

Mid-term evaluation of eleven research schools

The National Research School Scheme



Preface by the Research Council of Norway

The *scheme for national research schools (FORSKERSKOLER)* was launched in 2008. The purpose of the scheme is to enhance the quality and raise the academic level of PhD education in Norway based on national networks of cooperating institutions. Since the scheme was launched, the Research Council has issued three calls for proposals and allocated grants to a total of 22 national research schools. Five research schools started in 2009, ten in 2013 and seven in 2015. A Nordic scientific programme committee was appointed in 2013, with responsibility for assessing grant applications, monitoring the progress of the FORSKERSKOLER scheme and serving as the evaluation panel for the mid-term evaluation in 2013 and in 2016/2017.

In 2019 a new evaluation panel was appointed to carry out a mid-term evaluation of the seven research schools that were awarded funding in the most recent call for proposals, as well as four research schools funded by thematic programmes. The task of the evaluation panel has been to:

- 1) assess the quality and success of the eleven research schools in relation to their original objectives and plans,
- 2) provide a recommendation to the Research Council as to whether the funding for the individual research schools should be maintained for the full eight-year period or terminated after five years,
- 3) advise each school on adjustments for further operation and achievement of goals and
- 4) contribute to learning and sharing the best practices.

Continued funding is recommended for ten schools to cover the full eight-year period, according to the proposed budget. For one research school the panel recommends further funding depending on concrete plans.

This report summarises the findings of the evaluation panel.

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Abbreviations of the report

Research schools

ATTR	Authoritative texts and Their Reception: National Research School on Textual Interpretation
BioCat	Norwegian Graduate School in Biocatalysis
CHESS	Research School on Changing Climates in the Coupled Earth System
DEEP	Norwegian Research School on Dynamics and Evolution of Earth and Planets
Digital Life	Digital Life Norway PhD School
IBA	Norwegian Research School in Infection Biology and Antimicrobials
MUNI-HEALTH-CARE	The Norwegian Research School for Research and Development of Municipal Health and Care
NORBIS	Norwegian Research School in Bioinformatics and Biostatistics
NRSGH	Norwegian Research School of Global Health
Petroleum/NFiP	Petroleum Research School of Norway
RVS	The National interdisciplinary Research School Religion-Values-Society

Universities and university colleges

OsloMet	Oslo Metropolitan University
MF	Norwegian School of Theology, Religion and Society
NU	Nord University
NMBU	Norwegian University of Life Sciences
NTNU	Norwegian University of Science and Technology
UiA	University of Agder
UiB	University of Bergen
UiO	University of Oslo
UiS	University of Stavanger
UiT	University of Tromsø – The Arctic University of Norway
VID	VID Specialized University
HVL	Western Norway University of Applied Science
HVo	Høgskulen i Volda

Research institutes

IMR	Institute of Marine Research
MET	The Norwegian Meteorological Institute
NERSC	Nansen Environmental and Remote Sensing Centre
NILU	Norwegian Institute for Air Research
NIPH	Norwegian Institute of Public Health
NORCE	Norwegian Research Centre AS
NPI	Norwegian Polar Institute
UNIS	The University Centre in Svalbard

Other

ECTS	European Credit Transfer and Accumulation System
ERC	European Research Council
EU	European Union
MoU	Memorandum of Understanding
NGO	Non-Governmental Organisation
NOKUT	The National Body for Quality in Education
RCN	The Research Council of Norway
UHR	Universities Norway

1 Structure of the report

The Research Council of Norway (RCN) established the scheme for national research schools (FORSKERSKOLER) in 2008 and has awarded funding in 2008, 2012 and 2015. The scheme was launched as a supplement to ordinary PhD programmes, offering specialised courses and networks across institutions. In addition, RCN is funding research schools under various thematic programmes.

In this report the evaluation panel presents the outcome of the mid-term evaluation of the eleven schools awarded funding in 2015 and some insights gained from the overall review of the schools.

Chapters 2–6 provide an introduction to the Norwegian PhD education system and to the FORSKERSKOLER scheme. The evaluation process and the members of the evaluation panel are also presented.

Chapter 7 summarises the evaluation of each of the eleven research schools:

Authoritative texts and Their Reception: National Research School on Textual interpretation
Norwegian Graduate School in Biocatalysis
Research School on Changing Climates in the Coupled Earth System
Norwegian Research School on Dynamics and Evolution of Earth and Planets
Digital Life Norway PhD School
Norwegian Research School in Infection Biology and Antimicrobials
The Norwegian Research School for Research and Development of Municipal Health and Care
Norwegian Research School in Bioinformatics and Biostatistics
Norwegian Research School of Global Health
Petroleum Research School of Norway
The National interdisciplinary Research School Religion-Values -Society

The panel recommends that funding for ten schools is continued for the full eight-year period, in keeping with the proposed budget. For one research school the panel recommends further funding depending on concrete plans.

The chapters also present recommendations for each of the schools, as well as some general advice for the schools and for the Research Council of Norway.

2 Introduction

2.1 The scheme for national research schools (FORSKERSKOLER)

The FORSKERSKOLER scheme was established in 2008, based on a report commissioned by the Ministry of Education and Research in 2006. The purpose of the scheme is to enhance the quality and raise the academic level of PhD education by encouraging leading national institutions to join forces. The national research schools are a supplement to ordinary PhD programmes. Thus, it continues to be the individual academic institutions, not the research schools, that award PhD degrees to their own students. All PhD students who take part in a national research school must first be admitted to an ordinary PhD programme at a degree-conferring institution and must fulfil the requirements defined by that institution.

The research schools are expected to contribute to ensure a broader base in researcher training, as well as to potentially increase the degree completion rate and reducing degree completion time. They should in particular strengthen doctoral training in specialised subject areas through organised cooperation between institutions. Typically, each research school has several partners, of which one serves as the host institution and takes the leading role in the consortium. The host institution must be a higher education institution offering PhD programmes. Most of the partners should also offer PhD programmes, but higher education and research institutions without PhD programmes may also join as partners.

The FORSKERSKOLER scheme is financed by the Ministry of Education and Research and administered by the Research Council of Norway (RCN). The first call for proposals was issued in 2008 and five national research schools were awarded grants for an eight-year period. Funding for the final three years of the period was made contingent on a positive outcome of a mid-term evaluation carried out after approximately four years. The second call was issued in 2012, when ten research schools were awarded grants. The third call was issued in 2015 and awarded seven research schools from the national scheme. In addition, four research schools were awarded grants from a thematic programme. These four schools are included in this mid-term evaluation.

2.2 The Norwegian PhD system

The Norwegian PhD education system conforms with the Bologna reforms of 2002 and is part of the European Qualification Framework. It has a three-level degree structure, with bachelor's, master's and PhD degrees. The Norwegian Agency for Quality Assurance in Education (NOKUT) is responsible for accreditation and quality assurance of the higher education institutions. The Norwegian Association of Higher Education Institutions (UHR) develops recommended guidelines for regulation of PhD degrees, while terms of employment for doctoral fellows are prescribed by national regulations¹. Norwegian PhD education system was last evaluated in 2011–2012, and much of the information in this section is based on the evaluation report².

Within these regulatory frameworks, the *universities* and the *specialised higher education institutions* can stipulate more detailed regulations for PhD degrees at their own institution, although they generally follow the recommended guidelines for regulation of PhD degrees adopted by the UHR. NOKUT grants the right to award PhD degrees to the *university colleges*.

¹ Forskrift om ansettelsesvilkår for stillinger som postdoktor, stipendiat, vitenskapelig assistent og spesialistkandidat. <https://lovdata.no/dokument/SF/forskrift/2006-01-31-102>

²Taran Thune, Svein Kyvik, Sverker Sörlin, Terje Bruen Olsen, Agnete Vabø and Cathrine Tømte: *PhD education in a knowledge society: An evaluation of PhD education in Norway*. [NIFU Report 25/2012](#).

A PhD degree is only attainable by following a structured programme, consisting of a research component and a taught component (courses) of at least a half year of full-time study. “Doctoral education normally consists of three years of full-time study, and includes required coursework comprising a minimum of 30 ECTS credits. The way in which doctoral education is organised is to be stipulated in the institution’s regulations”³ (from the UHR guidelines).

Each institution normally has one general set of regulations for its PhD degrees. There may also be specific regulations for each PhD programme. According to the UHR recommendations, the degree-conferring institution is to sign a written agreement with each student admitted to one of its PhD programmes, regulating academic supervision, coursework and other training. The institution is responsible for providing adequate courses for the students at the institution itself or facilitating participation in relevant courses at other institutions. PhD-level courses taken at other institutions are to be approved according to the rules of the Act relating to universities and university colleges.⁴

There are significant differences between the Norwegian higher education institutions regarding the balance between the coursework component and the research component of their PhD programmes. There is also significant variation regarding the proportion of ECTS credits assigned to mandatory courses and the proportion of the coursework which students are allowed to take outside the institution.

Since 2012 there have been no significant changes in the organizational framework of Norwegian doctoral education as such. However, institutional mergers followed by the white paper Meld. St. 18. 2014-2015 *Konsentrasjon for kvalitet* (the structural reform) has contributed to the doctoral education at several smaller institutions now being part of larger programmes.

The scheme for national research schools was evaluated in 2018⁵. The main conclusion of this evaluation is that the national research school scheme has led to more national cooperation between research environments, and that the components of the training program provided to the PhD students is of high quality. The research schools have also contributed to internationalization of the teaching. It is, however, so far not possible to see any measurable effects of this on completion degree and completion time, which reflects that the schools have been more concerned about increasing the quality rather than the efficiency of the education.

2.3 The volume of the PhD system

Most of the universities have one PhD programme per faculty, but each programme may have discipline-based specialisation tracks with different study plans. In the restructuring following the white paper on the structural reform mergers between education institutions have reduced the number of state universities and colleges. The mergers have contributed to the doctoral education at several smaller institutions now being part of larger programmes. Today 19 Norwegian institutions have the right to confer a doctorate, including 3 private institutions. The ambition of the reform was to enhance the quality of education and research. It was expected that PhD education will also profit from the mergers. The landscape of higher education institutions is still heterogeneous, however, as are the PhD programmes.

The total number of persons enrolled in PhD programmes in Norway is presently more than 11 000. Most of the research fellows are employed at higher education institutions, with some 10 %

³ Veiledende retningslinjer for graden philosophia doctor (ph.d.), UHR 2018.

⁴ Lov om universiteter og høyskoler – LOV 2005-04-01 nr. 15.

⁵ Fredrik Niclas Piro, Siv-Elisabeth Skjelbred, Dag W. Aksnes, Kjersti Nesje and Pål Børing: *Evaluation of the national research school scheme*. NIFU Report 2018:13.

employed at research institutes, university hospitals, etc. The total number of PhD degrees awarded nationally has increased steadily, from 1 185 in 2000 to 1 583 in 2019, and there were as many men as women earning the doctorate. UiO, NTNU, UiB, UiT and NMBU, award most doctoral degrees in Norway. A total of 1 310 doctoral degrees were issued from these institutions in 2019.

It is a national goal that doctoral students move more quickly through the doctoral programme, but the proportion of students who do not obtain their PhD degree within six years has not changed significantly the last eight years⁶. The average number of students who did their dissertation within six years in 2019 was 66 %. However, there are clear differences between the institutions.

⁶Tilstandsrapport for høyere utdanning 2020, DIKU Rapportserie Nr. 3 | 2020

3 The evaluation panel – mandate and terms of reference

Members

The evaluation panel is represented by Nordic scholars with significant experience from doctoral education and research schools in Denmark and Sweden. The members are:

Vice-dean Lise Wogensen Bach	Aarhus University
Professor Jens Jørgen Gaardhøje	University of Copenhagen
Professor Hanne Sanders	Lund University
Professor Niels Vestergaard	University of Southern Denmark

Two of the panel members are former members of the scientific programme committee for the national research school scheme, responsible for the process of assessing grant applications in 2015, and to follow up the schools awarded funding.

Mandate

The purpose of the mid-term evaluation is to:

1. assess the quality and success of the eleven research schools in relation to their original objectives and plans
2. provide a recommendation to the Research Council as to whether the funding for the individual research schools should be maintained for the full eight-year period or terminated after five years
3. advise each school on adjustments for further operation and achievement of goals
4. contribute to learning and sharing good practices

The evaluation panel shall assess the following aspects of the research school's activities:

- Organization and management
- Administrative support and coordination
- Collaboration in the network
- Professional and administrative follow-up of the students
- Activities
- Internationalisation
- Distribution of costs

The evaluation will result in an overall report, written in English, with comments on each research school and a summary.

4 Evaluation process

The mid-term evaluation has been based on the following documents and background material from each of the research schools:

- Project plan and annual reports.
- Documentation based on a standardized form submitted by the project manager and the chair of the board.
- A self-evaluation in a standardised form, submitted by the project manager and the chair of the board. The research schools were asked to evaluate themselves in relation to their originally stated objectives and plans. Self-evaluations were also required to include an analysis of the research school, including courses and activities, PhD education, recruitment, organisational aspects, national and international collaboration, and any added value (see the attached form).
- An assessment by the partner institutions summarising the experience gained from being part of the national research school (see the attached form). The relatively small number and variable response rate from the institutions has been taken into consideration when assessing the evaluation form (see the attached form).
- An assessment by the PhD students, summarising the added value and experience of being a member of a national research school. The variable response rate from the PhD students has been taken into consideration when assessing the evaluation forms submitted by the students (see the attached form).
- Virtual dialogues with representatives of the eleven research schools conducted by the panel on 27 April 2020. The dialogues consisted of:
 - Presentations delivered by each of the project managers (school directors) or their representatives based on a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats).
 - Dialogue between two panel members and the project manager/school director, (or his/her representative) and the school coordinator.

