis is provided of which the headlines are provided in this report:

Strengths

- Continuity and coherence of the research programme. The successive research programmes build upon each other with clear research lines, in which new studies connect to closed research.
- Vitality of the research programme. Both research programmes are adjusted to new developments in science and practice.
- International scientific quality. The scientific quality of the research programme emerges from the publications in high-ranking international journals, and the editorships, appointments in scientific organisations and international collaborations.

- Significance for the educational practice. The practical significance emerges from the research products (lesson series, learning tasks, measurement instruments, publications, etc.), dissemination activities and participation of schools and teachers in research.
- Stimulating research culture. Researchers communicate a lot, both formally and informally, about their research. This open atmosphere and constructive thinking with colleague researchers leads to pleasure in doing research.

Weaknesses

- Hardware facilities for doing research are not optimal. The centralization of the computer facilities at the university causes some limitations in use of software. In addition, computer facilities at the co-operating schools are limited.
- The exchange of information on grants, calls and tenders (EU, Ministry, SURF, etc.) should be improved.

Opportunities

- There is growing interest in educational research in secondary schools. The Ministry regularly sets up tenders for research, such as Academic training schools, ‘Onderwijsbewijs’ (‘Education Proof’) and ‘Krachtig Meesterschap’ (‘Strong Mastership’). These developments provide opportunities for future research and more collaboration with teachers from secondary education.
- The combining of the GSTL research programme with the research institute Pedagogical & Educational Sciences of the Faculty of Social and Behavioural Sciences could strengthen the relationship between the research and the researchers of that institute. This could also mean that students from the research master of the Faculty’s Pedagogical & Educational Sciences Graduate School could be involved in the GSTL research programme.

Threats

- There are relatively few ISI journals for school-subject methodology research in the domains of Language, Mathematics and Social sciences.
- Within the research programme, the cross-fertilization of research with a variety of school subjects is useful and valuable. The GSTL’s school-subject methodology research seems to be more self-evident within an interfaculty institute. It is important to ensure that the interdisciplinary nature of the research programme is preserved within the research institute Pedagogical & Educational Sciences of the Faculty of Social and Behavioural Sciences.

Evaluative remarks about Strengths and Weaknesses

Direct research funding from the University has increased significantly over the period from 2001 to 2008. In addition, GSTL researchers have been successful in attracting research funding from NWO, and there has also been a substantial influx of resources for contract research. Direct funding from the University is 44.7 percent on average for the review period. Overall, GSTL has maintained and consolidated its strong position.

5.2. Assessment per programme – UvA

Programme name:	Skills related to knowledge acquisition in secondary education		
Programme director:	Prof. dr. Bernadette van Hout-Wolters		
Research staff 2008:	15.03 fte		
Assessments:	Quality:	4.5	
	Productivity:	4.5	
	Relevance:	4	
	Viability:	4	

Short description

The evaluation period 2001-2008 concerns the following two programmes:

- ‘Strategy-oriented learning and instruction: Skills in secondary education’ (2000-2005),
- ‘Skills related to knowledge acquisition in secondary education’ (2006-2010).

The research programmes focus on the acquisition and development of the following skills:

- Domain-specific skills
- Skills within the domain of Language and Arts (writing, reading, speaking, literary and art production skills).
- Skills within the domain of Science (modelling and level-raising skills in Physics and Mathematics).
- Skills within the domain of Social sciences (concept-learning and reasoning skills in History and Economics).
- Domain-exceeding skills
- Learning skills (cognitive and metacognitive skills).
- Social and moral reasoning skills.

The research questions that underlie both research programmes can be summarized in four general questions:

1. What are the components of these skills?
GSTL research produces a rich set of findings regarding the components that constitute domain-specific and domain-exceeding skills, such as models of writing processes, historical reasoning and metacognitive skills.
2. How can students acquire these skills?
GSTL research contributes to domain-specific and domain-exceeding theories about instructional tasks, (computer) tools, sequences, and methods (collaborative learning, observational learning, inquiry learning, in particular) that affect the learning activities for the development of domain-specific and domain-exceeding skills.
3. How can students’ learning activities and learning outcomes be measured?
GSTL research provides insight into the reliability and the validity of methods to measure students’ learning activities and learning outcomes.
4. How different are students in the acquisition of skills?
GSTL research provides information about the relationship between learner characteristics (e.g., prior knowledge, motivation), instructional characteristics, learning activities and learning results. It also shows how the instructional arrangements for the skills to be learned can take into account differences between students.

Quality

GSTL has a clearly defined research profile, which has evolved over the years -the focus on two major areas, domain-specific and domain-general skills at the secondary level, remaining strong, while new content emphases (social and moral, historical, and arts-related reasoning) have emerged. The research is characterized by continuity as well as renewal, and the synergy between the different research foci is clear. The current focus is on domain specific skills in language, arts, mathematics and social sciences as well as on domain exceeding skills such as learning skills and social and moral reasoning skills. The quality of the research is indicated by the high level of publication in international journals and edited volumes. The quality of the PhD-training is equally impressive, with a high number of Ph.D.s and a high percentage who finish on time. The success in applying for external funding is a further indicator of the quality of the GSTL's work. The leadership of the GSTL and its research programme seem to have been very successful in maintaining a high quality in research as well as research training over a long period.

Productivity

GSTL is a very productive research unit, given its limited size in terms of full time equivalents devoted to research. During the review period the scientific output per year has gone up significantly both in international journals and in edited volumes. The researchers publish in highly-rated journals such as *British Journal of Educational Psychology*, *Instructional Science*, *Educational Studies in Mathematics*, *Learning and Instruction*, *International Journal of Science Education*, *Journal of Writing Research* and other journals of similar standing. GSTL researchers have been active in participating in the production of edited volumes that have been published by major international publishers. Productivity is also evident in the PhD programme. Sixteen PhD's completed their degrees during the period. In addition, GSTL staff served as supervisors or assistant supervisors for another 13 PhD's who received their degrees from other universities. GSTL researchers continue to have a high output of professional publications and textbooks in which research results are disseminated to teachers and students.

Relevance

GSTL research has theoretical and practical relevance. The theoretical relevance is obvious from the impressive output in leading journals and international edited volumes. On the practical side, GSTL staff contribute to teacher training and to various forms of in-service training for practitioners. They collaborate with secondary schools, organize workshops and participate in developmental work. GSTL staff participate in three national centres of expertise in education in the areas of a) history, geography and social studies, b) economy and trade, and c) mathematics. The institute is also involved in the DUDOC programme and policy work. All in all, GSTL has made a very significant contribution to curriculum innovations and to the professional development of secondary school teachers.

