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Foreign peer reviewers about the quality and added value of Dutch research schools

An analysis of Peer Review Committee reports

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S C H A P



Nr. 120 consists of:
the English translation of the summary
of policy oriented studies nr 112 and
information from nr 110, both published
in the Dutch language

Summary: Main findings and
recommandations with an introduction by
the ministry

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1 Introduction Research School

Policy

In the early 1990s, the Netherlands government started a policy of promoting top quality research schools by a policy of rewarding a quality label for the research school on the basis of research output, sufficient critical mass in scholarly research and the quality of PhD training programs. It asked for proposals from the institutions to be recognised as excellent research schools. The proposals would not be granted with money, only with the recognition of being an excellent research school by a committee nominated by the Royal Dutch Academy of Science. In the years behind us, 102 research schools have been recognised as having met the accreditation criteria of the Royal Academy. The schools were formed by combining research capacity either from one faculty with a more focussed aim than before, or by more faculties from one institution to obtain a substantial volume, or by a combination of scholars from various institutions into one field of research, also to give profile to the group. A number of these schools are network like organisations grouped around the content of joint research programs and PhD training facilities. For funding and material facilities they depend on the organisational structures of the universities concerned.

A Dutch research school numbers on average 75 PhD candidates. The smallest school numbers 14 PhD candidates, the largest 191 PhD candidates.

Considering the year the proposal for recognition was submitted as the point of reference, a Dutch research school numbers on average 110 full time equivalents research capacity. The smallest having a research capacity of 18 full time equivalents, the largest school a research capacity of 372 full time equivalents.

Evaluation of results

As part of the Dutch accreditation procedures, these schools have been subjected to quality assurance of the research and PhD training by external peer reviews. The peer review committees were expected to provide a motivated judgement of

1. the quality of the research in the school
2. the quality of the PhD training (including the yield and duration).

3. On the basis of 1 and 2 they should judge about reacknowledgement as a research school.

In 2004, 80 reviews of the Research Schools, which were available in the archives of the Royal Dutch Academy of Science, could be investigated. Altogether they consist of more than 1000 pages of text by more than 300 renowned scientists from 23 countries.

At the same time research in general has been subject to regular quality evaluation by external peer reviews according to the format of the Association of Universities in the Netherlands, the VSNU. This VSNU format asks peers to judge various aspects of the research in scores of 1-5, in which 5 is the maximum, meaning a research output of international reputation, published in renown international scientific journals. Also these results are published and are used by the various research schools as a feed back on their performance.

Recently the total of the 80 reviews on the Research Schools has been analysed and where possible comparable VSNU research reviews were incorporated in the analysis. This was done as part of a scientific research project. The results of this project are published in two books in the Dutch language.

One of the books contains a summary of all the Peer Review Committee findings, grouped according to various themes. This summary provides a summary of analytical findings and a summary of recommendations. Thus it appears like a code of good practice for various aspects of good quality research and research training, and could better be made available for a wider public.

Table 1 summarizes the aspects addressed in the Review reports of the research schools and gives the frequencies of being mentioned with the percentages. These aspects also appear in the summary in paragraph 2, though in a slightly different sequence. In this summary the results of the reviews are summarized under the sub-heading “evaluations”. Next to these aspects the meta-evaluators introduced their own “observations” on competition for funding of research and on perceived approaches to the PhD thesis. For a proper understanding of the text one should also know that the PhD candidates can be either temporarily employed as trainee research assistants or be blessed with a research or a PhD grant.

Table 1 *Aspects of research schools being addressed in the 80 external peer review reports evaluating the research schools*

Aspect	Frequency	Percentage
International position/standing of the school	72	90
Intra-school partnerships	69	86
Research quality	66	83
Research management	65	81
Interdisciplinary of the research school	60	75
Added value of the research school	58	70
PhD thesis (overall)	56	70
Supervision and evaluation of PhD candidates	53	66
Inflow of PhD candidates	51	64
The PhD programme	50	63
Central administrative capacity	48	60
Career prospects of PhD candidates	30	38
PhD thesis (quality)	26	33
Yield of the PhD programme	24	30
Duration of PhD programme	24	30
PhD thesis (production)	23	29
Yield and duration of PhD thesis (explanation)	18	23
Yield and duration of PhD thesis (recommendations)	17	21
PhD thesis (supervision and judgement)	13	16

The reviews yield a richness of data on the quality of the research and of the PhD programmes. They also address two broader issues: the “maakbaarheid” shape ability, or manageability of scientific research and the continuation of old assumptions and habits under new research and PhD training policies. The presentation of the findings is important as it provides insight into the possibility of policy interventions.

The findings are grouped into the following main issues:

- Added value of the research school
- Research quality
- International reputation
- Partnerships and competition
- Interdisciplinary partnerships
- “Maakbaarheid” Shape ability/manageability of the scientific research
- The PhD training

Apart from the more severe judgements concerning international reputation of the Research Schools by the Peer review committees compared to more favourable judgement on this in the VSNU reviews, the overall judgements of the two systems of research evaluation appeared to result in congruent results, despite differences in format and definitions.