The panel has based its evaluation and recommendations for each of the schools on this background material together with the original grant applications submitted to the RCN.

The overall observations and recommendations in the report also benefit from two of the panel member's having followed the schools from the beginning, and in general from the panel members' experience from doctoral education and research schools in Denmark and Sweden.

5 General observations and recommendations

Due to academic and cultural differences and different needs in the scientific environments, the research schools are considerably diverse in scope, organization and ambition. Hence, the schools differ in terms of what they offer to the individual PhD student. Likewise, the scope and level of activity, and the use of scientific contributors vary significantly between the schools.

The PhD survey had a response rate of only 50 %. Nevertheless, the overall impression of the panel is that the research schools clearly provide added value for the PhD students. The most important benefits comprise the participation in national and international scientific courses, courses in general skills, the well-functioning networks with other students and with national and international scholars. The quality of the courses, seminars and gatherings at their research school is generally reported as very high. Many also add that the research school plays or has played a positive role in enhancing the quality of their own doctoral work. The research school with which they are affiliated represents an important learning environment with impact on professional network, and on the ability to complete the doctoral programme.

While the main responsibility for supervision lies in the doctoral programmes with which the students are affiliated, the research schools can give supplementary personal follow-up. The vast majority of PhD students state that they are satisfied with the guidance they receive at their home institution. There are significant differences between schools in terms of aspirations for personal follow-up. Nevertheless, 1/3 (38 %) of the student's state that they have received personal follow-up from the schools, and almost all of them consider the quality to be high or very high. Many schools have organized courses or seminars for supervisors.

The research schools' internationalisation efforts have been successful. English is the working language at most of the schools, and several schools have international board members. Many draw on international experts for teaching and seminars. Most of the schools actively encourage PhD students to conduct a shorter stay abroad and offer financial support for such stays. The student groups are also highly international, although some more than others. The students and the partner institutions are overall very satisfied with the research school's internationalisation efforts and how these have promoted international networks and/or cooperation.

The partner institutions express a general support to the research schools. They note especially that the research school facilitates activities that they otherwise not have the capacity or expertise to offer to PhD students. In their opinion the research schools help raise the quality of doctoral-level training within its subject area, help students to build a stronger academic network, support an international orientation and promote higher quality doctoral dissertations. Most partners also express that the school has helped to improve the doctoral level education at their institution.

The evaluation panel has identified a set of common concerns for some of the research schools, and would like to draw attention to the following:

- **Binding agreements.** The binding agreements between the host institution and the partner institutions are to ensure a common understanding and unified practice. Challenges related to partner institutions' contribution and participation in the school's academic programme must be handled with strong efforts to reach a common ground. The research schools lift the quality of the PhD education for the benefit of the PhD degree awarding institutions. Therefore, the extent of administrative support and in-kind resources should be clear in the agreement. Following are two examples of suboptimal agreements:

- A mere distribution of funding to activities in partner institutions without a unifying academic plan is not fulfilling the idea and intention of the national research school scheme.
- Lack of a formal mutual approval of the ECTS credits earned for each of the courses at the research school is a challenge in a few schools, leaving the responsibility for solving this problem to the students.
- **Involvement of PhD students.** The PhD students should be given more influence on the design of the research school's scientific/academic programme. Furthermore, many activities are planned in a way that leaves the PhD students as passive listeners to senior scientists. Thus, the PhD students need to be empowered to a higher degree.
- **Generic skills courses.** The research schools should have focus on specialized courses relevant to the scientific discipline of the school. However, education and training in general skills are integral components of PhD education and may therefore be included in the courses and activities offered by the research schools to a certain degree. This is particularly important in cases where the partner institutions are small and do not have enough capacity to provide these types of activities themselves. If the research schools choose to focus on generic skills, the activities should be in balance with courses offered by the regular PhD programmes and could be directed towards different stages in the PhD training period.
- **Career planning.** Preparation for the PhD students' future career has come out as one of the weakest priorities in the research schools, according to the students, the partner institutions and partly to the research schools themselves. This is especially the case when it comes to career possibilities other than academia. Most research schools should strengthen their efforts to prepare the students for their future career and improve collaboration and input from relevant public and/or private actors during the training period to expose the students for a diversity of career possibilities.
- **Follow-up and documentation.** The research schools have no formal responsibility for individual follow-up and therefore, documentation of effect on time to completion and drop-out rates is inaccessible. Although this goal was not listed in the call it is mentioned in the scheme of the programme. The research schools support collaborations across sectors, interdisciplinary research activities and internationalisation but documentation of the long-term effects on the candidates' academic activities is absent. The panel would welcome such information.
- **Distribution of costs.** Based on a rough breakdown of costs by categories stated by the research schools, there seems to be considerable differences in the balance between costs allocated to activities for the candidates versus costs covering management and administration. Looking at total costs per PhD candidate, the differences are similarly striking. The research schools should strive to ensure that the greatest possible share of resources will benefit the PhD candidates directly. The panel would like to remind the research schools that they are receiving funding to enhance the quality of PhD education for PhD candidates. A number of research schools have members that are not PhD candidates. The panel does not object to this practice as long as it enhances the quality of the overall

PhD education and does not appropriate resources (such as travel grants and funding to cover course costs) that should be used on PhD education. Finally, a few research schools pay (high) salary to speakers e.g. from private companies. The panel recommends that conditions for salaries are set by the Research Council.

- **Continued operation beyond Research Council funding.** Some of the schools have drawn up concrete plans for continued operation of the school, whereas other schools have only vague plans. Some schools should strengthen their efforts to find solutions that ensure that core courses and network activities can continue on a national basis and that good practice from the research school continues.

The panel gives the following recommendations to the Research Council of Norway:

1. **Present funding scheme for national research schools.** The Research Council should clearly inform the research schools that there are no concrete plans to announce new funding for the schools in the years directly following the termination of the present funding scheme. In addition, in case a new research school scheme is to be announced, priority will not be given to extending the operating period for the existing eleven national research schools.
2. **New funding announcements for national research schools.** The Research Council may decide to create a new scheme for funding research schools taking a strategic approach. In this case the panel suggests the following:
 - a. Identify areas in the society that needs to be strengthened to improve wellbeing of the individual and to secure a sustainable society (generation of knowledge by research and change of practices),
 - b. Identify research groups with high international standard in a relevant field that should organise the school,
 - c. Include universities abroad as partners,
 - d. Include interdisciplinary approaches if it is fruitful and/or allows diversity within one discipline. The review panel asks the RCN to take into consideration, that strong scientific knowledge within a specific field is the backbone for interactions with other disciplines. Thus, competences and skills for working across disciplines (T-shape profile) should be trained within the research school workshops etc.
 - e. Affiliate private or public companies and organisations if relevant,
 - f. Combine minor, excellent research milieus within a specific scientific area with high impact (added value) on society, in one PhD programme,
 - g. Secure that research about language, culture and history in relation to the development of society and human beings still can be in focus for future research schools.
3. **Specific recommendations for a new scheme for research schools.** Based on the present midterm evaluation of the eleven existing research schools, the review panel recommends that the Research Council should consider the following in connection with any future funding announcements:
 - a. **Success criteria.** The Research Council should draw up clear, verifiable performance indicators and success criteria for the research schools.

- b. **Quality assurance.** The Research Council should request a description of a quality assurance system that includes both processes and documentable results for each research school.
- c. **PhD student follow-up.** The Research Council should ask for personal follow-up during the training period in relation to scientific activities, e.g. publication patterns, co-authorships, shared applications, thesis quality, and career/occupation beyond PhD. This documentation should also be available on the research schools' homepage. This to demonstrate the impact of the research school and evaluate if goals have been met herein internationalisation, interdisciplinarity etc. One such system could be "Research Fish".
- d. **The PhD candidates should be empowered.** The Research Council should request that, activities are planned in a way that facilitates an interactive training environment bringing the PhD candidates in centre and that scientific discussions between PhD candidates and senior scientists are on equal ground. In addition, the PhD candidates should, in general, be given higher influence in the planning of the social and academic activities offered by the research schools. There should be at least two PhD candidate representatives on the board. The PhD representatives should be elected by the PhD students affiliated the research school and come from different institutions. All other bodies should also include PhD candidates. In addition, there should be PhD candidate contact persons at each partner institution and a formal PhD association within the research school should be established. The PhD association contact persons etc. should be visible on the webpages. Generic skills courses could be targeted different stages of the PhD training period: For PhD candidates in their first year, courses could focus on project and self-management and for PhD candidates in the beginning of their 3th year "how to finish in time" and career workshops.
- e. **Interview.** The Research Council should consider interviewing applicants for research school programs. This would contribute to clarify commitment by the partners, division of responsibility and the strength of the binding agreements.
- f. **Binding agreements.** The Research Council should request clear documentation of shared responsibility and active participation from all partners regarding planning, organisation and scientific contribution.
- g. **Future career also beyond academia.** The Research Council should add career activities to the scheme supporting the PhD candidates' choice of a relevant career and secure that the candidates' competences come into play for the benefit of the society. Recommended activities are e.g. matchmaking, mentor-programmes and internship. Research schools should also establish alumni networks, which members are valuable mentors and represent a wide range of career possibilities.
- h. **Gender.** Many PhD candidates are women, whom are met with several structural barriers within academia. To recruit the best of all talents to a career within science different initiatives should be considered within the framework. The Research Council should ask for both male and female role models among speakers, teachers etc., consider sponsorship programmes within the research school and a class "how to prepare yourself to a career in academia" for all.

6 Good practice – some examples

The midterm review contributes to learning and draws attention to identified good practices. The panel has extracted cases of good practices from the research schools' self-assessments and from the interviews. Below, the review panel shows good cases according to the activities the panel should evaluate.

Organisation, management, and administrative coordination

Shared engagement and responsibility by key persons from all partner universities are pivotal for a well-driven research school. A binding agreement between the host institution and the partner institutions ensures a common understanding and unified practice. Together it ensures the highest level of synergy in the interaction among the partners and the scientific contributions. Examples of good practice are from RVS, and ATTR:

The work of the board

"The board is discussing RVS' overall role and strategy in relation to their home institution and across the different member institutions. Most board members have key roles in their own institution's PhD programme and can contribute to the process of aligning the different programmes and schools. The board also discusses RVS courses, seminars, and supervision. Themes, institutions, and organizational committees are decided by the board, and course evaluations are discussed with a view to adjusting and improving RVS activities. The board initiates cooperation among member institutions (...) As individual board members are involved in various seminars and courses as participants, supervisors, and lecturers, they are familiar with everyday activity at RVS." (RVS)

Administrative coordination

"RVS initially had regional coordinators at three member institutions, but this proved ineffective. After a year, the approach was reorganized to provide administrative financial support to member institutions for specific courses, and this works very well." (RVS)

"The fact that all ATTR activities have been coordinated by one person, the head of administration, located at the host institution, has been the key to its success." (ATTR)

Collaboration within the network

A research school in the form of a partnership among several institutions will succeed only by firm roots via "points of contacts" at the individual locations. This should be in the form of local, engaged academics. Of uttermost importance is the collaboration with the local, regular PhD programmes. Examples of good practice are from CHESS, DEEP, ATTR and Digital Life:

Involvement of academic personnel at the academic institutions

"Each of our 13 national partner institutions has a contact point for the research school. They are asked to give suggestions for activities as well as feedback on the running of the school. Senior scientists with specific expertise from partner institutes are invited to organise and host intensive courses, workshops or summer schools. They submit proposals to our annual "Call for CHESS activities", which is open to all CHESS members. The idea for the call is that CHESS supervisors/senior scientists and PhD candidates can propose academic activities and will receive funding for their activities if they are successful. Both national and international collaborations are encouraged in the call." (CHESS)

"Supervisors or researchers within the DEEP consortium, who currently have active PhD candidates in DEEP or want to contribute to DEEP activities, can register as members. We invite researcher and PhD candidates from international institutions, with a relevant scientific profile, to register as DEEP associates. Most courses, activities and the annual meeting will be open for associates. Accommodation and travel costs will usually not be covered for associate members." (DEEP)

Collaboration with the regular PhD programmes

"The local administrators are informed about all ATTR activities, and we encourage them to present ATTR as an option for new PhD candidates. Potential applicants are expected to discuss their membership application with relevant authorities at their home institutions." (ATTR)

Collaboration between research schools

"We also collaborate with several of the national research schools on courses. A fine example of multifaceted collaboration is the course "Control engineering concepts in systems and synthetic biology" (2019), where we collaborate with NORBIS (National research school in bioinformatics, biostatistics, and systems biology, managed by UiB), in addition to researchers from UiS and UiB." (Digital Life, translated from Norwegian)

"The research school joined a national network of research schools in Norway in which several joint courses, especially with focus on transferable skills, are conducted. This network has proved to be extremely valuable on a national level and exposes the PhDs to an even wider interdisciplinary scope." (CHESS)

Follow-up of the candidates

Admission is the initial step for entering the scientific environment in the research school. The procedures vary between the schools and each model has strengths and weaknesses. Personal follow-up during the training period in relation to progression in scientific activities is important as well as the career or occupation beyond PhD. Only few research schools are performing individual follow-up in relation to e.g. publications, grant applications, thesis quality and occupation. The few cases of good practice are from IBA, MUNI-HEALTH-CARE and RVS:

Admission procedures

"The new doctoral candidates apply for IBA membership through the IBA website. We require that they give the following standard information: first and last name, e-mail, title (PhD), university, department and project title. In addition, each must provide the following files: PhD project description, PhD candidate certificate, and letter of support from their closest supervisor. To be admitted, the PhD project must be within the scope of infection biology and/or antimicrobials. New applications are accepted throughout the year and we have no limitation regarding number of members. The applications are evaluated by the director and co-director." (IBA)