Viability

GSTL is a well-established and stable academic institution with a clear research profile. It has managed to renew its research programmes and maintain a steady flow of internal and external resources. Its academic reputation is obvious from the involvement in international collaborative activities and a range of important research organizations. GSTL will be soon be integrated into the Faculty of Social and Behavioural Sciences of the University of Amsterdam. The research programme will be part of the Research Institute for Pedagogical and Educational Sciences. It seems certain that GSTL will join the new organization from a position of strength.

Conclusion

The committee values the continuity in the high quality of the research at GSTL. The Committee is impressed by GSTL's funding record. The productivity is very high and the output is relevant for secondary education.

The committee values the strong leadership during this period. Though GSTL will no longer function as an independent institute but as a research programme of the Research Institute for Pedagogical and Educational Sciences within the Faculty of Social and Behavioural Sciences, the research programme has a strong position within that Institute. Given the signs of continued high quality of the programme, the leadership and the research team, GSTL can face the many challenges in the near future.

6. VU University, Amsterdam

6.1. Assessment at Institute level – Centre for Educational Training, Assessment and Research (CETAR)

6.1.1. Introduction

In 2003, the Teacher Education Institute of VU University Amsterdam and two VU University Amsterdam staff departments (responsible for Educational Advice and Quality Assurance) merged to become the Centre for Educational Training, Assessment and Research (CETAR). Only the Teacher Education Institute had some research formation and a small research programme. CETAR's Research Programme 2004-2007 further built onto this fundament, focusing on teaching and learning in secondary education and on teacher education. The Research Program 2008-2011 aims to broaden its scope and to also start research projects on higher education and assessment.

6.1.2. Leadership

The director of CETAR, Prof. dr. J.J. Beishuizen, has the overall responsibility of the Institute. Together with the Office Director, the Management Adviser, and the two Department Heads, he forms the Management Team, which meets weekly. Besides the two departments, CETAR has three groups with special tasks working directly under the director. One of these is the Research Group. Each of these three groups has a coordinator. Management team and coordinators meet four times a year. The director of CETAR is also the programme leader of CETAR's research programme and has the final responsibility for research contents, personnel and funding. Dr. M.L. Lunenberg, associate professor, coordinates the research group on a daily basis, organizes meetings and takes care of formal reporting. Programme leader and coordinator meet every three weeks. The progress of the programme, internal and external collaboration, writing grant applications, etcetera, is the joint responsibility of the programme leader, coordinator and the other professors. They meet every six weeks in the senior staff meeting. Five times a year, a plenary meeting of the research group is organized. In this meeting, papers are presented, or new, international developments in research on education are discussed.

6.1.3. Mission & Goals

The main domain of CETAR's Research Programme is Teaching and Teacher Education. With a focus on secondary and higher education, CETAR is the academic expertise centre for education and educational research of VU University Amsterdam. The aim of the CETAR Research Programme is to contribute to the development and improvement of the quality of education, practically as well as theoretically. This is in line with the VU University Amsterdam mission stating that VU University Amsterdam is an inspiring, innovative and committed university, rooted in Dutch society and actively contributing to the development of education and research. CETAR attempts to establish cross-sectional relationships between researchers and teachers or advisors in the domain of secondary and higher education.

6.1.4. Strategy & Policy

As described in the Introduction, CETAR was established in 2003 as a merger of the Teacher Education Institute of VU University Amsterdam and two VU University Amsterdam staff departments (responsible for Educational Advice and Quality Assurance). CETAR's Research Programme 2004-2007 focused on teaching and learning in secondary education and on teacher education. In particular, inquiry-based learning and the concept of 'communities of learners' were investigated as potential elements of learning environments enhancing knowl-

edge development. The Research Programme 2008-2011 aims to broaden its scope and to also start research projects on higher education and assessment. In 2000, the VU University Teacher Education Institute had 3.2 FTE research formation compared to 8.4 FTE in 2008.

In the autumn of 2008, VU University Amsterdam established AZIRE, an institute in which the VU Faculties and Institutes conducting research on education, as well as some partner Universities of Applied Sciences, work together. Prof. dr. J. J. Beishuizen is an AZIRE board member. Prof. dr. M. Volman and Dr. M. Lunenberg are members of the AZIRE management team. At the start of 2008, AZIRE had four Research Programs: (1) Normative Ethical Research, (2) Teachers and Teaching, (3) Assessment and Evaluation, (4) Educational Neuropsychology, each with its own Programme Manager. The CETAR sub-themes, knowledge development of pupils and students, and knowledge development of teachers and teacher educators, fit into AZIRE's second Research Programme, managed by Prof. dr. M. Volman. CETAR's sub-theme, knowledge development and assessment, fits into AZIRE's third Research Programme, managed by Dr. P. van Lier. AZIRE also aims at contributing to the education of PhD students and staff members working on a PhD thesis.

CETAR maintains a solid international network with colleagues of universities in Belgium, Germany, the U.K., Slovenia, Canada, the US, Australia, New Zealand, Ethiopia, and Japan.

In 2002 the research of the teacher education institute was evaluated and reported in 2003. In response to the recommendations of the evaluation committee, the institute took the following actions:

1. Appoint a programme leader; in 2003 prof. dr. J. Beishuizen was appointed director of CETAR and programme leader of CETAR's Research Programme.
2. Become a member of ICO research school; in 2003, CETAR became an ICO member.
3. Incorporate research in the alpha domain; this is a continuing point of attention. Systematic research in the alpha domain is still missing.
4. Extend the research formation; the research formation has more than doubled in the period 2001-2008.
5. Extend the number of international publications; the number of international academic publications has increased from 6 in 2001 to 24 in 2008.
6. Extend the number of grants; in 2008, four of the six PhD projects are externally funded (PROO/NWO, Windesheim, DUDOC). From 2009 on, AZIRE funds 33% (0.2. FTE) of three projects of staff members working on a PhD project.

Evaluative remarks about Leadership, Mission and Goals and Strategy & Policy

The Committee has noted that CETAR gives close attention to the synergy between research, teaching and service tasks. An example of this is the initiative to exchange and analyse quality assurance data in the US-based consortium Student Experience in the Research University (SERU). Another measure that has been taken is to clearly separate service time from research time, in order to ensure that the research staff can attain critical mass. Investing in PhD's is also expected to pay off. Appropriate measures have been taken in response to the recommendations of the 2003 report.