Sharing of information

Against the background of the Bologna and the Lisbon process of improving research performance and attention for the training of researchers it is considered relevant to make the summary available in a widely understood language.

Presentation of this summary does not mean that innovation and development has stopped here. On the contrary, focussing of research into Research Schools was a phase in innovation. In dialogue with the higher education and research institutes further ways and means are sought to thrive for excellence in certain academic fields and for good quality training at master and doctorate level on the whole, on top of which outstanding performances can grow. These days facilitation by the Netherlands government focuses on the possibility for universities of attracting excellent PhD candidates and stimulation of profiling research and PhD training in international perspective. Apart from this, funding of research as part of the block grant of universities, and a second stream of funding by competition of proposals for excellent research judged by the Netherlands research council, continues unchanged. The present summary of 80 research and research training evaluations gives ample suggestions for conditions in which excellent research and PhD training can thrive. Thus it is highly recommended material for persons involved in the governance and management of research and research training.

The Hague, December 2005

Ministry of Education, Culture and Science

2 Summary of evaluations of research schools

2.1 *Added value of the research school*

- Over 70% of the 80 Peer Review Committee reports analysed (58) explicitly address the added value of the research schools.
- The scores were highest in two areas:
 1. the opportunities the schools have created for multi-disciplinary partnerships (often national ones) between researchers
 2. the role of the schools in training PhD candidates.
- Regarding the multidisciplinary and national partnerships, the committees have highlighted:
 - promoting interdisciplinary contacts
 - extending research coordination from a local to a national scale, yielding the following benefits:
 - avert research overlaps
 - expand and improve research facilities
 - using economy of scale to protect Dutch academic expertise
 - furthering partnerships between departments that had initially operated along more separate paths
 - joint academic output.
- Regarding the PhD programme (sub 2), the committees have mentioned:
 - expansion of the programme by involving a large group of academic staff
 - enrichment of knowledge by involving a large group of academic staff
 - the benefits of scale expansion (educational opportunities not available at individual institutes)
 - the overall quality of education and courses
 - establishment of a national network of talented young scholars.
- In addition to the added value in terms of (1) expanded and multidisciplinary partnerships and (2) the considerable interest of the schools in educating PhD candidates, the committees emphasized:

- sharing facilities (e.g. research equipment)
- improving chances for obtaining research grants
- raising academic visibility both in the Netherlands and abroad.
- Four committees are examining whether forming the schools has increased productivity. This question is considered too difficult to answer.

2.2 Research quality

- In the 80 Peer Review Committee reports examined, 8720 text excerpts were codified. Of these 8720 text excerpts 800 are explicitly addressing research quality at a school (N=800). These excerpts on research quality comprise of judgements which are addressed at the school as a whole (N = 75) or at a section of a school (N = 230). Most judgements concern overall research quality (227 judgements), publications produced (218), relevance of the research (155 judgements) or international reputation (151 judgements).
- In all 52 cases where a committee has issued a non-quantified evaluation of the research quality of a Dutch research school *as a whole*, the evaluation is favourable to excellent. The cases where the committees use VSNU [Association of Universities in the Netherlands] or comparable scores (in 7 reports) confirm this impression (average is 4.85 out of 5).
- In 90% of the 108 cases where a committee has issued a non-quantified evaluation of the research quality *of a section* of a Dutch research school (N = 108), the judgement is favourable to excellent. In 70% of the 60 cases where the committees use VSNU or comparable scores, the overall quality scores a 4 or 5 (average of all 60 cases is 3.8).
- In 90% of the 50 cases where a committee has evaluated the international reputation of a Dutch research school as a whole, the evaluation is favourable to excellent.
- In 90% of the 101 cases where a committee has evaluated the international reputation of a *section* of a Dutch research school, the evaluation is favourable to excellent.
- In 26 of the 27 cases where a committee has issued a non-quantified evaluation of the *quality* of the publications produced at a Dutch research school as a whole,

the evaluation is favourable to excellent. This holds true for all 26 cases where a committee has issued a non-quantified evaluation of the *quantity* of the publications produced at a Dutch research school as a whole. It also holds true for 19 of the 20 cases where a committee issues a non-quantified evaluation of the publications produced at a Dutch research school as a whole, without quantitative or qualitative distinctions. Three evaluations about the school's productivity are expressed in a VSNU or comparable score; the average score is 4 (out of 5).