"(...) accepts PhD candidates once a year. Application date is May 1st and acceptance letters are sent out June 1st. All accepted PhD candidates are required to attend the retreat course in September each year and four web-seminars a year for two years. (...) Advantages of this procedure is that each year's candidates become a closely-knit class which gets to know each other well, build trust and can work well together in courses and seminars. The candidates report that they find this feature of the research school very valuable, and we observe that

candidates build network beyond the organised activities of the research school (chat groups, visit each other, share resources, consult with each other, etc.)." (MUNI-HEALTH-CARE)

Personal follow-up

"(...) Skype groups have offered supplementary supervision in addition to the formal system, and a core group of RVS supervisors also participate in various other activities. As well as responding to candidate papers, they converse with the candidates during different courses and over time. Many candidates present dissertation-related texts several times each year, and supervisors can follow their development. This informal additional supervision creates opportunities for follow-up. Understanding and negotiating different levels and kinds of response is explicitly discussed in RVS, especially at the summer school. Learning to interpret and adopt an active stance to such responses is considered important for researchers in the making." (RVS)

"Individual follow up is conducted through written and oral comments and discussions of the PhD candidates' work in mandatory courses and seminars as well as in elective courses. The webinars are conducted by two experienced professors who lead the discussions of the individual candidates' projects. Candidates are also provided written feedback on some of the exams." (MUNI-HEALTH-CARE)

Activities

Organizing relevant activities such as courses, seminars, and workshops for the PhD candidates are central for the research school. The activities should be on high international level, based on the most recent knowledge within the specific field and leaving the PhD candidate in the center of the activities. Examples of best practice are from NRSRGH, CHESS, DEEP, Digital Life and ATTR. Some research schools offer also activities for the supervisors. This is an excellent way to engage the senior researchers and improve the training of the PhD candidates. Examples of good practice are from NORBIS and MUNI-HEALTH-CARE:

Organising the activities

"The board meets often through Skype meetings and regularly also physically and discuss all activities. We decide who will take charge of what activity. Within the board we know that we can start new courses, according to the project description we made together in the proposal for the research school in 2015. A new course has to be accepted by the partner institutions in the Board." (NRSRGH)

"We allocate funding each year to an open call - "Call for CHESS activities" - where both supervisor and PhD candidate members are invited to submit a scientific activity proposal. It can be a course, workshop, summer/winter school -. Through this call, the candidates are encouraged to involve themselves in designing and carrying out scientific activities which they consider are most relevant and useful for them." (CHESS)

"We announce DEEP courses to our international collaborators and over the years have had a large number of international participants in our courses. This further broadens our network and gives a very positive setting during the course weeks (internationalisation at home). All our activities are free of charge and therefore attractive to international participants as well. We usually only cover travel and accommodation for registered members of the research school." (DEEP)

"The board has also over several years worked to establish a course (...) that can further develop the possibilities for more extensive interdisciplinary cooperation. It has now been created under the name "Transdisciplinary life science - a Digital Life Norway course" and will be implemented for the first time during the fall of 2020. The main idea of this PhD course is that candidates in 5-7 multidisciplinary groups work together on modeling and / or data analysis of real scientific data already collected and available to the group leaders. The PhD course must also contain two plenary sessions at start-up and end." (Digital Life, translated from Norwegian)

"Before each seminar, the programme is discussed with the board, and especially with the academic coordinator of the institution where the seminar is to be held. The ATTR administration has also had meetings with the academic staff at the institution to plan the details of programmes and discuss relevant potential lecturers. All seminars include lectures by local scientific staff as well as external contributors." (ATTR)

Supervision and supervisory skills

"(...) has at some annual conferences organized a supervisor forum. Here supervisors have discussed relevant topics and challenges with being a supervisor. Members or externals have been invited to give presentations to initiate and stimulate the discussions. For example, at our first annual meeting, we invited an associate professor in pedagogics to facilitate a discussion about what constitutes good supervision and common challenges." (NORBIS).

"The peer supervision programme for supervisors has led to collegial discussions about general standards of good PhD supervision, institutional characteristics that facilitate or impede PhD progress and improved differentiation between problematic individual cases and more general issues related to PhD supervision. Furthermore, the programme has led to recognition that new skills for supporting PhD candidate progress are needed, requiring new content in the peer supervision program. Initiatives to develop common research applications are planned." (MUNI-HEALTH-CARE)

Involvement of PhD candidates

The PhD candidates are the target group of all the research school activities. Thus, PhD candidates should be involved in the continuing development of the different activities and they should have the responsibility to plan some event during their affiliation. A formal PhD association should be present within the research school and the association chooses the representatives in the different boards by themselves. A visible and active PhD association also contributes to identity and network feeling among the candidates. Examples of good practice are from MUNI-HEALTH-CARE, DEEP, and Digital Life:

"The PhD candidates are involved in the overall strategic decisions regarding the research school through their membership in the board. The PhD candidates provide both written (anonymous) evaluations and oral evaluation of all courses and other activities in the research school. We invite suggestions for scientific activities from the PhD candidates (elective courses, seminars, postdoc program, etc.)." (MUNI-HEALTH-CARE)

"The PhD candidate representatives plan and organize a PhD day once a year in connection to the general assembly. This day enables the PhD candidates to learn, discuss and form a stronger connection. We conduct a survey each autumn to gather information on what our members are interested in for the coming year. We ask about interest in our courses and ask

for suggestions for what is needed to offer. Since 2019, we have set up a call for "Courses-on-Demand". This allows the PhD candidates to apply for funding to set up any course they might need during their PhD. The courses can have any length or scope as long as it is scientifically relevant to DEEPs main themes." (DEEP)

"The programme for the annual conference is determined by a committee of fellows and postdoctoral fellows. This committee works closely with the research school's coordinator for help and practical matters. It is also very important for the research school that members can make specific course suggestions - several of our courses and workshops have been both initiated and conducted by members." (Digital Life, translated from Norwegian)

Quality assurance

Not only to facilitate adjustment of offered activities to obtain the best quality but also to document the impact of the research school, a quality assurance system that includes both processes and documentable results should be present at each research school. The affiliation of a scientific board giving advice and recommendations for research school activities is another example of quality assurance. Three examples of good practice are from NORBIS and NRS GH:

"All scientific activities are evaluated by the attendants through feedback forms and in many cases through feedback-sessions at the end of the event. The evaluation has some standard questions and some specialised for the specific activity. All activity evaluations are discussed by the board during board meetings and are specifically used when assessing proposals to organize a course again (...) to see if the course organizer should be asked to adjust the course or the description of prerequisites for taking the course. The evaluations are also useful to assess whether courses and workshops are overlapping." (NORBIS)

"We evaluate all activities through an electronic questionnaire after finishing the course, seminar, workshop or PhD conference. At the last day of the specific activity we have an oral evaluation on what was good, and how we can improve the activity. All candidates who participate in an international activity must write a 2-page report to NRS GH. Some has been published as a blog on the webpage." (NRS GH)

"The SAB is composed by three senior researchers in the fields covered by the school. Collectively, the SAB members have extensive experience in research, graduate education and industry giving them important insights into the suitability of the content of our portfolio and the manner in which our courses are run. They provide strong insights to both national and international trends in postgraduate education, as well as the requirements of the scientific and commercial communities. The advisory board meets on an annual basis at the NORBIS conference to give essential feedback to the NORBIS steering board and directors. The SAB provides suggestions both on how to improve our course portfolio and the quality of specific courses offered by NORBIS. They also give advice on the future direction of the school and strategies for the execution of the school's objectives. The SAB members also provide a context of how NORBIS courses compare to and relate to graduate education in other countries." (NORBIS)

Internationalisation

Internationalisation is not a target by itself but a mean to obtain new knowledge, better ideas and better research projects and improve the global view of the individual PhD candidate. If the PhD candidates hesitate to go abroad for a longer period, internationalisation can take place at home. Examples of good practice of internationalisation is from NORBIS, RVS, NRSRGH, ATTR, DEEP and Petroleum:

"All who receive funding for an international research stay are obliged to write a report from their stay which is published on the NORBIS website." (NORBIS)

"Rather than supporting individual research stays or individual participation at international conferences, internationalisation is addressed collectively and is more integrated in the research school's various activities. RVS has two Swedish universities as member institutions, and Boston University is an international partner. (...) Along with the involvement of many other international lecturers, this establishes an international frame for all RVS activities. All of these elements create the impetus for contributing to international research, as well as contextual sensitivity, in the sense that neither the Nordic context nor the US are understood as a default position." (RVS)

"The members in NRSRGH come from various countries and during the PhD conferences they are all involved in discussions and workshops, most of them collect data in their home countries and Norwegian candidates go abroad for data collection. Thus, sharing international, both expertise and experiences to other candidates and to Board members is natural. All members of the Board have experience of research and supervision in other countries, with focus on low income countries, and we have contact with previous PhD candidates, local co-supervisors and other network in these countries." (NRSRGH)

"Most, if not all, of NFIP's activities has international PhDs participating. The extensive international activities have significantly contributed to preparing our PhDs to an international interdisciplinary career in the petroleum industry and at petroleum research institutions." (Petroleum)

"Supervisors and teachers are largely international. About 70 % of the candidates have an international background. For the courses, international lecturers are invited to teach and participate in the various gatherings". (DEEP)

"... ATTR works with internationalisation at home by using senior scholars' networks to create an international atmosphere at each activity among candidates as well as among teachers. It is a fruitful idea to take the international relations to Norway and make it work in a more familiar atmosphere and with the possibility for all PhD candidates to create their own networks and to have a lot of academic discussion at an international level. It is an example of best practice to include international PhD candidates and to let internationalisation happen at the PhD level. It affects all PhD candidates and not only those who have the possibility to stay abroad for a longer time." (ATTR)

Other network activities

To improve direction of future research activities it is important to take up dialogue with partners in the public and private sector. To consider relevance and impact and implementation is an important issue in the training of future scientists. Examples of good practice are from MUNI-HEALTH-CARE and BioCat:

User involvement

"(...) the research school has worked continuously and systematically to promote user involvement and involvement of other stakeholders (e.g. practitioners, leaders) in research with the municipal health and care services. In the first-year retreat course, user involvement is a key topic prepared and presented in collaboration with FFO (The Norwegian Federation of Organisations of Disabled People) and the participants work in groups on this topic in relation to community-based research in general and in relation to their own studies. This is followed up by discussions about user involvement in relation to the doctoral candidates' own projects in a subsequent web-seminar. Each candidate prepares a brief paper, using relevant literature from the syllabus to discuss user involvement issues in their project. Both specific and common issues are discussed in the seminar." (MUNI-HEALTH-CARE)

Collaboration with industry and public sector

"Several of the courses are focused on industrial applications, with invited lecturers from industry. This has led to an increased awareness of future research directions to address and collaborations to aim for. Representatives from relevant industries (and the institute sector) have been recruited to present and promote their activities in relevant settings (both the BioCat annual conference and as invited speakers in dedicated sessions during several of the academic courses offered). The budgets for providing courses were adjusted accordingly." (BioCat)

"Most, if not all, research projects conducted by the PhD candidates in the school are carried out in close collaboration with the health- and care services in local municipalities of the PhD candidates. Most projects have user involvement and/or involvement of other stakeholders, such as personnel and/or leaders from the municipal health and care services." (MUNI-HEALTH-CARE)

7 Evaluation of the research schools

The panel recommends continued funding for ten research schools to cover the full eight-year operation period, according to the proposed budget. For one research school the panel recommends further funding depending on concrete plans.

7.1 Authoritative texts and Their Reception: National Research School on Textual Interpretation (ATTR)

Facts about ATTR

- *Operation period:* 01.01.2016- 1.12.2023
- *Grant:* 22 300 000 NOK
- *Host institution:* University of Oslo (UiO). *Partners:* University of Bergen (UiB), University of Tromsø – The Arctic University of Norway (UiT), Norwegian University of Science and Technology (NTNU), and Norwegian School of Theology, Religion and Society (MF)
- *Recruitment/enrolment procedure:* Closed model (web-based application form). Open for guest members/participants.
- *Candidates:* 78 admitted, of them 39 women. 6 women and 7 men have defended their degree. 1 candidate withdrew membership to join another research school.
- *Activities:* 12 (week-long), including one seminar for supervisors
- *Contributors:* 72
- *Organization and management:* Steering board of 8 members, of them four women. All the five member institutions are represented in the board. In addition, one candidate representative and one deputy candidate representative (non-voting), and one international representative. Scientific director in 50 % position, coordinator in 100 % position.

Objectives of the research school

The *primary goal* of ATTR is to provide PhD candidates with a multi-disciplinary network for the discussion and critical evaluation of methods of textual interpretation in dissertation work relating in some way to authoritative texts, so as to heighten the quality of their dissertations and prepare them for life after they have attained their PhD degrees.

The *secondary goals* are:

1. The timely completion of the PhD dissertations.
2. The organization of bi-annual seminars and annual summer schools

Achievements

ATTR has created “a multidisciplinary network for the discussion and critical evaluation of methods for textual interpretation in dissertation work relating to authoritative texts”. As one of the secondary goal promises, ATTR has established seminars and annual summer schools.

The bi-annual seminars and annual summer schools rise most likely the quality of the education. It is only to hope that this will help the candidates to reach two of the other goals: to finish in time with a better dissertation. This insecurity does not disturb the conclusion that the research school has

overall made an excellent international and interdisciplinary network for senior scholars and PhD candidates. However, still some concerns are raised, and suggestions are given guiding the school forward to the next years.