The interdisciplinary institute AZIRE is an interesting development that provides partial funding for PhD's and establishes collaboration with the professional education sector. This is in line with CETAR's decision to focus the research not only on secondary education but also on higher education.

The Committee notes that the VU has no intention to move the teacher training research into the Faculties. The Committee applauds CETAR's determination to combine its independence with rigorous quality requirements for research and to strengthen the methodological support for the PhD's.

6.1.5. Resources

The Department has provided the following overview of the personnel resources, in full-time equivalents (fte) research time.

Institutional level	2001	2002	2003	2004	2005	2006	2007	2008	
Tenured staff	1.2	1.3	1.08	1.25	1.35	2.5	2.84	2.7	14.22
Staff working on PhD thesis	0.6	1.7	1.1	0.9	0.9	0.6	0.75	0.8	
PhD Students	1.8	1.51	1.11	2.4	2.25	2.6	4.25	4.9	
Total Research staff	3.6	4.51	3.29	4.55	4.5	5.7	7.84	8.4	

Table: Staff at department level (in research fte)

6.1.6. Funding Policies

	2005		2006		2007		2008	
	k€	%	k€	%	k€	%	k€	%
Funding								
Direct Funding	220	71	270	54	295	69	343	66
Research Funds	42	14	44	9	74	17	85	16
Contracts	46	15	187	37	58	14	94	18
<i>Total funding</i>	308		501		427		522	

Table: Funding in the period 2005 -2008

The numbers for 2006 are an anomaly because of the organisation of the Dutch-Flemish Research Day in this year.

6.1.7. Facilities

According to the self evaluation report, the facilities are good. Enough computers are available, VU University Amsterdam has a well-equipped library, and CETAR's researchers have good digital access to literature.

Evaluative remarks about Resources, Funding Policies and Facilities

In the period 2001-2008 CETAR's research staff more than doubled. There has also been a steady increase in overall budget with direct funding remaining the main resource (about two thirds). Whilst the funding of research projects through contracts doubled in the period 2005-2008, the Committee would welcome an increase in NWO/PROO funds.

6.1.8. Academic Reputation

The self-evaluation states that the academic reputation of CETAR becomes evident, since all (associate) professors of CETAR are members of ICO, the Dutch centre for excellent researchers in education. According to the self-evaluation staff members of CETAR are frequently invited to participate in external research projects, symposia and publications. Due to its academic reputation, CETAR was asked to organize the annual Dutch-Flemish Educational Conference (ORD) in 2005, and together with the University of Amsterdam the biennial

Conference of the European Association for Research in Learning and Instruction (EARLI) in 2009. Senior staff members are also invited to present keynotes at other national and international conferences. All staff members are frequently invited to be chair or discussant at national and international conferences. Staff members of CETAR fulfil editorial roles with a wide range of academic journals and are frequently asked to review manuscripts for academic journals.

Evaluative remarks about Academic Reputation

CETAR is an independent Institute formed at the VU Amsterdam in 2003 from the previous Teacher Education Institute and two staff departments. In 2003 CETAR appointed a new director, installed a suitable organisational structure, and adopted a quality assurance framework. Its 2004-2007 research programme 'Knowledge Development between Theory and Practice' built on the former programme to focus on teaching and learning in secondary education and on teacher education, with a central emphasis on the linkage of theory and practice.

Since 2008 CETAR has sought to broaden the scope of its research programme by way of projects in higher education and educational assessment. It has also become a founding member of the new VU Amsterdam AZIRE Research Institute, which is designed to foster collaboration amongst educational researchers from a variety of faculties and units within and beyond VU Amsterdam.

6.1.9. Societal Relevance

The self-evaluation states that the research programme is carried out in close connection with the concrete and continuously changing practice of secondary and higher education. It aims at generating evidence on the basis of which new educational practices should be designed.

The mission of the Research Programme is to develop knowledge that not only contributes to educational theory, but is also useful to educational practice. With regard to the contribution of the research to educational practice, three domains can be distinguished: schools, teacher education, and higher education.

Studies on innovations in schools are initiated and carried out in collaboration with schools. It concerns projects such as "The sparkling school", "EduGIS", and "Better Means More". In two running research projects, CETAR's researchers are working together intensively with teacher educators. It concerns the projects "Teachers as teacher educators" and "Self-studies by teacher educators". Research on higher education other than teacher education is linked to CETAR's tasks of supporting the professional development of teachers in higher education (among them the VU University teaching staff) and evaluation of VU University courses.

Evaluative remarks about Societal Relevance

The domains of schools, teacher education and higher education offer good possibilities for research results that are relevant for society. Several CETAR projects show an intensive collaboration with stakeholders and have generated concrete results for improving educational practice. The area of language education has so far not generated many research projects, but there are some promising signs for future developments in this area as well.

6.1.10. Balance of Strengths & Weaknesses

In the self-evaluation the following SWOT self-analysis is provided:

Strengths

The most important assets of the current research group are its academic potential and actual growth, in terms of staff size, academic output, and budget. The research group started the review period in 2001 with 3.6 FTE and has expanded to 8.4 FTE in 2008. Output has increased from 5 academic publications in 2001 to 24 academic publications in 2008. Its budget has increased from k€308 in 2005 to k€522 in 2008. This growth has been based on a thorough analysis of the recommendations given by the previous committee in 2001, followed by a step by action plan to meet the goals set by this analysis. Five of the six recommendations were achieved. Additionally, in 2004, CETAR formulated eight criteria for quality care; those have also been met.

With regard to contents, an important strength of the research programme is the congruent focus on knowledge development of students, teachers and teacher educators. Moreover, all projects are being carried out in collaboration with the educational field. The concept of Community of Learners has proved to be helpful in building bridges over the troubled waters of the theory-practice divide. It has served as a theoretical vehicle to study the processes of knowledge development. Moreover, the concept of Community of Learners has helped to create an inquiry-based learning environment for students and student teachers in developing knowledge through conducting research. The project 'Self-studies by teacher educators: support and professional development' has a corresponding function at the level of teacher educators.

Research results contribute to the body of knowledge as well as to the educational field. This is also confirmed by the growth of academic reputation and external evaluation. Another positive development concerns the broadening of methods used in the various projects: self-study research, case-studies, design research, quasi-experiments.

The internal evaluation shows that CETAR is on the right track with regard to programme, organization and management, and with regard to support. The facilities are also being appreciated.

From 2003 on, the membership of the national research school ICO has meant that the education of PhD students has become systematic and structural.