- In 24 of the 25 cases where a committee has issued a non-quantified evaluation of the *quality* of the publications produced at a section of a Dutch research school, the evaluation is favourable to excellent. This holds true for 25 of the 27 cases where a committee has issued a non-quantified evaluation of the *quantity* of the publications produced at sections of a Dutch research school. It also holds true for 51 of the 57 cases (90%) where a committee has issued a non-quantified evaluation of the publications produced at *sections* of a Dutch research school, without quantitative or qualitative distinctions. In addition, 33 evaluations concerning the productivity of *sections* of a school are expressed in a VSNU or comparable score; the average score is 3.9 (out of 5)
- In all four non-quantified evaluations of the *theoretical* relevance of the research at a Dutch research school as a whole that a committee has issued, the evaluation is favourable to excellent. This is equally true for six of the seven cases where a committee has issued a non-quantified evaluation of the *social* relevance of research at a Dutch research school as a whole. And for all 26 cases where a committee has issued a non-quantified evaluation of the *social* relevance of research at a Dutch research school as a whole, without distinguishing according to theoretical or social importance. In two cases evaluations of the relevance of research at the school are also expressed in a VSNU or comparable score; the average score is 4.5 (out of 5).
- In all four non-quantified evaluations of the *theoretical* relevance of the research at sections of a Dutch research school that a committee has issued, the evaluation is favourable to excellent. This is equally true for all nine cases where a committee has issued a non-quantified evaluation of the *social* relevance of research at sections of a Dutch research school. And for 95% of the 69 cases where a committee has issued a non-quantified evaluation of the relevance of research at sections of a Dutch research school, without distinguishing according to theoretical

or social importance. In addition, 34 evaluations of the relevance of research at sections of the school are also expressed in a VSNU or comparable score; the average score is 4.1 (out of 5).

- Opinions are divided as to whether success in obtaining grants is an indicator of research quality. In all five cases where a committee evaluates the recruitment strength of a Dutch research school as a whole in this respect, the evaluation is favourable to excellent.
- In 16 of the 24 cases (65%) where a committee evaluates the recruitment strength of sections of a Dutch research school in this respect, the evaluation is favourable to excellent. In two cases the committee is mildly critical, in six the committee expressed unmitigated criticism.
- In 34 reports (ca. 45%), the committee mentions other quality indicators: quality of academic staff is mentioned 25 times, 20 references appear to (the prestige of) the school's 'figurehead', 7 to awards received and one to participation in a top school.
- Just under 30% of the reports examined (21) include evaluations of several sections of schools where the research is 'good' to 'excellent' by VSNU standards, while about 25% of the reports examined (19) list at least one section of a school (i.e. a research group) where the research merits the rating 'excellent' by international standards.
- At 39 schools the Peer Review Committee evaluations of the research quality could be compared to evaluations of VSNU review committees. Altogether, 325 VSNU programme evaluations were registered.
- At over 65% of the 39 schools listed (26), at least one programme has a VSNU score of 5 for quality. This percentage is nearly as high as the percentage of schools for which the Peer Review Committees claim that they produce top research by international standards.

2.3 International reputation

Evaluations

- The majority of the schools has a good international reputation. The Peer Review Committees primarily consider research quality. At 24 of the 69 schools

(ca. 35%), the Peer Review Committees have concluded that the schools are among the finest in the world.

- Few schools have received exclusively or partially negative feedback for their international position or achievements from an internationally comparative perspective (8 schools, 11.5%) as a whole or via their research groups.
- Only very rarely can a school in its entirety be said to be doing poorly from an international perspective. The evaluations of the Peer Review Committees reflect remarkable differentiation within the schools. In many cases the groups are said to differ in terms of their international reputation. The indications strongly suggest that the international reputation of a research group is based mainly on the presence of one or a few individual prominent scholars, mentioned by name at every opportunity.
- A school's international reputation in a given field of scholarship is unlikely to have changed overnight upon the establishment of one or several research schools. A considerable number of references concerns the state of affairs in the field of scholarship concerned prior to the establishment of the school or schools. In many cases we read that the Netherlands was already internationally known in that field of scholarship, and that the school has maintained or enriched this reputation. This relates to the question about the added value of the research schools. A good international reputation is often based more on established practice than on sudden improvement.
- Many Peer Review Committees express rather broad appreciation for the accomplishments of the research schools. In addition to their solid international reputation, the ability of the Dutch scholars to channel the national combination of forces through research and PhD programmes sets an international standard. In 17 cases (ca. 25%), the Peer Review Committees note that the model serves as an example to the international community.

Recommendations

- Schools hoping to acquire or enrich an international reputation would do well to follow the suggestions below, based on the advice from the Peer Review Committees. The chart in Table 2.3.1 summarizes the most common recommendations.

Table 2.3.1 Recommendations from the Peer Review Committees to enhance standing of research schools