Organisation and management

As a multidisciplinary cooperation between the faculties of law and humanities with the four largest universities in Norway and MF, ATTR has a manageable size. Each faculty is represented in the board together with one PhD candidate and a deputy representing all candidates, and an external partner, a professor from Humboldt University, Berlin. It is a good idea with an external participant because of the obvious international ambition of the school. The panel thinks that PhD candidates should have a better representation even for the good of the organisation.

In the board the main purpose is to discuss scientific and academic activities and internationalisation. It is not obvious how ATTR cooperates with all the relevant disciplines at the faculties.

Coordination, facilitation and national network

The presentation of seminars and summer schools with different themes and a long list of participating senior researchers show an obvious focus on the common content of the school and reflecting a well working collaboration. The recruiting of new members is easy and inclusive for candidates with the same interest as ATTR. It is open for everybody, and the only demand is the supervisor's support. This diminishes the risk of creating conflicts between candidates being in and out in the partner institutions.

An important and fruitful part of the work in the board is to identify and utilize academic experiences among each other and at the partner institutions. It is worth to underline, as an example of good practice, that they do not only discuss the activities, but take turns in planning and hosting one of the annual seminars. It is a good way for the host institution to empower partner institutions and to use all the academic competences in the school – and to make it all more easily arranged.

Competition between partner institutions and the research school about the PhD candidates' engagement in activities may appear. ATTR's clear goal to stand as a supplement to the regular PhD programmes might diminish this conflict, but at the same time ATTR occupies not a small part of the candidates' time, which could be used for research activities and dissertation writing at the home institution. An awareness of this potential conflict is important.

Activities

It is typical for ATTR that they delimit the responsibility for the research school to a few but well organised activities. They really want to be a supplement letting the partner institutions or the PhD programmes have many decisions themselves. As promised, ATTR has arranged two seminars each year, and a summer school. The summer school and one of the seminars are in Norway and the spring seminar in one of the three European cities having a Norwegian house: Rome, Paris, and Athens. As written before, one seminar (in the autumn) is planned by one of the partner institutions and by that situated in different Norwegian towns. It is a good choice to use different places in Norway in order to create a feeling of a national research school and to give partner institutions the possibility to decide the content of the seminar showing their own research interests and expertise.

Whether it is necessary to go for a seminar in the southern part of Europe might be questioned- but the panel thinks that it is a good idea to go away together in a "boot-camp" and to give a seminar an identity of a specific geographical place.

The content of the activities is interesting and would give PhD candidates in the field of ATTR great inspiration, knowledge, and possibilities to have important discussions. They have an experience of a vibrant and dynamic academic international milieu. It shows the quality of the board and its network.

ATTR has ambitions for letting the PhD candidates discuss each other's texts at particular seminars during the activities. However, the long lists of participating senior scholars and one example of a programme with many senior researchers in play, may indicate that PhD candidates have a minor role in some of the activities. For the panel it is important to underline the specific possibility for a research school to create a research community for PhD candidates with these as main participants. Topics that are of importance for all PhD candidates are even the goals of ATTR: finish in time, a better dissertation and life after the dissertation. It is important to have some focus on these topics on both seminars and summer schools as a counterweight to the ambitious thoughts created by the lectures of senior researchers.

ATTR has a voluntary follow-up after each seminar. As to the question whether the PhD candidates have had influence in producing the content of the activities, it is said to be made in dialogue with the PhD candidates in the board.

ATTR has organized a one-day seminar for supervisors about "interdisciplinary supervision in the digital age".

Internationalization

ATTR works with internationalisation in two different ways: travel grants for individual needs in order to go abroad and inclusion of researchers as well as PhD candidates from abroad to participate in the activities of the school. Most important for ATTR is the last part. In this way ATTR works with internationalisation at home by using senior scholars' networks to create an international atmosphere at each activity among candidates as well as among teachers. It is a fruitful idea to take the international relations to Norway and make it work in a more familiar atmosphere and with the possibility for all PhD candidates to create their own networks and to have a lot of academic discussion at an international level. It is an example of good practice to include international PhD candidates and to let internationalisation happen at the PhD level. It affects all PhD candidates and not only those who have the possibility to stay abroad for a longer time. Compared to other research schools, ATTR is more like a project with a common research problem of a very broad relevance, and their way of developing the internationalisation through network of senior scholars fits well and create a serious research school.

Even if this local internationalisation is good it is also important to give candidates the possibility to go abroad to visit a specific academic group relevant for his/her PhD project. The number of stipends of mobility is relatively low in ATTR.

Future perspectives

ATTR wants to continue as a research school beyond the next three to four years. It is unclear presently how that goal will be pursued.

Gender aspects

ATTR does not have a gender problem in relation to the participations in activities or to the group of PhD candidates.

Financial aspects

60 % of the costs are used for administration, coordination, management and leadership. That means that the activities are paid by 40 %.

Overall evaluation and recommendations

It is a well working and well led research school because the focus is a common subject of all members as well as the limitation of the activities of the school. It is driven by a wish for creating an academic discussion and the organisation, the cooperation with partner institutions, the board, and a broader interest for using the network of senior researchers make this work. The result is an excellent interdisciplinary and international network at the PhD level. The activities are interesting and should create an education of high quality for all the participants. Anyhow, it is difficult to evaluate whether this network had heightened the quality of the dissertations, only 13 out of 78 admitted candidates have defended their degrees and it is not a part of this evaluation.

The main challenge is to assure that the PhD candidates will get room for their own problems connecting to writing a dissertation, finishing in time, writing a good dissertation and the career after dissertation. It is a research school with focus on senior lectures and the academic discussions and that is very good, but it is important to remember the need and the community of PhD candidates.

Recommendations

The panel recommends putting more focus at seminars and summer schools on the project goals: finishing in time and life after dissertation. An idea could be to let the candidates in the middle of their education write a text about how to finish *their* dissertation and to have these texts discussed at seminars or summer schools

The panel suggests letting the PhD candidates have their representation in the research school connected to their university or at least to have two ordinary candidates corresponding with an organised group of PhDs, a formal PhD association at ATTR. It will strengthen the cooperation between host and partner universities and even the influence of the PhD candidates. If there is no formal PhD organisation, the PhD candidates should be asked to establish one.

The panel suggests that the role of senior researchers is minimized a bit in order to give more space for PhD candidates and their common research community.

ATTR could try to convince more candidates to go abroad using grants of the research school perhaps by listening to PhD candidates telling about their experience aboard e.g. at one of the annual seminars (role model).

The panel recommends ATTR to develop the webpage in order to give more space for PhD candidates. The webpage could e.g. link to a PhD association, description of how to obtain influence on ATTR activities as member of the board, and "storytelling" from visits abroad supported by the ATTR.

The panel suggests ATTR to implement some sort of follow-up of the individual PhD candidate during the next period of funding. It suggests to follow-up on attendance, and to introduce formalised written evaluation of the activities (not voluntary as presently). In addition, to register publishing pattern of theses (national, international, in the form of a books, etc), impact, and employment /unemployment beyond PhD.

The panel recommends creating an alumni network to use as role models.

In order to follow the project goal, the panel recommends making an evaluation of the quality of the ATTR dissertations after the end of the research school.

The panel suggests ATTR planning continuation beyond the funding period or how to secure embedding of the activities within the partner institutions.

The panel recommends that the Research Council continues funding until 21.12.2023.

Good practice

- Bring international relations to Norway at senior as well as PhD level and make it work in a more familiar atmosphere. This will give the possibility for all PhD candidates to create their own networks and to have academic discussion at international levels.
- Let the partner institutions not only have influence in the board but get the responsibility for annual seminars.
- Chooses a place with atmosphere away from home to concentrate and inspire the discussion and let the social life and the identity-creating flower.

7.2 Norwegian Graduate School in Biocatalysis (BioCat)

Facts about BioCat

- *Operation period:* 01.07.2016-30.06.2024
- *Grant:* 23 000 000 NOK
- *Host institution:* University of Tromsø – The Arctic University of Norway (UiT). *Partners:* University of Oslo (UiO), Norwegian University of Science and Technology (NTNU), Norwegian University of Life Sciences (NMBU), University of Bergen (UiB), NOFIMA AS, Norce Innovation AS, SINTEF.
- *Recruitment/enrolment procedure:* Closed model where supervisors register his/her research group. Single-paged application form.
- *Candidates:* 96 admitted, of them 51 women. 28 candidates, of them 16 women, have defended their degree. No candidate withdrew membership.
- *Activities:* 29 unique activities
- *Contributors:* 38 contributors.
- *Organization and management:* Board of 13 members, of them 9 women. 9 from member institutions, 1 from industry and 3 PhD candidates. Scientific leader 30 % position, Coordinator 100 % position, student coordinator 10 % at UiO, NTNU, NMBU and UiT.

Objectives of the research school

Primary objective

The BioCat national PhD school will create a unique environment for the transdisciplinary training of the next generation of academic and industrial researchers in subjects related to biocatalysis. The emerging candidates will be equipped to meet future demands for new biocatalytic solutions in academic research in chemistry, biology, and biomedicine, and for new and sustainable production methods in industrial processes. Secondary objectives

- 1) Gather all relevant national universities, research institutions, and industries in a community promoting strong transdisciplinary collaborations
- 2) Create a school with ca. 30 new PhD candidates annually, forming a strong community through frequent meeting points
- 3) Strengthen contacts between BioCat candidates and relevant industries, and to national and international research environments in biocatalytic sciences
- 4) Provide academia and industry with a new generation of candidates well educated to tackle upcoming challenges in the field of biocatalysis.

Achievements

BioCat appears to have achieved to develop a unique, excellent, transdisciplinary and international training environment for the next generation of young researchers within biocatalysis. In addition, the secondary objectives are well met in terms of development of a broad course and activity portfolio including general and transferable skills, cooperation with relevant industrial partners and assembly of a large and representative segment of the relevant Norwegian university sector.

The goal was to enroll approximately 30 PhD candidates per year. The enrolment number has stabilized around 22 per year with a candidate body of about 90 at any time (as compared to the original goal of 100-130). As expressed during the interview this is a little bit disappointing as BioCat is in a field of high importance for the development of a sustainable future.

Organization and management

BioCat is organized around a board and a management team consisting of a coordinator (100 %) and a director (scientific leader, 30 %). The board has broad representation from the partner institutions, from industry and from the candidate body. The board seems to function well, and the members contribute actively to the planning of activities. The partners take turns in hosting board meetings. A well-attended annual conference is organized.

The board is active identifying new courses and activities and invite speakers and teachers of high international standard.

Presently, a new full-time coordinator needs to be appointed. In order to secure continued professional management and coordination among partner universities, host PhD programmes and collaborating companies, and contact to the PhD candidates, the vacant post should be filled as soon as possible.

To increase future robustness at the management level, i.e. creating an organisation that is independent of the dedication of individuals, procedures for enrolment of PhD candidates, follow-up, quality assessments, responsibilities of the coordinator, and the division of tasks between the scientific leader and the coordinator should be formulated and formalised.

In the self-evaluation, the school expresses that the highest priority is strategies to involve and follow up on the candidates. This is very laudable. The next priorities involve scientific/academic standard and translational skills training etc., which is also important for the future career opportunities of the graduates.

Coordination, facilitation and national network

The collaboration between the partners seems to be smooth and efficient. Good communication lines around the course organization seem to have been established. No particular challenges were reported or identified by the panel.

Each major node has a candidate ambassador, who contributes to increased linkage between the board of the research school and the nodes. How the ambassadors interact with each other is unclear. The establishment of a PhD association is recommended.

On the question on whether increased collaboration between scientific/academic personnel exists across the various institutions, the school reports 'to some extent'. This should be further strengthened by identifying clear routines and procedures for collaborative efforts. Furthermore, this could be documented by shared publications and applications.

Activities

BioCat offers optional activities supporting the training of a new generation of candidates well educated to tackle upcoming challenges in the field of biocatalysis.

However, there seems to be a relatively low rate of participation of "member PhD candidates" and there is no systematic follow-up on evaluations and thereby, no means to increase quality and relevance of offered activities.

It is the impression that BioCat does only has limited focus on the PhD candidates' preparation for their career possibilities after their PhD. The mixed environment of academia and companies ought to be a perfect platform to discuss career possibilities, expose the PhD candidates to careers other

than academia, and to support the PhD candidates to prepare themselves for their future professional life.

In addition, the possibilities of the PhD candidates to play a role in shaping the activities within BioCat appear limited. Measures should be implemented to improve follow-up assessment and quality assurance of activities.

Internationalisation

Overall, internationalisation activities appear good and internationalisation at home is already evident since the operative language is English. However, BioCat could to a higher degree, actively support the PhD candidates to go abroad. An option to be explored, within budget constraints, is to support several shorter stays at the same institution and not one long stay.

Further internationalisation impact could be achieved by stressing the importance of a global view and global personal network for the future career, highlighting the 'good stories' on the webpages, and engaging in dialogue with the PhD candidates on how to improve mobility.

Future perspectives

For future development, the school should consider making new alliances. BioCat operates in an active international field. Creating a broader research school across the Nordic countries is a path to explore. New alliances could also create new funding possibilities from Nordforsk or EU.

Gender aspects

The gender composition of the board is excellent, as is the gender composition among the candidates.

Financial aspects

An important fraction of the budget is dedicated to salaries to the administrator and scientific leader. However, the panel recognises that it is important to have a continuous and efficient leadership set-up, as appears to be the case here. On the other hand, the management should keep a vigilant eye on the balance between support of administration/management versus PhD candidate related activities. In addition, the research school takes up postdocs. As long, it is beneficial for the PhD candidates and the academic activities this is acceptable, but again, the funding is primarily directed towards the PhD candidates.