Weaknesses

Five out of the six recommendations of the previous visitation committee have been met. The sixth recommendation, regarding the incorporation of research in the alpha domain, is still a point of attention. The cooperation with the Faculty of Arts within AZIRE offers opportunities to solve this problem. With regard to quality care, it is noticed that although the research group meets the criterion for academic publication, not all individual senior researchers do. Strict HRM policy measures have been taken to improve this situation.

The increased attention to methodological variety shows another weakness of the research team, i.e. the lack of broadly informed methodological specialists. Two assistant professors are interested in further professional development in this domain. It is expected that participation in AZIRE will be helpful with regard to this point.

The internal evaluation indicates that the fast growth of the research group has had consequences for its research climate. More attention is needed to establishing and maintaining a commonly shared view on the research programs' goals. The internal evaluation also shows that at some points the former informal style asks for modification: we have to clarify the expectations of the researchers' tasks and obligations in terms of joint targets and products to work on. We have to encourage a more pro-active attitude with regard to working in small focus groups, and to support the input and exchange of information.

Opportunities

The Dutch academic context, in which research programs are embedded in Institutes of Teacher Education, offers excellent opportunities for the connection of research projects to teachers and schools, teacher educators and teacher education programs, and to faculty staff. Moreover, The Netherlands has a long tradition with regard to international cooperation, which also affects educational research. As this report shows, CETAR is fully alert to using these opportunities to strengthen the academic and practical relevance of its research and its academic reputation.

Another opportunity is the increasing attention to research as a productive means of learning and developing knowledge. The Dutch government stimulates the establishment of so-called academic schools. In line with this policy, the availability of grants for research projects with students and teachers is growing. This development fits CETAR's concept of Community of Learners in which learning through inquiry is a focal point.

The increasing attention to research also affects the Dutch Teacher Education Institutes related to Universities of Applied Sciences, and has led to several joint research projects. As a result, the funding of research projects through contracts has more than doubled in the period 2005-2008.

The foundation of the VU University research school AZIRE, at the end of 2008, will also offer opportunities for the further development of CETAR's research, including more educational opportunities for all researchers involved.

Threats

The Dutch academic context is changing. In some universities, the independence of Teacher Education Institutes, and consequently the relationship between on the one hand research and on the other schools and teacher education programs, is being reconsidered. This affects the strong national collaboration of the Teacher Education Institutes and their research programs.

The limited availability of earmarked research funds (NWO/PROO) is another threat. Even proposals receiving a high qualification are often not financed because of the limited availability of funds. NWO/PROO in particular does not fund research into higher education.

As mentioned above, the availability of grants offers an alternative funding possibility. Research projects financed by grants, however, in most cases do not offer the possibility of choosing one's own research objective. Therefore, the threat is a loss of focus of the research programme.

Evaluative remarks about Strengths and Weaknesses

CETAR has taken its response to the previous (2003) review committee's report and recommendations seriously. Action to meet the recommendations of the 2003 review has led to success in five out of its six areas, the recognised exception being the failure so far to achieve research collaboration and output in the Arts (alfa-domain). It is expected that joining AZIRE will contribute to solving this problem.

Internal evaluation has revealed some tension between CETAR's fast growth and (a) the maintenance of a research climate united by a common view and focus, (b) the provision of information and support. Responses to this have included arrangement of smaller research sub-group meetings, the allocation of two Assistant Professors to student support in methodology, the establishment of a PhD-students data system, and the extension of the existing range of methodology workshops.

Overall, there has been a positive and effective evolution of management at CETAR, bringing a period of steady growth. Some important issues for improvement remain, such as the integration of the Arts into the research programme, as well as increasing the coherence of the latter's actual and perceived focuses.

6.2. Assessment per programme – VU

Programme name:	Knowledge Development between Theory and Practice		
Programme director:	Prof. dr. J.J. Beishuizen		
Research staff 2008:	2.7 tenured, 8.4 total fte		
Assessments:	Quality:	3	
	Productivity:	4	
	Relevance:	3.5	
	Viability:	4	

Short description

The research programme 2000-2003 focused on the professional development of teachers in secondary education, especially with regard to their subject knowledge, and the professional development of teacher educators. As mentioned above, CETAR's Research Programmes 2004-2007 and 2008-2011 built on to this small research programme of the VU University Teacher Education Institute, one of the partners forming CETAR. In the 2004-2007 research programme, a start was made in exploring the themes knowledge development of pupils and students and knowledge development of teachers and teacher educators. The focus of programme was on secondary education and teacher education.

In particular, inquiry-based learning and the concept of 'communities of learners' were investigated as potential elements of learning environments enhancing knowledge development. CETAR's Research Programme 2008-2011 builds on CETAR's research history represented in the research themes knowledge development of pupils and students and knowledge development of teachers and teacher educators.

Quality

The emphasis of its title upon 'Knowledge development between theory and practice' at student, teacher and teacher educator levels makes the CETAR research programme distinctive amongst its Dutch peers, and finds consistent expression in the pursuit of such approaches as 'Communities of Learners' and 'self-study'. Nevertheless, this is a rather broad umbrella theme admitting subtopics of such varied sorts that its coherence is in need of being strengthened, which might possibly be achieved through CETAR's intended pursuit of more external research funding (NWO/PROO). Research theme 3 on knowledge development and assessment has an explorative status; the committee emphasises the necessity to focus on the core of a TTE programme. Although methodological expertise has always been available from other VU Departments, the Institute also recognises the need to broaden the range of its research methodological expertise. The growth of the group now creates the opportunity for a specialisation in methodology within CETAR.

Whilst the senior staff include widely recognised scholars, and younger staff are beginning to achieve research output, the prominence and output of staff are rather varied.

Productivity

Research productivity in the form of academic and professional publications has risen steadily to a relatively high level overall in the last two years of the review period, though this achievement needs qualifying in some facets. Publications have been more prolific in the professional domain and there are some issues concerning attribution of academic publications in the early part of the period. Whilst collectively CETAR's senior research staff have achieved the targeted average for ICO-recognised publications in the last four years, their individual achievements do not always reach this level and the variation in productivity becomes more pronounced when one considers the whole research staff.

Although PhD thesis production has begun to pick up in the last three years, it remains relatively low, though the current increase in PhD students, not least those connected with AZIRE, ought to contribute here.