Targets to be pursued:	Explanation
Clear strategy, clear ambition. Arrange internal and external support for these objectives	Draft a plan to internationalize the school and enhance its international reputation. Encourage academic staff to reach out to colleagues abroad. The research perspective should address international circles, with a university commitment to internationalization. Support from the ministry of education is required as well.
Excellence in research	An essential condition for enhancing the international role.
International partnerships	Establish partnerships with researchers and top institutes abroad. Use resources such as European Union funding to this end.
A prominent international role	In addition to participating in international research projects, try to initiate and run them. Leadership is attainable through conducting research, serving on important international committees and organizing major congresses and conferences and invitations for lectures and similar events.
International exchanges	Academic staff, post-docs and PhD candidates greatly value opportunities for international research visits. Make the school attractive to prominent visiting researchers, who may increase awareness of the school and enhance its reputation following their visit.
Policy on appointments	Emphasize 'international reputation' in appointing new researchers. Select junior staff based on their ambition and potential in this respect. Recruit PhD candidates internationally.
International publications	Continue to encourage academic staff to publish in internationally <i>refereed</i> journals. Keep a record of whether these staff members are sufficiently visible in these journals, and assess the impact of these publications (e.g. through regular <i>citation index</i> research). Publish in the <i>mainstream languages</i> .
An excellent, internationally-oriented PhD programme	Excellence in the PhD programme is the underlying objective. International standing is attained through: programme accessibility (instruction in English, international recruitment of new PhD candidates, no 'localist' bias in recruitment), visiting instructors from abroad, opportunities for PhD candidates to study abroad and participate in international conferences, a substantial share of PhD candidates from abroad in the programme, PhD education attuned to international trends.
Finances	Strengthening the international role requires funding to organize the school's conferences, invite visiting researchers and finance brief stays abroad for the school's researchers.
International visibility	The first requirements are good researchers and an excellent PhD programme. Also bear in mind that extensive investments in information disclosure, newsletters, web-

sites, etc. are important for publicizing the school's international results. Raise awareness of the school by having research groups and individual academic staff mention the research school with which they are affiliated when they operate in the international arena.

Rather than having the school function as an organization facilitating all kinds of research clusters or institutes, enhance visibility by having the members of the school focus on selected and clearly circumscribed research topics.

Additional recommendations

- Compete with large corporations and other potential employers with respect salaries of PhD candidates.
- Improve the chances of PhD recipients on the international job market, for example by adding international components in the programme.
- Explore and cultivate new research fields. Ensure sufficient critical mass for each research programme to be internationally competitive.
- Reinforce mutual cooperation and streamline the research programme to increase synergies within the school.
- Establish good working conditions for staff members by arranging research and study leaves and rewarding educational efforts in the PhD programme.
- Increase the school budget to encourage new research projects and mutual cooperation.

2.4 Internal and external partnerships

Evaluations

- In 64 of the 75 reports (85%) the results of the school's partnerships within and outside the school are described as favourable to excellent.
- In 17 cases the committee has refrained from criticism. In the other cases (47) the committee believes that the schools are on the right track but still have a long way to go.
- In virtually no case do all research groups within a school have successful partnerships. At 95% of the schools some groups are cohesively integrated in the school and work closely with other groups, alongside groups with a more peripheral and isolated style.

- The committees have repeatedly invited the schools to make better use of partnership opportunities. They acknowledge the complications that may arise:
 - an individualist research culture
 - no substantial financial authority on the part of the school administration
 - non-substantive (often externally established strategic) barriers to partnerships
 - limited top-down feasibility of academic research
 - lack of perceived synergy and corporate identity.

Recommendations

- Internal partnerships

The Peer Review Committees have provided the following suggestions for schools to promote partnerships within the school (Table 2.4.1).

Table 2.4.1 Suggestions for enhancing intra-school partnerships.

Focus	Explanation
activities:	
Exchanges	Organize seminars, periodic internal conferences, meetings to discuss research objectives, research plans, etc.
Financial policy	Allocate funds toward joint PhD projects, start-up grants toward designing joint research projects, organise guest visits for academic staff with other research groups at the school.
Academic staff	Devise measures and strategies to encourage academic staff to join a school (and the research groups within the school).
Research heads	Assign the heads of research groups to encourage partnerships with other groups. Consider this skill in appointing new professors.
Infrastructure	Promote sharing equipment and laboratory facilities, better Internet use for mutual communication, joint accommodations.
Organization	Allocate or reallocate research groups on substantive grounds, enable participation in two research groups at once
PhD programme	Allocate PhD positions to the groups of which the results matter most to other groups. Have each research group contribute to the PhD programme. Structure the educational programmes in a manner that requires partnerships. Make PhD positions available to groups that intend to work with other groups.
Research programme	Focus the research, for the sake of cohesion, on a smaller number of well-defined research fields (sharpen the focus).
Grants	Encourage joint requests for external grants, based on internal (joint) consultation and an internal evaluation procedure.

- *External partnerships*

Several Peer Review Committees have addressed national partnerships between the school and external colleagues and suggest the following:

- Work with external groups or researchers active in the same field.
- Form a coordinating board with a sister school with which a partnership already exists.
- Establish associations with existing schools with a view toward entering new fields of research.
- Strengthen ties with external institutes through employment of PhD candidates (e.g. jobs at laboratories outside the school).
- Work with external groups and schools to ensure:
 - sufficient critical mass for fruitful research
 - amicable interactions that rigid barriers would preclude
 - influencing the Dutch research agenda
 - a useful division of research duties
 - reinforcement of the PhD programme.