Overall evaluation and recommendations

BioCat emerges as an excellent research school, which offers the affiliated PhD candidates a wide variety of activities and network possibilities, national as well as international, encompassing academia and private companies. BioCat seems to have fulfilled its primary and secondary goals.

There is, however, room for further development adjustment during the next period of funding and some weakness and threats identified by the school should be followed up on.

Recommendations

BioCat should implement measures of individual follow-up with focus on participation in different activities, time to completion, drop-out, and career beyond PhD.

BioCat has created a unique international and cross sector environment. However, the beneficial effect on the individual PhD candidate is unknown. BioCat should bring forward documentation

showing that the candidates to a higher degree participate in e.g. research projects cross sectors and borders and publications with co-authors from other sectors and international institutions.

Since the research activities within BioCat is in a field of high importance for the development of a sustainable future, the panel suggests a targeted recruitment of PhD candidates nationally as well as internationally and not only through existing network but via SoMe platforms, conferences, PhD programmes etc.

The panel suggests an increased collaboration with private companies. Significant research and development (R&D) take place in companies and a closer collaboration will: 1) foster collaborative research projects, 2) PhD candidates will obtain direct knowledge about private companies as a working place and 3) increase employment of PhD candidates to the companies after PhD.

BioCat must appoint a new full-time coordinator as soon as possible to secure continued professional management and coordination among partner universities, host PhD programmes and collaborating companies, and contact to the PhD candidates.

The panel recommends that the Research Council continues funding until 30.06.2024.

Good practice

- Board members are active in contacting potential research groups and PhD candidates.
- The board is active in planning the annual conference and in suggesting activities.
- Research supervisors must register their group when a PhD candidate becomes member.

7.3 Research School on Changing Climates in the Coupled Earth System (CHESS)

Facts about CHESS

- *Operation period:* 01.11.2015–31.10.2023
- *Grant:* 18 116 000 NOK
- *Host institution:* University of Bergen (UiB). *Partners:* University of Oslo (UiO), University of Tromsø – The Arctic University of Norway (UiT), Norwegian Institute for Air Research (NILU), Nansen Environmental and Remote Sensing Center (NERSC), Norwegian Polar Institute (NPI), Norwegian Meteorological Institute (MET Norway), Institute of Marine Research (IMR), Norwegian Research Centre (NORCE), University Centre in Svalbard (UNIS).
- *Recruitment/enrolment procedure:* Closed model, admission monthly.
- *Candidates:* 213 candidates admitted, of them 117 women. 33 women and 33 men have defended their degree. 4 candidates withdrew their membership
- *Activities:* 49
- *Contributors:* 64
- *Organization and management:* Steering group of 8 representatives from the 4 major partners including a PhD candidate, of them 3 women. Scientific director 10 % position, coordinator 60-80 %, PhD candidates at UiO, UiT and UiB 25 % each. International advisory board of 5 scientists from 5 international institutions.

Objectives of the research school

The *primary objectives* of CHESS are to establish an internationally recognized research-training environment for PhD candidates working in the realm of changing climates in the coupled Earth System that can provide the participants with in-depth knowledge in their specific study field as well as training on interdisciplinary research in the coupled Earth System. Furthermore, CHESS will strive to also offer insights into the political and societal impacts of climate change, and the necessary skills to play an active role in predicting, mitigating, and adapting to climatic and environmental change.

Secondary objectives:

1. Improved national and international networks and collaboration both for the PhD candidates and senior scientists.
2. Larger national and international visibility of research in Norway on changing climates in the coupled Earth System.
3. Helping PhD candidates to stay on track with their PhD via wider feedback and exchange within the CHESS community.

Achievements

CHESS assembles three major universities and 7 other partners. About 130 candidates are members at any time. The school has managed to develop and establish a large portfolio of activities (17 in 2020) including courses in transferable skills etc.

The research school has a broad network of international contacts, which contribute to CHESS by participating actively in courses, workshops, and summer schools, including a close collaboration with institutions in Sweden.

A yearly, well attended, general meeting is organized by the research school. The candidates established their own summer school in 2016.

The research school has joined a national network of research schools in Norway, thereby fostering participation in further joint courses on transferable skills.

Overall, the objectives appear to have been met well by the school, although it is not clear to the panel how the objective on 'insights into the political and societal impacts of climate change, and the necessary skills to play an active role in predicting, mitigating, and adapting to climatic and environmental change' is realized in detail.

Organization and management

The school has a coordinator and a scientific director, spending approximately 70 % and 10% of a full-time position on the research school, respectively.

The steering group consists of two representatives from the four major partners and only one candidate representative, which is insufficient. The panel recommends that the research school increases the participation of candidates on the board.

An international advisory board with members from the international partners is present, further contributing to the international perspective of the school. The school states that the chosen organization model is to a high extent 'bottom-up', and that this works well.

The relation to the local PhD programmes is described as good. There have been issues with acknowledging study credits between the stakeholders, but these seem to have been mostly resolved satisfactorily, based on the formal requirements for ECTS credits and a cooperative spirit between the stakeholders. The panel notes, however, that the board's contribution to the assessment and mutual recognition of courses has a low priority. Since this is a crucial point for the effective operation of the overall teaching portfolio, the panel recommends further attention from the board and the school leadership to this issue.

Doctoral supervisors must be members of the school when their candidates enroll.

Coordination, facilitation and national network

Several good networking initiatives have been implemented, for example the summer school and the general assembly. A job fair has been established. Having this event working, more attention could be drawn to career development plans for candidates. There is no formal alumni network established (yet), although there are plans to do so. This is the panel's recommendation as well.

Activities

Courses at CHESS are an important supplement to the basic local course curriculum. Some candidates take additional courses in addition to the mandatory study points (30 ECTS). Participation in courses and other activities is targeted at members, but others may apply for participation if there is free capacity.

The school has no funding for international travel support, since as it was funded through a special RCN programme call that is not allowing for this. The course portfolio is extensive with numerous relevant activities and courses.

The doctoral candidates appreciate the annual meeting. All candidates present their activities and receive feedback. Training of supervisors has been discussed and is considered desirable but is not yet implemented.

Internationalisation

CHESS has 11 collaborating international institutions. There is an annual summer school (ACDC) organized by University of Washington, Harvard University, Woods Hole Oceanographic Institution and UiB. The climate community is very international and international partners contribute to the school activities. The school provides financial support for participation in academic activities in Norway and abroad.

Future perspectives

The school management expresses its concerns about how to continue when/if funding from RCN ceases. The board has started thinking about how to anchor courses in the various institutions, while ensuring continued broad national access.

A transition to 'virtual' teaching is being explored, also stimulated by the recent Corona situation. A clear legacy plan should be formulated with commitments from the partners.

Gender aspects

About half the candidates are from either gender. Gender equality also prevails among graduated candidates. The board only has representation from one candidate. It would be advisable to increase the number, also ensuring gender diversity.

Financial aspects

The administration budget is moderate (18 %) leaving a healthy budget for internationalisation and pedagogical activities.

Overall evaluation and recommendations

The overall picture that emerges is that of a well-organized and -run school, which assembles a large relevant segment of the Norwegian community around climate change. The activity portfolio is diverse and relevant and contributes to the development of the field and the integration of the national activities in the sector.

Recommendations

The panel recommends that close cooperative ties between CHESS and the partner institutions be developed further and formalized, also to ensure a clear future embedment of the activities.

There are no fixed routines and procedures for collaborating with the local PhD schools. The panel recommends formalizing such collaborations and systematize them, also in view of ensuring the 'legacy of CHESS' when RCN funding eventually ceases.

Candidate involvement could be higher and better, although the annual meeting seems to be functioning very well. Only 40 % of the candidates did reply to the survey set-up by the Research Council. The panel recommends that the school encourages candidates to participate more actively in evaluation of the activities.

Only one PhD candidate is member of the board, which the panel considers insufficient to properly represent the candidate body. The panel recommends increasing formal candidate participation on the board and the formation of a PhD candidate association.

Strategies for following up on the PhD candidates were rated low in the self-assessment. The panel recommends increased focus on following up on candidates and on monitoring their situation straddling two PhD systems.

The panel suggests that more attention is given to career development plans for candidates. In addition, a formal alumni network should be established.

The panel recommends that the Research Council continues funding until 31.10.2023

Good practice

- The international advisory board is an important component promoting broad contacts, international networking and quality assurance.
- Participation in national research school networks provides further access to general courses (transferable skills etc.)
- In addition to the 80 % coordination position at UiB, a 25 % (in-kind) administrative supplement from UiB, UiO and UiT further underpins the smooth functioning of the school.

7.4 Norwegian Research School on Dynamics and Evolution of Earth and Planets (DEEP)

Facts about DEEP

- *Operation period:* 01.03.2016-05.02.2024.
- *Grant:* 23 400 000 NOK.
- *Host institution:* University of Oslo UiO). *Partners:* University of Bergen (UiB), University of Science and Technology (NTNU), University of Tromsø – The Arctic University of Norway (UiT), University Center of Svalbard (UNIS)
- *Recruitment/enrolment procedure:* Half-open model: Candidates can register as members, but must have a PhD project relevant to DEEP and they need their supervisor to be affiliated to DEEP
- *Candidates:* 94 candidates admitted, of them 40 women. 7 women and 15 men have completed. One candidate withdrew from the doctoral programme.
- *Activities:* 37. The school offers "courses-on-demand" (4 general calls per year) to candidates and partners.
- *Contributors:* 61
- *Organization and management:* 10 board members, including one international member, of them 6 women. 1 international partner, 4 candidate representatives. Scientific director, 50 %, Coordinator, 100 %, teaching resources 150 %.

Objectives of the research school

The main objective of the proposed research school is to establish an internationally recognised Norwegian research-training environment for PhD candidates and other young scientists in the realm of dynamical evolution of Earth and planets.

The expected impact of such a school will be provided by being a facilitator for transmission of in-depth knowledge in the realm of the respective study field of the PhD candidates, as well as for interdisciplinary knowledge in the dynamics of a planetary body, coupling the different spheres from core to atmosphere, by numerical, laboratory and observational experiments. Training will also entail scientific interaction at an inter- and trans-disciplinary level, thereby providing the necessary skills to play an active role in the tremendously important discussion on predicting and mitigating of natural disasters, natural resources, and the general societal interest of studies of Earth and planets.

Achievements

The DEEP school is hosted by UiO in partnership with UiB, NTNU, UiT and UNIS and assembles the main relevant university partners and a spectrum of international contacts.

The school offers specialized courses not available at the partner institutions within their ordinary doctoral programmes, and training courses in soft/transferable skills.

Five new courses have been established providing candidates with interdisciplinary training around global large-scale processes and interaction between the Earth system and the atmosphere and hydrosphere. Courses include numerical modelling and numerical techniques, observational and concrete laboratory activities e.g. the IG Geomagnetic Laboratory.

A general assembly for all candidates is organized annually with invited external keynote speakers. International experts are invited to lecture at the courses and international PhD candidates are encouraged to participate in DEEP activities.

The school reports that the objectives of bringing the relevant institutions in Norway together have been successful and considers that the activities will have a lasting positive boost effect on the field. The ambitions of overcoming limited professional diversity are realized.

Organization and management

The school has chosen to employ a full-time coordinator and partially fund the director. The management team appears well-knit, operative and well aware of the central issues. The coordination follows up with the partners on a regular basis and seems to be a well-functioning hub.

The board of the school has 10 members including two international members. The number of PhD candidates has been increased and four candidates are now members of the board. This is laudable and provides an important interface between (and thermometer of) the school and the candidate body.

The DEEP board is involved in all aspects of the school. The board members appear to be strongly engaged in supporting and developing the activities.

The University of Oslo is the central hub or host institution. This seems to provide a central strong anchor point for school operations, while engaging the various partners.

Coordination, facilitation and national network

The school reports that there is systematic close collaboration with all partner institutions.

Supervisors for doctoral candidates enrolled in DEEP must be affiliated to the school. PhD candidates from international institutions of relevant profile are encouraged to register as DEEP associates. DEEP is recruiting candidates proactively throughout the year.

The school sees itself supplementing courses, workshop and activities that the PhD candidates do not have access to at their home institution. There are examples of institutions that 'take over' courses from the network and offer them locally. This is, of course, a positive development, but also challenges the research school to continuously rethink the spectrum of activities offered. It is an important aspect in ensuring the 'legacy' of the research school, once RCN funding expires.

Webpages are regularly updated. Candidates travelling with DEEP financial support are required to upload a 'travel report' on the webpages, providing additional inspiration to other candidates – and supervisors. A newsletter is issued (5 times per year) with emphasis on cross disciplinary aspects.

Activities

Seven courses are offered at 3 of the partner institutions. 1-2 topical conferences are organized each year.

Activities are open also to non-members, if there is capacity. There is significant international participation.

PhD candidates organize a PhD day in connection with the general assembly. Postdocs are encouraged to participate in the school's activities. PhD candidates evaluate all activities at course

completion time. The outcome of the evaluation is disseminated in a report to instructors. A yearly survey among all members is conducted.

The school offers 'courses-on-demand' (about 4 each year) as a result of a general call to candidates and partners. The panel considers that this is a good initiative to stay tuned to changing concrete needs.

Internationalisation

Supervisors and teachers are largely international. About 70 % of the candidates have an international background. For the courses, international lecturers are invited to teach and participate in the various gatherings.

Future perspectives

The school plans to expand on the course-on-demand concept, which appears to have been successful and which is attractive to the candidates.

A central concern that is raised is the future after 2024. DEEP plans to investigate opportunities for broadening the network in the European context via strategic partnerships, Erasmus, Marie Curie programmes etc. Courses and collaboration procedures are being set up at partner institutions to take over courses. In fact, it is mentioned, that already local faculties are taking over courses and ideas developed by DEEP.