Relevance

In line with its mission, CETAR seeks in most research projects to link educational theory and practice. The practical relevance in terms of implementation is well indicated by the close ties it has forged with schools and universities of applied science by way of its focus on 'Communities of Learners' and its participation in such school-based innovations as 'The Sparkling School', EduGIS and 'Better Means More'. We note that this is likely if anything to be strengthened by the growing number of research contracts being gained by CETAR.

Likewise, the extent of its dissemination effort is indicated by the considerable volume of its professional publications. The balance between theory and practice is, however, more difficult to achieve and the contribution to theoretical advancement needs further attention to sustain its increasing academic reputation.

Viability

Whilst its past scientific contribution and productivity during the early part of the period under review would occasion concern for CETAR's future viability, the systematic vitality of its management has succeeded in achieving a steady and pronounced growth in terms of staff size, academic output and budget. The recent increase in numbers of PhD students indicates this area is beginning to catch up with the general trend.

Further responsive utilisation of its quality assurance system bodes well for CETAR's continued efficiency and success. Other positive factors include an advantageous spread of staff ages, the advent of the AZIRE Institute and CETAR's positive recognition by external colleagues.

However, whilst the intentions announced in the self-evaluation document should generally contribute to viability, potential tensions needing careful management may include those between extending its research focuses to additional sub-areas, achieving critical staff mass within such sub-areas, and preserving the coherence of its overall research focus and strategy. The Committee applauds CETAR's determination to combine its independence with rigorous quality requirements for research and to strengthen the methodological support for the PhD's. This independent position can contribute to maintaining the focus of the programme.

Conclusion

The committee encountered strong leadership and an improvement of CETAR's research quality over the years. The productivity has increased and the output reveals fair relevance. The committee regards the integration of the Arts into the research programme as a necessary improvement of the programme, a remark that was made by the former evaluation committee as well.

The committee recognizes ample opportunities in CETAR's cooperation with the interdisciplinary institute AZIRE especially for partial funding of PhD's and for contacts with the professional education sector.. The Committee values CETAR's independency which allows further progress in quality and contributes to the viability of the institute.

7. Leiden University (LEI)

7.1. Assessment at Institute level – Interfacultair Centrum voor Lerarenopleiding, Onderwijsontwikkeling en Nascholing (ICLON)

7.1.1. Introduction

ICLON stands for Interfacultair Centrum voor Lerarenopleiding, Onderwijsontwikkeling en Nascholing, which can be translated as Interfaculty Centre for Teacher Education, Educational and Professional Development. ICLON was founded formally in 1995, as the result of the merger of two institutes within Leiden University, the departments of teacher education (IVLO) and higher education (BOVO).

In a Common Arrangement, the responsibility for all educational and research activities concerning teacher education at Leiden University are commissioned from the faculties to ICLON. ICLON is thus responsible for a PhD programme, plus a teacher education programme, by means of the aforementioned Common Arrangement. Note that disciplinary training is not included among the responsibilities of ICLON.

7.1.2. Leadership

ICLON is directed by a board ('Bestuursraad'), consisting of the deans of the six faculties of Leiden University, plus the director and the financial manager of ICLON. The board has mandated the director of ICLON to direct ICLON in all its current affairs. ICLON has two departments, Secondary Education and Higher Education, plus a supporting office. The ICLON management team consists of the director, plus the heads of the departments, and the financial manager, who is also the head of the supporting office. The Secondary Education department includes four units: pre-service teacher education, in-service education and school development, research, and transition secondary-higher education. The latter unit is focused on projects which aim at bridging the gap between secondary and higher education.

Leading the ICLON research programme is one of the tasks which is assigned by the ICLON board to the director of ICLON. In effect, the research programme is directed by a scientific committee, consisting (as of December 2008) of Prof. dr. N. Verloop (director), Prof. dr. H. Hulshof (professor of mother tongue education), Prof. dr. J.H. van Driel (professor of science education), and Dr. J. van Tartwijk (associate professor). The scientific committee meets monthly and is chaired by Prof. dr. J.H. van Driel.

ICLON has a well developed international network. Various highly reputed international researchers have stayed at ICLON as visiting professor for a period of 1 to 6 months, or as post-doc researchers (12 months). Also, ICLON researchers and PhD candidates have spent time at, and established relationships with, various institutes with an excellent reputation in the domain of teaching and teacher education

7.1.3. Mission & Goals

ICLON aims to contribute to the quality of (secondary and higher) education. Although the ultimate goal of education, obviously, is student learning, ICLON has chosen to focus on the teacher as a crucial agent in the educational process. Consequently, ICLON performs research, training, consultancy and development activities, which have the teacher and the quality of teaching as the main focus of attention. ICLON seeks to improve the quality of teaching by organizing and supervising effective learning processes, and designing stimulating learning environments.

The research of ICLON concentrates on the knowledge base of teaching. This entails all professional knowledge that is relevant for teaching practice. Understanding the nature and the content of teachers' practical knowledge, and how this knowledge develops in the context of teacher education and teachers' work, is considered crucial to designing effective forms of teacher education and professional development. By focusing on these issues, the ICLON research programme is distinctive from other research programmes in the Netherlands.

7.1.4. Strategy & Policy

The last external evaluation of the ICLON research programme (VSNU, 2003) resulted in a positive overall rating, in particular, concerning the coherence of the programme and the successes in obtaining external funding, especially the funding granted by NWO/PROO. Also, it was concluded that the research contributed to theory development, and was relevant for the practice of teaching and teacher education. In 2006, a so-called mid-term evaluation took place. Although the main focus of ICLON's research programme has not changed drastically since 2003, the outcomes of the evaluations in 2003 and 2006 have inspired some shifts in emphasis. Five trends are identified:

1. The emphasis in the programme has shifted from investigating teachers knowledge (Theme 1), to teacher learning or professional development (Theme 2). This is inspired by the idea that the more we know about the nature and the content of the knowledge base, the more it becomes possible to concentrate on changes and developments in the knowledge base. Concretely, the number of research projects in Theme 2 has increased since 2003, whereas the number of projects in Theme 1 has more or less remained constant. In Theme 3 (Assessment of Teacher Competence), a shift towards teacher learning is also visible. Three new projects in Theme 3 have started since 2003.
2. From 1996 to 2003 all projects exclusively concerned teachers in secondary education. Since 2003, new projects have started which include teachers in vocational education, special education and higher education.
3. The connection between research and practice has been strengthened. Whereas initially most ICLON research projects were more or less of a descriptive nature, aiming to disclose the knowledge and beliefs of teachers about a specific issue, many recent projects concentrate on teacher learning in the context of innovation-focused teacher education.
4. The fourth shift is related to a change in policy of the national body that sponsors educational research, that is NWO/PROO, to stimulate institutes to submit proposals for interrelated projects (Fields of Special Interest) together. These proposals consist of several projects for PhD candidates and post-doc researchers. Since 2003, ICLON has been successful four times in getting such proposals funded. All these projects included cooperation of ICLON with institutes in other Dutch universities, in particular Utrecht, Amsterdam, Nijmegen and Eindhoven. Three projects are related to Theme 2 in the ICLON programme, whereas the third one fits with Theme 3. These projects require a somewhat different way of working. For example, in two cases the PhD candidates all work at the same place (i.e., in Utrecht which is the most central location in the Netherlands), which has advantages, but also somewhat hinders the involvement of these candidates with their colleagues at ICLON.
5. More attention is paid to teacher behaviour (in relation to teacher cognitions, such as knowledge and beliefs), than in the projects of the past.