2.5 *Competition*

Evaluations and observations

- No Peer Review Committee suggests competing at the expense of national partnerships. All suggestions entail:
 - retaining or intensifying current partnerships achieved within the school
 - strengthening partnerships between schools
 - admitting important groups that are not yet members to the school.
- No committee has indicated that competition for funding (which is often limited) will make for higher ambitions or improve the quality of grant applications.
- The Committees have noted with satisfaction that the academic researchers and schools have succeeded in circumventing the confining features of the school system, known as bureaucratic or administrative simplifications. Five committees report explicitly that researchers are affiliated with several schools, or that

interactions with external parties are not compromised by lack of affiliation with the same school.

- Fourteen committees examined the closed or open structure of schools (effectively a form of competition desired and imposed externally), although this does not appear to be presenting serious problems at this time. In research, academic partnerships are not easily inhibited through formal boundaries.
- Three committees wonder why researchers involved in very similar work do not team up within the same research school, or why the researchers operating at the same school do not work together more closely.

2.6 Interdisciplinary partnerships

Evaluations

- Interdisciplinary partnerships have been reviewed at 58 schools. Over 80% (48) have received favourable evaluations. Ten schools have received critical reviews.
- The majority of the committees (60%) mentioned interdisciplinary partnerships explicitly among the main achievements of Dutch research schools.
- The comments from the committees reflect three levels of partnerships:
 - a general ‘convergence of disciplines’
 - organizational clustering of academic staff from different disciplines (not necessarily in concrete projects)
 - partnerships between academic staff from different disciplines in concrete research projects.
- The committees conclude that the schools:
 - have succeeded in convening different disciplines
 - have achieved major progress where the organization is theme-based rather than by discipline
 - have a long way to go in the field of ongoing disciplinary partnerships.
- Four aspects have received special praise:
 - the school is a place where disciplines converge.
 - the school provides an interdisciplinary PhD environment.
 - the school has achieved tangible results in interdisciplinary research.

- the school's organizational structure promotes interdisciplinary partnerships (rather than inhibiting them).
- Critical remarks address the following problems:
 - The written output does not sufficiently convey the school's interdisciplinary opportunities.
 - Interdisciplinary partnerships have not been realized in sufficient measure.
 - Mono-disciplinary traditions are an obstacle to interdisciplinary initiatives.
 - Interdisciplinary achievements vary for each research group within the research school.
 - Interdisciplinary projects are at risk because the school lacks specific disciplinary knowledge.
 - Organizational structures block interdisciplinary partnerships.

Recommendations

- Combine forces:
 - Gather researchers based on shared interest and (not necessarily shared) material knowledge.
 - (One step further:) Gather scholars from different disciplines in interdisciplinary research projects.
- Monitor the balance between interdisciplinary activities and disciplinary expertise.
- Use the opportunities of the PhD programme to cultivate interdisciplinary projects and partnerships:
 - encourage and enable researchers from different disciplines to design and raise funding for joint PhD projects.
 - design interdisciplinary guidance for PhD candidates, both for individuals and through courses (*team teaching*).
- Highlight interdisciplinary partnerships
 - at school presentations: list cases of successful interdisciplinary partnerships
 - in publications.
- Consider interdisciplinary approaches in policy on appointments.
 - make 'ability to contribute to interdisciplinary partnerships' an explicit criterion for appointments

- hire or purchase specific disciplinary expertise – expertise required for interdisciplinary projects but unavailable or insufficiently available at the school at this time.
- Facilitate organization of interdisciplinary approaches.
 - encourage interdisciplinary clustering, block mono-disciplinary clustering
 - enable staff members to participate in multiple research clusters
 - allow academic staff and PhD candidates to participate in multiple research schools
 - promote encounters between disciplines – for example through colloquia and workshops.

2.7 *Research management*

Evaluations

- Research management involves examining in what measure a research school is expected to circumscribe the research endeavours by theme and to pursue coherence. Over 80% of the Peer Review Committees address management of research, academic staff (59 reports) or PhD candidates (six additional reports).
- Nearly half (29) of the 59 committees urge *increased* management. Eight committees have noted a disconcerting shortage or lack of management.
- Over 35% of the committees (21) have expressed satisfaction with the school's research coherence and the corresponding circumscription according to themes.
- The committees have hardly addressed or have not addressed the programme-based research focus for the school.
- The committees have offered various explanations for the lack of a clear research focus and research mission:
 - The schools accommodate the expectations from surrounding board members and institutes or departments desiring flexible criteria for admitting scholars.
 - Minimal critical mass precludes an overly stringent admission policy.
 - The central administration is unable to formulate and realize a narrowly focused research mission.

Recommendations

- Target research focus and coherence. A school's respective research programmes thus gain:
 - depth
 - recognizability
 - national and international prestige.
- Strike a balance between a carefully formulated research agenda on the one hand and the strengths and preferences of individual scholars on the other hand.
- Avoid clinging too rigidly to the school's programmatic principles. (Three committees oppose concessions in this respect, although most committees by far have a much more permissive view.) Accommodate:
 - diversity
 - flexibility.