Gender aspects

Out of the 10 members of the board, 6 are women. More than 40 % of the candidates are women. Overall, there appears to be an excellent gender balance.

Financial aspects

The administrative costs are kept small and over 90 % of the funding is dedicated to activities and to funding candidates, which is very good.

Overall evaluation and recommendations

DEEP emerges as a well-run research school which has succeeded in assembling the relevant scientific partners in Norway in a smoothly functioning common entity. The candidates appear to be strongly involved also in the planning of activities. The internationalisation aspects are well addressed with a significant international component.

Recommendations

The panel recommends establishing a candidate association anchored for example in the four candidates' representatives on the board.

There might be a need for developing courses and activities more closely with the partner institutions, so that it is even more clear what is naturally network courses and what is naturally local courses.

The school states in its self-assessment that strategies for following up doctoral candidates is the responsibility of the local PhD programmes and the supervisors. The panel recommends, however, that the research school and its board also consider strategies for following up on the candidates.

It is mentioned that key figures at the partner institutions will soon retire. The panel recommends developing a clear concrete plan for ensuring the 'legacy' of the school and the anchoring of activities and courses at the partner institutions when funding from NRC runs out.

The panel recommends that the Research Council continues funding until 05.02.2024

Good practice

- All candidates who receive a DEEP travel grant upload a travel report with their experiences on the website for general inspiration.
- Four PhD candidates are represented on the board (one from each partner institution).
- Excellent network activities facilitating that PhD candidates from different universities have published papers together without their supervisors. Other candidates have been inspired to conduct a larger field trip after meeting in DEEP, the results are expected to be published.
- The DEEP newsletter is distributed to all on a regular basis (5 times/yr).

7.5 Digital Life Norway PhD School

Facts about Digital Life:

- *Operation period:* 01.07.2016 – 30.06.2024.
- *Grant:* 23 953 000.
- *Host institution:* Norwegian University of Science and Technology (NTNU). *Partners:* University of Oslo (UiO), University of Bergen (UiB), University of Stavanger (UiS), University of Tromsø – The Arctic University of Norway (UiT), Norwegian University of Life Sciences (NMBU)
- *Recruitment/enrolment procedure:* Open web-based application at the school's home page.
- *Candidates:* 237 admitted, of them 133 women (appr. 55%). No information on number of defended degrees or candidates that withdrew their membership (see explanation in self-evaluation). 150 postdocs.
- *Activities:* 47 unique activities
- *Contributors:* 32
- *Organization and management:* Steering board of 12 members, of them 3 women. 5 candidates. Scientific director in 20 % position, coordinator in 100 % position.

Objectives of the research school

The DL Norway PhD School will become an important pillar in the planned Digital Life Norway (DLN) center as an integrated part of its Working Group in Training and Recruitment.

Excellent researcher training and networking in the DL Norway PhD School will be a main success factor for the entire Digital Life mission and the DL Norway center.

The main goals are to promote transdisciplinary integration, build a culture for innovation, and create a new collective team spirit among all younger scientists who are connected to the Digital Life Initiative.

Achievements

The research school is today an integrated and important pillar of the Digital Life Norway (DLN) center. The school has a transdisciplinary focus on the research area 'digital life'. This part of the objectives has been achieved with success. Further, the school is popular with nearly 400 members and it seems that it has a dynamic, collective team spirit. The school states that it is important that researchers from different disciplines meet. While it can be recognized as a mean, it is hardly a goal.

While there are developed a range of courses, workshops and an annual conference, the school has not achieved fully the objective of 'excellent researcher training and networking'. The methods and subtopics are wide – innovation, life science, data, etc. Many courses are developed locally with minimal instructions from the research school in terms of scientific content. However, the school has recently developed one course of their own in a common effort. That said; the number of activities per year is around 20, which shows an active and lively network.

Organization and management

The Board has 13 members from the 6 member universities. 5 of these members are candidates. This is an impressive representation of the candidates. The function of the board is to approve the suggested courses by the partner universities, to arrange transferable skill activities, workshops and

the annual conference. There is a need to develop the quality assurance of the activities even more, to develop the scientific profile of the school and to coordinate the activities with the partner universities.

Coordination, facilitation and national network

The scientific cooperation seems to function well. The senior members of the network do create and arrange courses and other activities. The school / board decides which courses and workshops to support and include as activities in the network.

The scientific field of the school is very broad, and it may be difficult to define and develop a profile. The board including the candidates could play a larger role here than 'just' approving course suggestions. The board members and for that matter others from the network could be part of the organizing group that develop courses and workshops. This will of course demand a very active leadership and management of the network as well as funding available for doing this. In fact, one common course has been developed following a variant of this model. Researchers from three different partner institutions have developed the interdisciplinary PhD course 'Transdisciplinary life science', which will be held during the fall of 2020.

Activities

There are around 20 activities per year in the school ranging from PhD courses, workshops, seminars to the annual conference and transferable skills activities. Most courses are evaluated, but not in a systematic way, since local arranged courses are evaluated by the local organizers themselves. Since the evaluation seems to be optional, it is difficult to obtain sufficient feedback for the board to decide whether the course can continue or to go into discussions about improvement of the course. The activities arranged directly by the school are however evaluated.

The school has many members. While it is an advantage with respect to getting enough participants to every single event, it is certainly – all things equal – more difficult to create a network spirit and common community among all the members. The annual conference is mainly used for networking and for developing relationships between the participants. Core members attend the conference (less than 200) and this gives the option to work with the common community.

Internationalisation

Internationalisation is not a high priority for the school. The Digital Life initiative focuses on national cooperation and development of a national PhD school. It is understandable for Digital Life to prioritize in this way. However, there are a few international activities, e.g. internships with companies in Sweden. Furthermore, a large proportion of the members are non-Norwegian which give the school an international feature.

The school has a special profile and focus also on delivering competences and skills for working across different disciplines, and with other community actors outside academia. It could be considered to find similar networks outside Norway with the aim of creating cooperation and potential activities together.

Future perspectives

The school and network have started many things that are going in different directions. Many candidates find that the concept of the network is exciting and that it helps them to put their project in a broader social context. Many candidates find it exciting to work in a multidisciplinary way. It is indeed an interesting approach, which is different than very traditional PhD programmes. The school

has something to offer in this respect. As the research school is closely linked to the Center for Digital Life, the continuation will depend on the prospect and further funding of the Center. More funding is needed if the school is going to work more with internationalisation.

Gender aspects

There is nothing to report here as the gender distribution is nearly equal both among PhD candidates and postdocs.

Financial aspects

The budget of the research school is tight and leaves no room for doing much more than standard support of covering travel etc. This will also be a challenge to have funding for further development of the school.

Overall evaluation and recommendations

The self-evaluation provides argumentation for that the main goals are achieved (to promote transdisciplinary integration, build a culture for innovation, and create a new collective team spirit among all younger scientists who are connected to the Digital Life Initiative). The panel does not question this, but we suggest that the school reformulates its goals. Creating a collective team spirit cannot be a goal for a research school – it is, however, a very important mean. The energy and spirit created in the network could be used to develop the school further. In addition, there is a need to secure the quality of the activities, to develop the scientific profile of the school and to coordinate the activities with the partner universities.

Recommendations

The panel suggests that the board and the members should take a more active role in creating and establishing course content and curriculum.

The board should collaborate with partner universities on the administrative level, having binding agreements e.g. about ECTS.

There is a need to secure the quality of the activities, to develop the scientific profile of the school and to coordinate the activities with the partner universities.

It is recommended that the research school put more focus on internationalisation.

The panel strongly recommends that Digital Life start planning how to continue beyond the funding period.

It is recommended that the research school put more focus on internationalisation.

The panel strongly recommends that Digital Life start planning how to continue beyond the funding period.

The panel recommends that the Research Council continues funding until 30.06.2024.

Good practice

- The high number of PhD candidate representatives in the board.
- The focus on delivering competences and skills for working across different disciplines.

7.6 Norwegian Research School of Global Health (NRS GH)

Project nr. 249003

Facts about NRS GH

- *Operation period:* 01.04.2016-31.03.2022
- *Grant:* 18 000 000 NOK.
- *Host institution:* Norwegian University of Science and Technology (NTNU). *Partners:* University of Oslo (UiO), University of Bergen (UiB), University of Tromsø – The Arctic University of Norway (UiT), Norwegian Institute of Public Health (NIPH)
- *Recruitment/enrolment procedure:* Closed model, on-line application.
- *Candidates:* 192 candidates admitted, of them 120 women. 44 have defended their degree, of them 23 women. 5 candidates withdrew from doctoral programme, of them 1 woman.
- *Activities:* 46
- *Contributors:* 43
- *Organization and management:* Steering board of 12 member, of them 5 women. 4 academics from member institutions, one from Norwegian Institute of Public Health, and one from international university. 2 PhD representatives and 4 administrative.

Objectives of the research school

Primary objective:

- to strengthen the quality of PhD education and to facilitate recruitment of young researchers in global health

Secondary objectives:

- to establish a Norwegian research school of global health for PhD candidates
- to provide relevant courses for members in the network - to facilitate for candidates to participate in courses, by providing mobility grants
- to build a network among the PhD candidates, by arranging annual conferences
- to strengthen academic capacity, by arranging regional seminars in partner institutions in a low-income setting
- to improve quality of supervision in order to increase the quality of PhD theses in global health
- to increase awareness among academic leadership and policymakers to promote global health as a crucial research area.

Achievements

Norwegian Research School of Global Health (NRS GH) is an ambitious research school, working in a very important field. Researchers, within a tight network, leads the research school with great enthusiasm, and they have achieved the majority of the stipulated objectives. The research school has established a national and international network for PhD candidates and principal investigators in close collaboration with partners. NRS GH offers a platform of PhD courses with focus on transferable skills, new courses within global health and annual PhD conferences. NRS GH offers seminars and courses for national researchers as well as for academics from abroad, with focus on supervision. The panel praises NRS GH for its interdisciplinary approach, international network, and focus on international capacity building within UN Sustainable Development Goal 3: “to ensure healthy lives and promote well-being at all ages”. The NRS GH is a supplement to PhD programmes at

partner institutions. Scientific and other academic activities have the number one priority in the NRSRGH.

Organization and management

Global Health has a board consisting of one scientific and one administrative representative from each collaborating institution (4), one international member (Denmark) and two PhD candidates. One member is full-time coordinator (located at NTNU). The board takes actively part in the different activities and some of the members are active supervisors with PhD candidates enrolled in the research school. Partner organisations are involved through the dedicated board members. With reference to the mid-term report p. 4 “We know each other well now ... other institutions” the review panel recommends that the board should avoid giving the impression of a “closed circle of persons” since this could be an obstacle for influence from other researchers. In addition, the panel raises a warning about board members reviewing PhD theses at the collaborative institutions since this may raise concern about disqualification and conflict of interest and thereby questioning the procedure for quality insurance of the PhD theses at NRSRGH. The review panel suggests that reviewers from abroad are included in the thesis committees.

The board at NRSRGH includes two elected PhD candidates and the board representatives explain that it has a good dialogue with the candidates. In addition, PhD candidates give feed-back on the activities they attend, and the activities are accordingly adjusted by the board. The PhD candidates have local groups at the partner institutions but there is no formal PhD association in the NRSRGH. The school has many PhD candidates and that makes it important to have a firm structure that ties the diverse and great candidate group to each other and to the school. Many PhD candidates return to their home country after dissertation. The research school has established an alumni network to keep contact and information.

Coordination, facilitation and national network

The board drives both the strategy of the research school (no advisory board) and is involved in all the activities. Thus, it is a slim and efficient organisation and it seems that partner organisations support the activities via the dedicated members of the board. It is always a challenge to coordinate courses, seminars etc. with local PhD programmes. However, this issue seems to function adequately in the NRSRGH via the coordinator although some variations are present. One problem is that it may be a challenge to have the NRSRGH courses taken up by the local PhD programmes at the partner universities. Another problem is the time it takes to have PhD candidates, especially those from low-income countries, formally enrolled at the PhD programme. This is a problem since uptake in NRSRGH needs documentation of enrolment in a PhD programme and slows down participation in NRSRGH activities. A strong national network within global health is present and there are strong links to the other Nordic countries.

To be a member the focus of the PhD project must be within global health issues. PhD candidates obtain membership after they are enrolled at their host institutions. Some PhD candidates started their project before the NRSRGH was established.

Activities

Not all proposed courses in the application have been executed. The panel acknowledges that it is a dynamic process and new topics and ideas may show up. MOOC (Massive Open Online Courses) is a great idea since online courses of high international standard are in need and support the activities offered by NRSRGH targeting low-income countries. The review panel recommends that NRSRGH plan

for development and implementation of the MOOC. The research school offers optional activities. The research school registers attendance at the courses. Some PhD candidates are active and attend three or four courses, but some attend the PhD conference only. Information about attendance rate is important for the understanding of to which degree the PhD candidates contribute to the academic activities within the research school and is embedded in an academic environment.

The formal responsibility for supervision lies within the host institution. This may often have implications for the relation and dedication to the research school, e.g. that the supervisors are less supportive, do not participate in offered activities and may pose an obstacle to fully exploiting the benefits and synergy of the research school. At NRSRGH, it is a priority to raise the quality of supervisors e.g. by using experienced teachers. In addition, training of supervisors at collaborating institutions in e.g. Africa has high priority and is successful. This is a huge strength for the development of a strong and sustainable research culture within the field locally. However, it seems that it is difficult to engage the national supervisors in course activities. If the NRSRGH has the aim to involve the national supervisors to a higher degree, the research school should formulate a strategy on how to improve engagement.