Evaluative remarks about Leadership, Mission and Goals and Strategy & Policy

Because its governing board involves the deans of the six faculties of Leiden University, ICLON

is a solidly established and well-integrated organization within Leiden University. In addition, the research programme is well placed and integrated among the teacher preparation units of ICLON. Finally, the management structure for the research programme within ICLON, consisting of the institute director and the major participants in the research programmes, seems efficient and integrated. The mission and goals of ICLON's research programme, focusing on teacher knowledge and its development, are consistent with the overall purposes of ICLON and provide a coherent framework to guide individual projects, efforts to seek external funding, and the evolution of the programme to meet emerging issues and themes. There also appears to be a strong research climate within the institute.

7.1.5. Resources

	2001	2001	2003	2004	2005	2006	2007	2008
Full professors	0.4	0.4	0.4	0.4	0.4	0.4	0.9	0.9
Associate professors	1	1.15	1.5	1.5	1.2	0.9	0.4	0.4
Assistant professors	1.2	1.2	1.2	1.2	1.15	2	1.75	1.5
<i>Total tenured staff</i>	<i>3</i>	<i>3.15</i>	<i>3.5</i>	<i>3.7</i>	<i>3.15</i>	<i>3.6</i>	<i>3.25</i>	<i>3</i>
PhD students	3.4	3.4	4.4	6.25	9.95	9.2	8.1	9.45
Other non-tenured staff	0	0	0.8	0.4	0	0	0.25	0.8
<i>Total non-tenured staff</i>	<i>3.4</i>	<i>3.4</i>	<i>5.2</i>	<i>6.65</i>	<i>9.95</i>	<i>9.2</i>	<i>8.35</i>	<i>10.25</i>
Total research staff	6.4	6.55	8.7	10.35	13.1	12.8	11.6	13.25

Table: Staff at department level (in research fte)

7.1.6. Funding Policies

	2001		2002		2003		2004		2005		2006		2007		2008	
	k€	%	k€	%	k€	%	k€	%	k€	%	k€	%	k€	%	k€	%
Funding																
Direct Funding	343	85	354	85	364	66	374	61	489	66	500	64	510	69	519	67
Research Funds	60	15	63	15	187	34	230	37	204	28	215	28	159	21	194	25
Contracts	0		0		0		14	2	42	6	58	8	71	10	62	8
<i>Total funding</i>	403		417		551		618		735		773		740		775	

Table: Funding of the Institute

7.1.7. Facilities

The self-evaluation report states that ICLON aims at providing researchers with optimal facilities to do their research. This includes opportunities for conferences, courses, travel, but also facilities for data processing, such as transcribing interviews and entering questionnaire data in databases. In 2008, ICLON moved to a new building, where the institute occupies three of the six floors. This provides larger rooms, a much larger and better equipped library, and better computer facilities.

Evaluative remarks about Resources, Funding Policies and Facilities

ICLON has had a consistent level of tenured staff involvement -3 fte- over the years of this review and staff are balanced across ranks and ages. ICLON has seen a steady increase in direct funding and has maintained a substantial amount of funding from external research funds

since 2003. The number of Ph.D. students rose from a little more than 3 to 10. Conversations with ICLON management indicated that the mission and goals deliberately framed this expansion so that coherence of the research programme was protected. The overall sense is that this is a purpose-driven and successful research programme.

7.1.8. Academic Reputation

The self-evaluation report gives an overview of the activities of ICLON researchers that are proof of their academic reputation. These include awards, memberships of editorial boards and research associations, organisation of conferences, etc. There are editorships of over 15 journals and book series.

Evaluative remarks about Academic Reputation

ICLON researchers contribute to a wide range of professional meetings, scholarly journals, and other professional activities. They also have strong relationships with a variety of researchers across the world. As a result, they are widely known and highly regarded throughout the international research community particularly for their work in science education and for their work in teacher knowledge and its development.

7.1.9. Societal Relevance

ICLON research has an impact in secondary education, teacher education and higher education. To disseminate outcomes of their research, ICLON researchers often present their work to audiences of secondary teachers. In the first place, by writing regularly in professional journals for these teachers, such as NVOX (science teachers), *Levende Talen* (language teachers), *Kleio* (history teachers). ICLON researchers often present lectures and conduct workshops at conferences for secondary teachers. ICLON is also involved in several projects that enable secondary teachers to do educational research. Most notably, ICLON is involved in the so-called DUDOC programme, which facilitates PhD research projects by science teachers, focused on new developments in the domain of science education.

Many of ICLON's research projects are conducted in the context of pre-service teacher education. Some of these projects have a focus on learning to teach specific subjects, whereas others are geared towards general aspects of learning to teach. The studies are designed in such a way that educators and pre-service teachers were studied in authentic teacher education situations, rather than in artificially created, laboratory-like situations. Consequently, the outcomes of these studies were directly relevant for the ICLON teacher education programme, and have been applied in the re-design or innovation of parts of this programme.

Since 2005, the ICLON research programme has included five PhD projects and one post-doc project conducted within Leiden University. Characteristic of all these projects is that they concentrate on the teaching role of academics who are working in these faculties. Rather than telling academics how to teach, these projects try to identify why academics teach the way they do, and what the perceived strengths and weaknesses of their approaches are. The ultimate aim is always to look for ways to improve university teaching, taking contextual and personal features into account.

Evaluative remarks about Societal Relevance

The strategic location of the research mission and programme within ICLON's broader activities in secondary teacher education and in higher education provide a context for establishing and maintaining relevance to continuing and emerging issues in teacher preparation and

schooling. There also appears to be good working relationships with secondary schools and with higher education faculties. The emphasis within the research programme is clearly on scientific contributions, but there is a continuing concern for practical relevance and application.