2.8 Central administrative capacity

Evaluations

- Over half the Peer Review Committees (42) have reviewed the means and areas of authority available to the schools for facilitating, coordinating or directing research by their academic staff and the education and research of the PhD candidates. We have identified these means and fields of authority as 'central administrative capacity'.
- Less than 15% of the 42 committees (6) has an entirely favourable opinion of the school's central administrative capacity. The remaining 85% (36 committees) is concerned, has expressed criticism or urges strengthening the school's position.
- Seventeen of the 42 committees (40%) emphasize that the research schools need to be closely involved in determining PhD projects and recruiting PhD candidates.
- Two general considerations underlie the appeals for reinforcing the central administrative capacity of the schools:
 - central involvement is important because assigning PhD positions will boost new research lines in the school.

- in addition to ensuring support for promising new research initiatives, central involvement may encourage partnerships between different disciplines or departments.
- In many cases the autonomy of research schools in practice leaves much to be desired. Most research schools have only a modest budget for the school as such and are therefore not in a position to determine the deployment of people and funds to perform the stated educational tasks, let alone to launch a research policy and new initiatives in their field. The above is all the more true for national research schools, which have a federative administrative structure.

Recommendations

- Let universities and faculties pursue a consistent policy. If they decide to participate in a school, they should assign the school the necessary authority and provide the funding required to this end.
- Give schools (somewhat) more central means to direct PhD projects, as the schools are held responsible for PhD results as well. Examples include:
 - Determining PhD projects and recruiting PhD candidates.
 - Selecting and evaluating PhD candidates.
- Give schools where this is not yet or is not yet sufficiently the case, the central authority necessary to monitor and improve research quality:
 - Determine the educational programme content and the related courses.
 - Approve individual educational programmes of PhD candidates.
 - Monitor and review PhD candidates.
 - Manage school funds to enable PhD candidates to attend part of their programme elsewhere (e.g. abroad).
 - Reward PhD instruction by academic staff.
- Give schools where this is not yet or is not yet sufficiently the case the central authority necessary to monitor and improve the quality of the PhD programme:
 - Ensure access to a good infrastructure and secretarial support.
 - Take decisions about staff membership of the school.
 - Remove weak research groups.
 - Finance exploratory research or small research projects likely to promote (interdisciplinary) partnerships and enhance research coherence.

- Increase the financial scope of schools to:
 - Design or support new research lines (funds to invest and explore, start-up and encouragement grants).
 - ‘Buy out’ academic staff from their institutes or departments to advise PhD candidates.
 - Encourage internal partnerships (intra-university and interdisciplinary).

2.9 *The PhD programme*

Evaluations

- Seventy percent of the Peer Review Committees (56) issued a general review of PhD programme quality. Eight committees expressed criticism, while 48 committees delivered favourable reviews.
- Over half the reviews (31) express praise above and beyond satisfaction, noting that the educational achievements are ‘remarkable’, ‘exemplary’ or ‘impressive’ and commending the multi-university and multi-disciplinary combination of forces. The praise for the high quality of the courses and the instruction encompasses ratings from ‘unique’ and ‘excellent’ to ‘very successful’ and a ‘high standard’. In eight cases the characterizations indicate an exceptional achievement.
- Seventeen committees explicitly address the cohesion of the educational components. Nine of these committees consider cohesion good to excellent, while the other eight committees believe that programme cohesion could bear improvement. Five committees base their criticism on the results of student evaluations.
- In addition to widespread praise about the quality of instructors and students, the ambience at the schools, the organizational flexibility and the willingness to accommodate needs, committees regularly express concern about the narrow scope of the instruction available (47 reports), testing procedures (15 reports) and certification (12 reports).
- Committees list timing (a good and rapid start of the research) and transfer (directly associating theory with practice) as the chief strengths of the educational structure at Dutch research schools (linking education with research at an early stage) compared, for example, to American graduate schools.

- The main shortcomings of the Dutch educational structure compared with the American one are the narrow educational scope (excessive focus on one's own research project) and the laissez faire nature of the programme (little supervision, monitoring is rare or absent, degrees lack prestige).

Recommendations

- Generate unity and cohesion in the educational programme: combine educational components with the research project.
- Also avoid dedicating the programme entirely to the specific research project:
 - establish a broad, solid knowledge foundation not only for the project but also for programmes to train researchers in general
 - offer students non-disciplinary and cross-disciplinary education
 - establish conditions for acquiring occupational skills that make PhD candidates more employable.
- Give the school, as well as the programme, a recognizable intellectual identity
- However, avoid intellectual homogeneity and discipline. Introduce researchers in training to other:
 - disciplines
 - paradigms
 - researchers
 - networks (including international ones).
- Provide researchers in training with a safe learning environment, where they:
 - have time and space to learn (and freedom to err)
 - benefit from the knowledge, intelligence and creativity that the school embodies
 - can share and exchange knowledge, ideas and experiences with other scholars.
- Foster a sense of critical involvement and mutual bonds among academic staff and researchers in training.
- Emphasize the international nature of scholarly research and express it in the research school through:
 - participation: foreign PhD candidates, academic staff and visiting instructors
 - activities: summer schools, conferences, publications, visits, foreign trainee appointments abroad

- information disclosure: website, leaflets, pamphlets.
- Establish unity and cohesion at the school by combining research with education.
- Set high standards for the researchers in training, even at the expense of educational output.
- Integrate assessment and quality control in education (involve the students).