Development of personal network is pivotal for present and future career. The PhD candidates collaborate during and between the activities and the supervisors interact across the respective institutions. However, the panel recommends that these activities are documented by collection of data on e.g. shared applications for funding, shared publications etc.

It is at major strength and admirable that a goal of NRSRGH is to strengthen research and researcher education globally within global health. However, the conditions to establish a research culture and position in other parts of the world is out of the NRSRGH control. Thus, NRSRGH must consider how to handle this challenge in the years to come. It is a strength that NRSRGH has established an alumni network. However, to secure that the NRSRGH fulfils its goal and to evaluate the impact of the research school (strengthen the quality of PhD education), individual follow-up is mandatory in the sense of publications, completion time and occupation after PhD.

Internationalisation

The NRSRGH acts worldwide. The members of the board have a broad international network within global health, securing international teachers and mixed candidate groups. Publication of the international diversity of PhD candidates, researchers, teachers and speakers, documents the international PhD training environment. In addition, the international profile of the individual PhD candidate could be documented during the next years by collection of data on e.g. shared research projects and shared publications. To support mobility, NRSRGH offers mobility stipends. To strengthen transparency information about criteria for funding, the level of exchange at PhD candidate level vs. senior researchers and outgoing vs. ingoing activity should be public at the homepage. It is acknowledged, that NRSRGH publishes travel reports at the homepage or in the NRSRGH blog to inspire more PhD candidates to go abroad. The annual report documents the international profile of the PhD candidates.

Future perspectives

The NRSRGH wishes to continue the research school. However, the research school encounters a decreasing number of PhD candidates, reduced public awareness and priority of global health issues and small research units within global health in Norway, as threats. The NRSRGH suggests therefore to allying with other Nordic universities within their existing network during the next four-year period.

Gender aspects

A majority of the PhD candidates (2/3) are women and the representation in steering board is almost 50/50. The gender diversity among researchers, speakers and teachers is not addressed in the self-evaluation. To recruit new scientists among both male and female PhD candidates, the balance of female vs. male role models among supervisors and teachers is important. Therefore, NRS GH should keep an eye on the diversity among the teachers.

Financial aspects

Approximately 1/3 of the budget is used on administration/management/leadership and 2/3 is used for running costs and activities for the PhD candidates. At the same time, it is difficult for the NRS GH to hand out all mobility grants. The review panel recommends NRS GH to brand the mobility grants to a higher degree.

Overall evaluation and recommendations

Norwegian Research School in Global Health is an ambitious research school, working in a field that is more important now than ever. Therefore, training of young researchers for the future within global health is an important issue globally.

It has to a great extent achieved its obligations. It is a challenge to work with global health and to work all around the world in low income countries, and it seems as if this school has helped to create an important network around many PhD candidates around the world.

Recommendations

The major challenge is to document that NRS GH actually strengthens the quality of PhD education. Since NRS GH aims to strengthen PhD education, higher priority should be given to follow-up and completion, and to assessment of courses during the next years. Thus, the review panel recommends that the NRS GH considers how to perform a quality assessment of the PhD education within the research school for the final evaluation.

NRS GH has to consider how to ensure recruitment of PhD/young researchers for research beyond the PhD within academia, and how to guide the graduates to other careers within e.g. ministry of health and non-governmental organisations (NGOs). This will need individual follow-up during and beyond the NRS GH herein employment. One possibility is to interview the graduated PhD candidates about their positions as proposed by the board.

The review panel recommends that the board supports establishment of a formal PhD association within the NRS GH and that the PhD association is visible at the webpage. In addition, the review panel recommends that the PhD association is responsible for an annual social or scientific event.

The review panel suggests that the research school establishes activities targeting different phases of the PhD training period supporting project- and self-management before midterm and e.g. seminars guiding the PhD candidates in the process of how to finish the dissertation and choice of career pathways beyond the PhD after midterm.

To increase the awareness of the NRS GH, initiatives for branding to attract PhD candidates should be initiated. The panel recommends that the NRS GH takes policy actions targeting politicians and other relevant partners. Finally, the panel suggests establishing formal collaborations with national, Nordic and global partners. The collaboration could lead to a consortium, which could be a base for application to NordForsk or the ERC (Horizon Europe).

The panel recommends that the Research Council continues funding until 31.03.2024.

Good practice

- With a high number of PhD candidates affiliated to the research school, NRS GH established local network groups.
- With PhD candidates coming worldwide, NRS GH established an alumni network to keep contact and information.
- NRS GH has supervisor courses for supervisors primarily from collaborating institutions abroad.

7.7 The Norwegian Research School for Research and Development of Municipal Health and Care (MUNI-HEALTH-CARE)

Facts about MUNI-HEALTH-CARE

- *Operation period:* 01.01.2016-31.12.2023
- *Grant:* 23 000 000 NOK
- *Host institution:* University of Oslo (UiO). *Partners:* Norwegian University of Science and Technology (NTNU), University of Tromsø – The Arctic University of Norway (UiT), Nord University (NU), University of Bergen (UiB), Western Norway University of Applied Sciences (HVL), Oslo Metropolitan University (OsloMet).
- *Recruitment/enrolment procedure:* Closed model, admission once a year.
- *Candidates:* 69 candidates admitted, of them 65 women, 4 candidates have defended their doctoral dissertation, while 29 PhD candidates, gender unknown, have completed the research school's program. 3 candidates withdrew membership.
- *Activities:* 56
- *Contributors:* 64
- *Organization and management:* Steering board of 12 members, of them 10 women. 2 candidates, 1 international and 2 user representatives, 1 international representative. Scientific director 20-30 % position, coordinator 100 %, deputy leader 20 %.

Objectives of the research school

1. Educate a critical mass of researchers whose main expertise and research interest is in the development of quality health and care services in the municipality
2. Foster increased national and international mobility among PhD candidates
3. Enhancing knowledge of involving users from primary care and the elderly population in doing this research
4. Contribute to stronger competence among the supervisors
5. Contribute to building a research culture within the municipal health care sector
6. Contribute to an increase in the number of long-term research programmes aimed at developing knowledge and innovation in the municipal health and care services,
7. Contribute to developing sound scientific evidence for improved preventive and health promoting health care services, rehabilitation and habilitation services, and elderly care in the municipality,
8. Develop a network of researchers that can contribute to collaborative research and development across municipalities.

Achievements

MUNI-HEALTH-CARE has succeeded in achieving its stipulated objectives so far. The research school has established a national network for PhD candidates and supervisors within the field in close collaboration with partners. The collaboration with municipalities and users happens to a large extent locally and is related to the PhD candidates' projects. MUNI-HEALTH-CARE is offering a platform with relevant thematic PhD courses, web-seminars with peer-feedback assisted by experienced researchers in an interdisciplinary and cross-sectorial setting and an annual retreat. MUNI-HEALTH-CARE has developed a supervisor programme with courses and network activities, raising the quality in supervision within this growing research field. The review panel notices that the

programme is met with satisfaction. The review panel praises MUNI-HEALTH-CARE for its activities to strengthen evidence-based health care in municipalities. MUNI-HEALTH-CARE is, furthermore, praised for its focus on international network and collaboration, also beyond the funding period.

Organization and management

MUNI-HEALTH-CARE has a board including user representation, two PhD candidates, one international member and one representative from each partner organisation. The board assembles 2-4 times per year and is responsible for the overall strategy and interaction with partner organisations and stakeholders. An executive working group with one representative – professor in relevant research area – from each partner organisation together with coordinator and chair of the research school, meets 3-4 times per semester. Partner organisations are dedicated and contribute through the executive working group, which plans and runs courses, webinars, a yearly retreat and facilitates recruitment to the research school. The PhD candidates give feed-back on each course activity but dialogue with the PhD candidates will be increased.

Coordination, facilitation and national network

The coordination between overall strategies as decided by the board, plan of activities by the executive working group and implementation and daily administrative support by the coordinator and chair of school seems to work out in a professional and efficient way. Involvement of international teachers has a high priority and a broad range of researchers from all over the world contribute to the different activities.

The present population of PhD candidates is 65 with a vast majority of women. Most of the PhD candidates have experience from a professional career in the health sector and many will have a family. All PhD candidates with a relevant project are enrolled. The recruitment rate is 15-20 candidates per year. The goal was a yearly uptake of maximum 30 PhD candidates; however, as stated during the interview, it has been an advantage with a lower enrolment in the first years, since it has given the possibility to focus on the individual PhD candidates raising the quality of locally bound projects methodically and theoretically. A good sign is that MUNI-HEALTH-CARE observes a gradual increase in applications. Many PhD candidates are enrolled at PhD programmes part time concurrent with a job in the health sector (50/50 %). This increases the embedding of gained knowledge and evidence-based practice in the health care system continuously. On the other hand, it is an obstacle towards mobility.

Activities

Thematic as well as transferable skills courses are well executed. A major strength is the quarterly webinars with presentations by PhD candidates, peer-feedback and participation of PI from different institutions. Supporting excellent collaboration and coordination between partners are that each activity always has two leaders, from two different partners. Initially activities equal to 20 ECTS were mandatory. However, supervisors hindered the PhD candidates to join the many activities. To obtain a better balance between compulsory PhD courses at the PhD programmes and MUNI-HEALTH-CARE courses MUNI-HEALTH-CARE chose to reduce the amount of mandatory activities. The PhD candidates are satisfied with the research school activities and support the mandatory courses to a high degree. MUNI-HEALTH-CARE will develop new courses along the way.

The formal responsibility for supervision lies within each ordinary PhD programme, whereas attendance in the research school is an optional activity. This may have the consequences, that the supervisors are less supportive, do not participate in offered activities and may pose an obstacle to

fully exploiting the benefits and synergy of the research school. At MUNI-HEALTH-CARE involvement of supervisors and training of supervisors has a high priority and they are invited to meetings, seminars and to participate in further development of the research school. Many of the supervisors are relatively young with minor research experience within primary health care. The close collaboration with the supervisors is a huge strength for the development of a strong and sustainable research culture within the field. In addition, it is a great benefit that also supervisors can apply and receive mobility stipends although one should keep in mind that funding is primarily for supporting PhD candidates. Supervisors evaluate the activities they take part in. The review panel supports the idea that MUNI-HEALTH-CARE should ask the supervisors to evaluate the research school's impact on the candidates' projects.

Development of personal network is mandatory for present and future career. The panel is told that the PhD candidates collaborate systematically during and between the activities and also, supervisors interact across the respective institutions. The panel recommends that these activities are documented by sampling of data e.g. submitted applications for funding, shared publications etc.

An objective of MUNI-HEALTH-CARE is to strengthen research and evidence-based patient care in municipalities in the future. However, after obtaining a PhD degree most candidates want to continue a career in academia. This specific goal of the school has made it important to develop a course on leadership for future projects in municipalities. This is a brilliant idea and a good example for many other research schools, which train PhD candidates taking responsibility and leadership beyond university. However, MUNI-HEALTH-CARE should consider other activities to facilitate that the graduates find their way into municipalities to strengthen evidence-based health care in the primary sector.

To document that MUNI-HEALTH-CARE fulfils its goal, individual follow-up is mandatory in the sense of publications, completion time and occupation after PhD, and we suggest establishing an alumni organization.

Internationalisation

It is of high priority to recruit teachers/researchers from abroad. MUNI-HEALTH-CARE provides support for participation in conferences and workshops local in Norway and to a minor extent to longer stays abroad. In addition, webinars facilitate both national as well as international networking activities. MUNI-HEALTH-CARE states that the internationalisation strategy is both out- as well as ingoing. However, presently MUNI-HEALTH-CARE does not have PhD candidates outside the Nordic countries. To strengthen the international profile, MUNI-HEALTH-CARE seeks inspiration from Finland and plans a postdoc programme with Utrecht University. The panel really encourages such activities.

Since some of the PhD candidates are part-time PhD candidates concurrent with a job in the health sector or with families, it is a challenge to increase mobility. On the other hand, international network, experience and outlook are pivotal for a research career and development of a scientific field. Thus, it is a strength that MUNI-HEALTH-CARE facilitates "internationalisation at home". This effort should be strengthened even further. Since internationalisation is a priority of MUNI-HEALTH-CARE this should be documented during the next years e.g. as shared research projects and shared publications.

Future perspectives

MUNI-HEALTH-CARE has a sincere ambition and strong commitment to continue its activities with the long-lasting goal to develop a national sustainable research culture at international level within

evidence-based healthcare. MUNI-HEALTH-CARE has already planned to establish a postdoc/young researcher programme in collaboration with Utrecht University as a plan for further funding. The review panel supports the idea to establish formal, strategic partnerships with foreign institutions. This may pave the way for collaborative applications for international funding e.g. EU.

Gender aspects

The board has a majority of women (10F/2M). There is a heavy surplus of women among the PhD candidates, accordingly, the two PhD candidates in the board are women. In addition, among the speakers, there are a majority of women. This mirrors the interest of women for health care issue and is probably also reflected in the gender ratio in the group of supervisors.

Financial aspects

There seems to be a fine balance between expenses for administrative tasks and candidate activities.

Overall evaluation and recommendations

This is an excellent and well-driven research school. MUNI-HEALTH-CARE is working with health care at the municipal level of the health care system. It is an emerging area and the research school has an ambition to lift the level of knowledge and to implement knowledge-based patient care (citizen care) at the municipal level. The major challenges are to increase diversity among enrolled PhD candidates and to secure that trained young researchers actually continue to perform research beyond their PhD and contribute to evidence-based health care. One important factor is that the municipalities and other health care organisations are mature to receive researchers, support research, and prioritise evidence-based health care. To have a tight dialogue with university colleges and universities, users, employees and partners in municipalities and other health care system is fruitful and very right.