7.1.10. Balance of Strengths & Weaknesses

The self-evaluation report provided the following SWOT-analysis:

Strengths

- The ICLON research programme is characterized by its internal coherence in terms of its theoretical framework and methodological approaches. As a result, the ICLON research group functions as a community in which researchers can benefit from each other's expertise.
- The ICLON research group is well balanced in terms of ages, disciplinary backgrounds, and positions. There are senior researchers with a strong international reputation, as well as talented assistant professors and post-docs. There are enough researchers who are qualified to supervise or advise the growing number of PhD candidates.
- In the past 8 years, ICLON has been successful in raising external funding for research.
- ICLON researchers have strong (inter)national networks. The quality of ICLON research is recognized both at national and international levels.
- In addition, ICLON research is made accessible and valued by practitioners in the fields of secondary education, teacher education, and higher education.
- ICLON offers good facilities for researchers (resources; internal communication) and has established a much appreciated research climate.

Weaknesses

Since most ICLON research concerns small scale studies, applying qualitative methods of data collection and analysis, the methodological expertise within the group is somewhat unilateral. In particular, expertise in modern statistical techniques (e.g. multi level modelling, Lisrel) is limited at the moment.

Opportunities

- In the Netherlands, there is currently more attention for, and appreciation of educational research, both in secondary schools and at universities. Since ICLON has established good relationships with many secondary schools in the region and with faculties of Leiden University, this opens new possibilities to do research in connection with people working in these schools and in faculties of Leiden University.
- In relation to this, there are more possibilities for funding of research in which teachers and schools cooperate with researchers. For secondary education, recent initiatives of the Ministry of Education include DUDOC, The Academic School, and a 25 million Euro fund called OnderwijsBewijs (EducationEvidence). In higher education, the implementation of so-called lectoraten (lectorships) at universities of applied sciences, has already led to cooperative projects with universities, and will lead to more in the future. This type of cooperative research will contribute to the further external validation of ICLON research.
- In the new financial model that Leiden University will implement in 2010, there will be a substantially higher financial bonus for PhD graduation.
- ICLON's efforts in the area of internationalization have led to more structural relationships with highly reputed institutes. This opens up various possibilities: visiting profes-

sors, PhD candidates, and post-doc researchers will continue to come to stay at ICLON for some time. Also, these structural relationships can be used to apply for international funding of collaborative projects (i.e., European Research Council).

Threats

- Even though it is fortunate that NWO/PROO has a budget for educational research, this budget is systematically too low. Even among the proposals that get the highest quality ranking (i.e., A-rated projects) only 50% can be funded.
- There are few funding possibilities for doing (academic) research in higher education. For instance, NWO/PROO doesn't fund proposals in this domain. Given financial problems within Leiden University, it is not very likely that the board of the university will continue to fund research projects such as the projects on the research-teaching nexus.

Evaluative remarks about Strengths and Weaknesses

In the opinion of the Committee, the ICLON self-study gives an accurate overview of the strengths and weakness of the institute. ICLON has established a solid foundation in research, has pursued its mission systematically, and has produced an impressive body of internationally recognized scholarship. As the external environment within the Netherlands and across the research community in which they participate changes, they will be faced with increased need to adapt their programme to remain current with emerging contingencies and ideas. There is also a need, of which they are aware, to increase their capacity in a wider array of research and analytical methods. There would seem, however, to be the research talent available within the research programme and plans to supplement current capacities to achieve this transition. In addition, the announced leadership replacement -Van Driel to succeed Verloop as director- positions the research programme well for future stability and development.

7.2. Assessment per programme – Leiden

Programme name:	The Knowledge Base of Teaching		
Programme director:	Prof. dr. N. Verloop		
Research staff 2008:	13.25 fte		
Assessments:	Quality:	4	
	Productivity:	4.5	
	Relevance:	4	
	Viability:	4	

Short description

All ICLON research is conducted within the research programme *The Knowledge Base of Teaching*. This programme is situated within the international research domain usually known as Teaching and teacher education. The programme includes three mutually connected themes:

1. Teachers' knowledge as an essential component of the knowledge base of teaching; research on teachers' knowledge aims to contribute to the development of an adequate and valid knowledge base that is relevant to teachers.
2. The professional development of teachers; the focus of this theme is the professional development of teachers and particularly their construction of knowledge as a result of learning activities under various learning circumstances.
3. The assessment of teacher competence; this theme is strongly related to the second research theme. Attention is paid in particular to various aspects of assessment procedures and those design characteristics that appear to make formative teacher assessment an effective stimulant for the professional development of teachers.

Within each theme, a series of research projects is conducted. Most projects concern secondary education, but there are also projects in higher education and vocational education. By the end of 2008, the programme included a total of 26 projects. 24 researchers were involved in these projects, including 14 who are preparing a PhD thesis.

Quality

ICLON has established a quite systematic, high quality, and productive research programme on teacher knowledge, and more recently, its development in a variety of contexts. Focus and coherence are especially strong features of this work. The director has an especially strong international reputation and other researchers are developing a similar profile. In addition, a concerted effort has been made to create collaborative relationships with colleagues in both the Netherlands and around the world. There is a clear strategy to publish in high-impact international journals, and the work is widely recognized and accepted for its quality and impact in the international community of teaching and teacher education researchers. Recent shifts in themes in teaching and teacher education research -toward, for example, issues of teacher quality- will create a need for the programme to adjust its concentration and research approaches, but there appears to be sufficient talent within the ICLON to achieve this transition. There are multiple opportunities for originality in this arena.

Productivity

The emphasis in ICLON is clearly on academic publications and especially publications in high-impact ICO journals, and the researchers as a whole have been consistently quite successful in publishing their work in the high-ranking journals in teaching and teacher educa-

tion, including *Science Education, Teaching and Teacher Education, Teachers' College Record, and Teachers and Teaching: Theory and Practice*. For a relatively small tenured staff, the institute has been very productive in scientific publications. Since 2006, there have been 6 PhD theses published, a substantial increase for this institute. There is an emphasis on scientific publications, especially in journals on the ICO-list, but researchers are also encouraged to write professional publications to disseminate their research outcomes to practitioners. Several professional papers have won awards for quality.