2.10 PhD research management

Observation

The perceptions of the Peer Review Committees suggest an analytical distinction between a comprehensive and a restrictive approach to the PhD thesis. The comprehensive approach allows PhD candidates – recruited through open and internationally-oriented selection procedures – a considerable say in their own PhD projects; the instruction is more comprehensive and the guidance structure more diverse. In the restrictive approach PhD candidates, who often come from departments closely affiliated with the research school concerned, deal with research topics devised by the academic staff; PhD courses often relate closely to PhD research in progress, and supervision is provided by specialists who in most cases have followed the PhD research from the outset.

Evaluations

- Nearly half the Peer Review Committees (36) recommend increasing the school's central administrative capacity (cf. 2.8) to promote synergies at the school. PhD projects are often mentioned as possible instruments to this end.
- Over 35% of the committees (29) urges strengthening the research focus (cf. 2.7) but acknowledges the tension between academic direction and academic autonomy (one of the core problems facing the schools).

Recommendations

- Focus the research agenda without compromising the more comprehensive education of PhD candidates:
 - do not restrict the PhD curriculum (too much)
 - ensure broad academic foundations for PhD candidates

- encourage independence, creativity and autonomy.

2.11 Inflow of PhD candidates

Evaluations

- In 51 reports the Peer Review Committee evaluates the inflow. In approximately 65% of the cases (33) the assessment addresses the number of PhD candidates participating in the programme. In 17 reports the committee expresses concern about the inflow.
- Concerns about the inflow address:
 - the number of PhD candidates the school can absorb in a PhD curriculum (9)
 - the number of candidates interested in a PhD curriculum (5)
 - the quality of the candidates interested in a PhD curriculum (7).

(At 3 schools the committee is concerned about both the availability of PhD positions and the quality of the candidates.)

Recommendations

- Increase means for financing PhD curricula by
 - enlarging the share of PhD positions with direct government funding
 - trying to increase the share of PhD positions funded by the Netherlands Organization for Scientific Research and by external clients for educational services or research.
- Maintain a gender balance among PhD candidates.
- Do not subordinate selection criteria to the pool of candidates. Do not enrol PhD candidates lacking in quality or intending to work on projects outside the scope of the school or the expertise and supervision abilities of the academic staff.
- Avoid unbounded growth. Coordinate the inflow to match the supervisory capacity of the school.
- In the event of a shortage of candidates, consider recruitment, market value, labour market, likelihood of success, prior education and alternative PhD opportunities:

- Do not be too specialized in recruitment. Avoid restricting the number of potential candidates unnecessarily through an overly specific focus on the selection procedures.
- Put the school 'on the market'. Make the school visible and recognizable. Provide good information. Highlight the appeal of the academic research.
- Consider the career prospects of the PhD candidates. Address general occupational skills in the programme. Introduce PhD candidates to situations and networks involving future employers.
- Increase the chances that PhD candidates will succeed. Arrange PhD curricula likely to be completed within the target time frame. Introduce a reward system for completing PhD research on time.
- Support initiatives by adjacent faculties to enhance research training for students from the MA research programmes. Inform students from this initial stage about the educational opportunities of a research career.
- Devise opportunities for PhD candidates interested in combining work on their PhD thesis with other work.

2.12 Supervision and evaluation of PhD candidates

Evaluations

- In over 65% of the reports (53) the Peer Review Committees address PhD supervision. Twenty-six of these reports contain general evaluations: 15 committees have issued favourable reviews of the supervision, 11 committees have provided critical remarks (in most cases only mildly so).
- The criticism primarily and exclusively addresses the manner in which PhD candidates report on their progress during the PhD curriculum.
- In 10 reports the committee refers to the opinions of PhD candidates. In 7 cases the committee reports that PhD candidates are satisfied with the supervision and evaluation provided. In 3 cases the PhD candidates are dissatisfied.
- Nine committees express concern about the low ratio of academic staff to PhD candidates.

- Six Peer Review Committees note the importance of guidelines for PhD candidates (and instructors) that stipulate rights and obligations for supervision and evaluation.

Recommendations

- Set up a central quality control system for the PhD supervision to track and evaluate the performance of PhD candidates and their supervisors. The conditions recommended for such a system are as follows:
 - formalize supervision and evaluation procedures
 - introduce a regular evaluation at the end of the first year
 - continue to monitor progress throughout the following years
 - be clear about the rights and obligations of students and supervisors
 - compile a written record of the procedures for evaluating the performance of PhD candidates, including coursework, within and outside the school. Do the same for supervisors and instructors.
 - ensure substantive and procedural consistency, especially when PhD candidates work at different school locations.
 - reach clear agreements between the school and the institute where PhD candidates operate regarding supervision and evaluation responsibilities.
- Facilitate supervision. Protect the academic staff from becoming overburdened. Admit PhD candidates subject to supervision time available rather than subject to content expertise alone.
- Expand supervision to include people in addition to the thesis advisor in supervision and evaluation. To this end, involve:
 - an additional evaluator (besides the thesis advisor)
 - a mentor (besides the thesis advisor)
 - instructors (interdisciplinary team teaching in courses)
 - activities for PhD candidates outside their own research group.
- Peer Review Committees note the importance of informing PhD candidates (and instructors!) clearly of their rights and obligations and urge the following.
- Be more specific about the role of an external supervisor, appointed in addition to the thesis advisor of the PhD candidate.

2.13 PhD theses

- In 56 of the 80 Peer Review Committee reports (70%), aspects of the thesis are covered. This means that 30% of the committees fail to address the final product of the PhD programme.
- Twenty-six of these 56 reports (ca. 45%) address thesis quality, while 23 reports (ca. 40%) cover product length.
- All 26 reports with evaluations addressing thesis quality are favourable. Sixteen reports describe the quality as high. Four reports are favourable, while in three cases extremely favourable remarks appear alongside critical observations.
- In the 23 reports mentioning the length of the dissertations produced, fourteen schools received favourable evaluations from the committee, ranging from 'good' and 'above average' to 'impressive'. The committee has expressed concern about five schools and has reported the number of PhD theses completed for nine schools without elaborating.

2.14 Duration and yield of the PhD programme

Evaluations

- A minority of 24 Peer Review Committees (30%) has addressed PhD duration or yield.
- The opinions expressed by the committees about duration and yield are primarily (and in some cases very) favourable about the PhD yield. Thirteen committees express praise or appreciation about the PhD yield. Five are critical.
- The reviews about PhD duration are largely positive as well. Fifteen committees praised the average PhD duration. Nine committees are mildly critical, often mentioning time-to-completion rates abroad.

Recommendations

- Monitor progress among PhD candidates closely, intensify progress evaluations, gather data about the school's yield and duration continuously.
- Select with care, admit only promising candidates in the programme.
- Guard and optimize supervision quality through courses of professionalization.

- Facilitate exchange and intervention of PhD candidates, do not turn the PhD into a solo operation.
- Impose sanctions on insufficient progress, and reward timely completion. Apply this policy with PhD candidates and supervisors alike.
- Reduce the duration of the PhD curriculum, for example by:
 - making the data collection stage shorter
 - curtailing the number of empirical chapters in the PhD thesis
 - restricting work aside from writing the PhD thesis (especially in medicine)
 - introducing a preparatory year for PhD candidates to start their project with better preparation and get off to a ‘flying start’.
- Operate according to ambitions that are realistic for the school and the PhD candidate alike.
- A few noteworthy instructions:
 - Monitor at the start of the PhD programme, as well as progress later in the PhD curriculum in the third and fourth years.
 - Discontinue funding for the PhD curriculum at the end of the third year, if substantial portions of the PhD thesis remain unfinished. In these cases candidates must be made aware of the procedures for terminating PhD candidates whose performance is unsatisfactory.
 - Continue to watch scheduling and execution closely after the trainee research assistant position or PhD grant has ended.

2.15 Career prospects

Evaluations

- Over 35% of the Peer Review Committees (30) address employment prospects for PhD recipients. Five committees have expressed concern about the chances of PhD recipients on the job market, fifteen are optimistic. The other committees have made no statements on the subject but appreciate the efforts on the part of the schools to provide career guidance and preparation.

- The committee reports do not suggest that unemployment is a serious problem.¹ Two committees have sounded the alarm. Both cases involve research schools specializing in humanities. Conversely, 15 reports rate employment opportunities for PhD recipients as good to excellent.
- Ten committees have listed measures by the school to prepare PhD candidates for the job market. The reports reflect strong appreciation for the career guidance and preparation for PhD candidates provided by these schools.

Recommendations

- Offer students a comprehensive programme that in addition to focusing on completion of the PhD project cultivates both academic skills and general occupational abilities that improve the chances of PhD candidates on the job market.
- Pursue a focused alumni policy. Alumni know how to assess the occupational opportunities of PhD candidates. They may also be of service to new PhD candidates starting to search for employment.
- Focus the publication strategy. Do not have PhD candidates wait until they have completed their PhD thesis to establish themselves as scholars. Have them publish partial results in scholarly journals at an earlier stage.
- Support PhD candidates applying for jobs. This requires familiarity with the job market for and careers of the school's PhD recipients. Keep systematic records of current employment of PhD recipients and their career development.
- Notify PhD candidates that they need to consider positions outside academia as well, as PhD candidates are inclined to focus exclusively on university positions.
- Introduce PhD candidates to different work situations, and prepare them, for example through short traineeships during the PhD programme.

Allow the school to benefit from investments in academic talent in training. Create jobs, post-doc positions and international exchange programmes for the school's PhD candidates.

¹ A more elaborate analysis of the career data provided by the research schools with their request for re-accreditation is in progress.

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