Relevance

ICLON has consistently taken up important scientific topics to address in its research and has brought in international scholars to help shape this agenda. As a result they have made important contributions to academic knowledge in teaching and teacher education. With 98 professional publications, compared to 186 scientific publications, the dissemination of knowledge to the professional community is also substantial. Given the nature of their research focus, much of the work is done in applied contexts. Moreover, their participation in the DUDOC programme has increased their relevance to practice. Several specific examples of how their work is being used in teacher preparation were provided to the Committee. The examples include the use of portfolios, modeling classroom behaviour, the role of intervision, computer support for student collaboration. ICLON researchers are often asked to give lectures and seminars for groups of teachers. One staff member holds a 'lectorate' at a university of applied sciences.

Viability

ICLON has been a consistently strong and successful institute, so the long-term viability of the programme seems certain. Verloop has played a major role in nearly all ICLON projects, so his retirement is likely to have a major impact on the institute. The announced plan to make Van Driel director while Verloop stays on staff as professor seems quite sensible for the continuing vitality of the institute. Although the staff is relatively small, the distribution across rank and age categories is well balanced. The plans outlined for evolving the research programme toward teacher professional development and teacher practices promises originality and continuing productivity for this institute. The committee acknowledges that ICLON as an independent institute has a viable management structure with a Board consisting of the deans of the six faculties of Leiden University, plus the director and the financial manager of ICLON.

Conclusion

Overall this is a solid research organization with a coherent focus, a consistent strategy, a strong staff, and considerable impact within the Netherlands and across the world. They should be encouraged to continue this tradition, adapt their agenda to emerging issues in teaching and teacher education, and enhance their dissemination of knowledge to professional communities.

APPENDICES

Appendix A: Curricula Vitae of the committee members

Joost Lowyck is emeritus professor and special guest professor at the University of Leuven, Centre for Instructional Psychology and Technology.

Walter Doyle is professor in the College of Education at the University of Arizona, Tucson, USA. He has written on issues of curriculum theory and classroom processes.

Pamela Grossman is professor at the Stanford University School of Education. Her teaching and research interests center on the education of teachers and professional education more generally, policy and programmatic issues related to teacher education, and the teaching of secondary English.

Roger Säljö is professor of education and educational psychology at the Department of Education, University of Gothenburg. Between 1983 and 1997 he was professor of the behavioural sciences at the Department of Communication Studies, Linköping University. He is Director of LinCS, The Linnaeus Centre for Research on Learning, Interaction and Mediated Communication in Contemporary Society.

Alan Schoenfeld is professor of education at Berkeley, University of California. His research deals with thinking, teaching and learning, with an emphasis on mathematics. Themes in his research are problem solving, understanding and teaching the concepts of functions and graphs, assessment and building analytic models of teaching.

Peter Tomlinson is Emeritus Professor of Pedagogy and Professional Learning at the University of Leeds, School of Education, where he has had over twenty years experience of practice and research into teacher training. He has also served as Editor of The British Journal of Educational Psychology.

Appendix B: Schedule of the meetings

Monday, November 16, 2009: ICO and RUG	
11:00	ICO Research School (orientation only; school is not under review)
13:00	Groningen Centre for Learning and Teaching (UOCG-RUG).
14:00	RUG-programme: Teaching and teacher education
15:00	RUG PhD-students
Tuesday, November 17, 2009: UU	
9:00	IVLOS Institute management, Utrecht University
10:00	IVLOS-programme: Teacher learning and development throughout the professional career
11:00	IVLOS PhD-students
13:00	FISME Institute management and dean Faculty of Science, Utrecht University
14:00	FISME-programme: Learning & Teaching in Science and Mathematics
15:00	FISME PhD-students
16:00	University Executive Board and vice-dean Faculty of Social and Behavioural Sciences
Wednesday, November 18, 2009: VU and UvA	
9:00	CETAR Institute management, Vrije Universiteit
10:00	VU-programme: Knowledge development between theory and practice
11:00	VU PhD-students
13:00	GSTL Institute management, University of Amsterdam
14:00	GSTL-programme: Skills related to knowledge acquisition in secondary education
15:00	GSTL PhD-students
Thursday, November 19, 2009: Leiden	
9:00	ICLON Institute management, Leiden University
10:00	ICLON-programme: Knowledge base of teaching
11:00	ICLON PhD-students
Friday, November 20, 2009: QANU-SEMINAR	

Appendix C: Explanation of the SEP-scores

<i>Excellent (5)</i>	Work is at the forefront internationally and will most likely have an important and substantial impact in the field. Group is considered an international leader.
<i>Very Good (4)</i>	Work is internationally competitive and is expected to make a significant contribution; nationally speaking at the forefront in the field. Group is considered international player, national leader.
<i>Good (3)</i>	Work is competitive at the national level and will probably make a valuable contribution in the international field. Group is considered internationally visible and a national player.
<i>Satisfactory (2)</i>	Work that is solid but not exciting, will add to our understanding and is in principle worthy of support. It is considered of less priority than work in the above categories. Group is nationally visible.
<i>Unsatisfactory (1)</i>	Work that is neither solid nor exciting, flawed in the scientific and or technical approach, repetitions of other work, etc. Work not worthy of pursuing.

Quality is to be seen as a measure of excellence and excitement. It refers to the eminence of a group's research activities, its abilities to perform at the highest level and its achievements in the international scientific community. It rests on the proficiency and rigour of research concepts and conduct; it shows in the success of the group at the forefront of scientific development.

Productivity refers to the total output of the group; that is, the variegated ways in which results of research and knowledge development are publicised. The output needs to be reviewed in relation to the input in terms of human resources.

Relevance is a criterion that covers both the scientific and the technical and socio-economic impact of the work. Here in particular research choices are assessed in relation to developments in the international scientific community or, in the case of technical and socio-economic impact, in relation to important developments or questions in society at large.

Vitality and feasibility: This dual criterion refers to the internal and external dynamics of the group in relation to the choices made and the success rate of projects. On the one hand, this criterion measures the flexibility of a group, which appears in its ability to close research lines that have no future and to initiate new venture projects. On the other hand, it measures the capacity of the management to run projects in a professional way. Assessment of policy decisions is at stake, as well as assessment of project management, including cost-benefit analysis.

The scale before 2003

The SEP-scale was changed in 2003. The score 'Very good' was added and the score 'Poor' was dropped. This means that 2009-scores are not directly comparable to 2003-scores. The differences are as follows:

2003		2009	
Excellent	5	5	Excellent
		4	Very good
Good	4	3	Good
Satisfactory	3	2	Satisfactory
Unsatisfactory	2	1	Unsatisfactory
Poor	1		