Recommendations

The review panel recommends that MUNI-HEALTH-CARE ask the PhD candidates to create a formal PhD association and that the organization obtains responsibility for e.g. annual events. In addition, the PhD association and events driven by the PhD candidates should be visible at the homepage.

It is necessary for the school to develop further its relations to the partner departments, even for securing the obvious position for the school in the academic world of health care.

MUNI-HEALTH-CARE wants to broaden the background of the PhD candidates since the research school is directed towards many different careers in the health sector and municipalities. It is recommended that MUNI-HEALTH-CARE has a strategic approach to university colleges and universities recruiting PhD candidates. This should also include a plan for how to attract more male PhD candidates to secure a diversity in research themes and ideas.

It is important for the school to translate research results to practise in the municipal care. Therefore, a tight dialogue with the health care sector and municipalities has outermost importance. The panel recommends that a strategy is developed for communication targeting politicians, plans for shared positions and visibility. Be aware to use male role models.

Having a majority of female candidates with small children the panel suggests the research school to develop ways of getting fruitful contacts with groups of international researchers fitting the life of women with families. Perhaps it could be research visits only for a short period or two smaller

periods. In addition, it is possible to invite international candidates and teachers to Sweden. Formal long-lasting, strategic partnerships with foreign institutions may also support mobility.

It is an important ambition to educate more men for research positions in municipal health care and related organizations. In addition, the diversity of research areas may be too narrow if gender diversity is lacking. We suggest that MUNI-HEALTH-CARE targets branding to male candidates in different fields focusing on specific topic relevant for primary care, male role models, male citizens etc.

The panel recommends that the Research Council continues funding until 31.12.2023.

Good practice

- Quarterly webinars with presentation by PhD candidates, peer-feedback and participation by principal investigators from different institutions.
- Close interaction with users, institutions and organisations in which evidence-based activities are supposed to take place.
- A supervisor programme with courses and network activities, raising the quality in supervision in an emerging research field.
- Each activity is planned in collaboration between two partner institutions.
- Formal, strategic partnership with foreign institutions.

7.8 Norwegian Research School in Infection Biology and Antimicrobials (IBA)

Facts about IBA

- *Operation period:* 01.1.2016-31.12.2023
- *Grant:* 21 000 000 NOK
- *Host institution:* University of Oslo (UiO). *Partners:* Norwegian University of Science and Technology (NTNU), Norwegian University of Life Sciences (NMBU), University of Tromsø – The Arctic University of Norway (UiT), University of Bergen (UiB), Norwegian Institute of Public Health (NIPH), Umeå University and University of Copenhagen
- *Recruitment/enrolment procedure:* Closed model, application via IBA website.
- *Candidates:* 99 admitted, of them 62 women. 26 candidates have completed, of them 15 women. No candidate has withdrawn membership.
- *Activities:* 33
- *Contributors:* 254
- *Organization and management:* 8 board members, of them 7 women. 2 PhD representatives. Scientific Advisory Board of two representatives from Umeå University and Lund University. Scientific director 50 %, coordinator 70 % (50 % until Feb. 2020). Scientific co-director 20 %, teachers and organizers 150 %.

Objectives of the research school

Primary objective is to provide high-quality, research - based training and education enabling candidates to develop into internationally competitive, productive, and creative researchers placed to address the future needs of the Norwegian community vis a vis Infection Biology and Antimicrobials.

Secondary objectives are to:

- strengthen PhD training quantitatively and qualitatively by coordinating and consolidating teaching efforts in Norway
- improve collaboration between scientists and younger researchers both nationally and internationally
- establish an internationally recognized, interdisciplinary research training environment for PhD candidates in infection biology and antimicrobials in Norway.

Achievements

The school is set up with 8 partners, with UiO as the host, and including the University of Copenhagen.

The research school has a board of 8 members with 2 PhD representatives. IBA has an advisory board of 2 external members from Sweden and Umeå.

99 candidates have been admitted to the school, of which about a quarter have graduated by now. This is a good number commensurate with the stated ambitions.

The research school offers the affiliated PhD candidates a variety of activities and network possibilities, national as well as international. In addition, IBA creates a network between researchers and contributors, who are recruited internationally.

The course portfolio seems for the most part located with the partners around existing courses and only few new cross-cutting courses appears to be offered beside the annual meeting. This seems to be on the low side as compared to expectations.

The field is diverse and traditionally fragmented and there have been difficulties in finding a common ground between the partners.

The research school appears to have difficulties in developing a strategic approach to the activities and to the training that the PhD candidates are offered during their enrolment in IBA. The scientific programme appears to be elaborated 'on an ad hoc basis' rather than in a planned strategic way.

Organization and management

The panel found it difficult to obtain a clear view of the management and leadership structure and of the division of responsibilities. The interaction between the board and the scientific advisory board is unclear.

The leadership role of the school director is unclear. In the interview session, the school management expressed that it had been difficult to engage the various partners because of the high degree of diversity among themes within infection biology and antimicrobials – too many to agree upon a common thematic ground. A general lack of engagement and collaboration of partner institutions was voiced. During the interview, IBA gave no clear views of how to improve or develop the situation.

Coordination, facilitation and national network

The research school management and leadership expressed concerns about lack of ownership and engagement from partner institutions, supervisors and local PhD programmes. There appears to be missing coordination at the research school level, which is supposed to be the leading and coordinating body. The management expressed that it might have been easier (or more practical), in hindsight, to have a central coordination from UiO.

To improve engagement of the partner institutions 50.000 NOK is allocated from the budget to each of the partner universities, although the expected results and impact of this financial support is not discussed.

The PhD candidates on the board are not chosen by the candidate body, although, paradoxically, it is stated that it is difficult to recruit PhD candidates to the board. The influence of the PhD candidates is vague, and a PhD association is lacking.

Activities

From the self-evaluation it seems that many courses are offered the PhD candidates. However, it is difficult to ascertain, which courses actually are driven by IBA except for the mandatory annual meetings. The panel did not obtain clear information about this issue during the interview.

At the annual meetings, the PhD candidate attendance is satisfactorily high. However, the overall level of PhD participation at courses seems to be rather low.

A point of observation is that the number of contributors appears to be higher than the number of participating PhD candidates. Although this foster, in principle, an excellent environment for the attending PhD candidates, it does not seem cost effective and reflecting a healthy situation.

More than 35 postdocs are affiliated to the research school. This is a good thing as long it is beneficial for the PhD candidates who are the primary targets of the funding.

Internationalisation

IBA has given more than 10 mobility grants during the first years. Another example of internationalisation is the collaboration with the national doctoral programme in infection and antibiotics in Sweden. The PhD candidates have full access to the Swedish school and vice versa. The many invited speakers from abroad is also an asset for internationalisation at home. However, whether this in fact increases the networking possibilities for the PhD candidates is unclear. The panel has the impression though that it is most beneficial for the senior researchers.

Future perspectives

The IBA wants to continue the activities with other words fine tuning courses, workshops, annual courses as well as coordinating activities with partner institutions. In addition, the research school will relocate resources from management to strengthen PhD candidate activities. On the other hand, there has been frustration about difficulties in finding a common ground between the partners.

Gender aspects

The board and candidate body has presently a large majority of women, which is certainly laudable, although gender equality in general should be a main goal.

Financial aspects

A very substantial fraction of the budget (59 %) is devoted for salaries to the leadership, the management and the contributors (lecturers and organisers). It would be desirable for the school to present arguments for the benefits ensuing from this (top-heavy) organisation model. In addition, since the funding from the RCN is given for the benefit of the PhD candidates there must be a balance between funding of guest speakers and senior researchers versus funding of the individual PhD candidate e.g. new courses and mobility.

Overall evaluation and recommendations

The midterm report and the interview leave some unanswered questions about crucial aspects of the research school. The panel notes the lack of concrete plans for the future and supporting funding beyond 2024.

On the positive side, the research school offers the affiliated PhD candidates a wide variety of activities and network possibilities, national as well as international. In addition, IBA creates a network between researchers and contributors, who are recruited internationally.

However, the panel was left with the impression that the school has not yet succeeded in engaging the (numerous) partners around a common endeavour. Indeed, it appears that diversity of topics underpinning the scientific scope of the school, has not yet led to defining overarching themes and courses that can benefit all candidates and thus lead to greater mutual understanding and possibly future cooperation.

It appears that there is a need for a strengthened leadership and improved engagement of the members on the steering board to develop a platform for strategic discussions prioritizing concrete thematic areas. Such areas, if properly identified, could constitute the core of future activities. Strategic plans for funding at an international level beyond 2024 should be worked out.

Recommendations

The governance structure must be revised, clarified and formalised. In particular, the division of responsibility between management and the board, and between the board and the scientific advisory board must be made clear, so that there is a leading responsible authority in the school.

Procedures for quality assessment of activities e.g. evaluation of courses should be implemented. IBA must work out a clear plan for courses that can lift the quality, internationalisation, and cross-fertilization within the school's subject area, with goals, methods and timelines.

Partnerships should primarily be based on trust, engagement and influence and a plan of how to improve the interaction and responsibility sharing with partners must be presented.

The budget for a possible subsequent period should be sharpened with more emphasis on activities that benefit the PhD candidates and their training directly, with emphasis on activities that can create common ground.

The IBA research school has had the possibility to comment on the preliminary panel evaluation. The response from the school elaborates on initiatives taken in (late) 2019 by the board to improve the collaboration between partners, from 2020. Likewise, additional clarification regarding the courses is supplied. Unfortunately, this information was not communicated in clear form to the panel neither through the self-evaluation nor at the interview.

The panel would like to request a concise but precise follow-up document from IBA addressing:

1. the concrete initiatives taken to improve partner involvement
2. a list of courses offered by the research school detailing which courses are new and which are existing courses
3. the (motivated) financial plans, including the fraction of the funding allocated to school management (centrally and at the partner institutions) versus the funding to activities and candidate support.

This document will form the basis for the final recommendation from the panel concerning the continuation of IBA.

Good practice

- Running uptake throughout the year and the director and co-director evaluate the applicants for enrolment.

7.9 Petroleum Research School of Norway (NFiP)

Facts about NFiP

- *Operation period:* 01.03.2016 - 31.12.2023
- *Grant:* 23 000 000 NOK
- *Host institution:* University of Bergen (UiB). *Partners:* University of Stavanger (UiS), University of Oslo (UiO), Norwegian University of Science and Technology (NTNU), University of Tromsø – The Arctic University of Norway (UiT), University Center of Svalbard (UNIS). 12 active Memorandums of Understanding (MoUs).
- *Recruitment/enrolment procedure:* Open model, admission procedure for activities only.
- *Candidates:* 179 registered candidates, including 54 women. No information on graduated candidates.
- *Activities:* 32
- *Contributors:* No information.
- *Organization and management:* Board of 11 members, two from each of the five partner institutions and one candidate. Two members at women. Scientific director: 10 % position, coordinator 30 % position, chair 30 % position.

Objectives of the research school

Primary objectives:

- improve and coordinate PhD education in petroleum related sciences
- provide more candidates and improved expertise to the petroleum industry
- provide more efficient teaching by intensive courses for all PhDs from all universities
- improve candidate recruitment from master to PhD within petroleum
- include the smaller research groups in the national network
- provide meeting places and discussion forums, including supervisors
- provide internationally reputational lecturers for all PhD candidates in Norway
- utilizing the international networks of all universities in Norway to provide all PhD candidates international and interdisciplinary collaborative research projects

Secondary objectives:

- improve collaboration on Master studies between the universities graduating PhDs
- improve interdisciplinary collaboration on petroleum research in Norway
- improve collaboration on international petroleum research.

Achievements

The school has, overall, achieved its objectives in terms of formal inclusion of relevant Norwegian universities and they have concluded 12 MoUs with other relevant partners. It seems as if the objective of including smaller research groups in the national network has succeeded. The number of candidates enrolled in the school is healthy (179) and the total number of candidates participating in its activities is impressive (> 1500: MSc and PhD). 15 new courses have been established and a number (7) of other courses are now coordinated by the school.

The improvement of the PhD education is achieved when the research school is offering courses that are not otherwise available at the candidate's own institution. Hence, the candidates end up having a larger course portfolio to choose from. There is a comprehensive international cooperation.

While many of the objectives of the school are met, the network identity among the candidates seems to be relatively weak.

Organization and management

A board with two representatives per university (6) and a PhD candidate representative is established. This one position to the candidates is a minimal solution and it is not clear how the network wants to utilize the candidates in the development of the network. The network has not established a systematic way of developing new activities, i.e. using a bottom-up process. The collaboration between the partners seems to function well. However, there is some 'hiccups' concerning UiB and the payment of honorariums, which evidence questions of principle about which institution (research school or host university) has the competence to make decisions about the school budget.

Coordination, facilitation and national network

The day-to-day management is functioning well. There are minor issues, e.g. examples of some delay in refunding of travel expenses. It may be important to solve this, so it will not lead to other and bigger problems. All the courses have been approved by the PhD study boards at the partner institutions – an indication of good coordination. The future development of both new and current courses might be a challenge, also because key persons in the network are busy.

Activities

The spectrum of activities is impressive and broad – ranging from targeted PhD courses to conferences abroad. The network does not arrange all activities themselves, as they engage and support activities by others, in which case they co-finance. While this expands the numbers of opportunities for the candidates and others in network there is a risk of diluting the profile of the network. Also, the network is open, meaning that all interested candidates and others can participate in the activities. This can create challenges with respect to develop an identity of the network.

There are no specific activities (courses/workshop) for the PhD supervisors. This should be considered, because one purpose of the network is to improve the PhD education.

Internationalisation

A short-term exchange programme (STEP) has been established for candidates to go abroad. 45 candidates have benefitted from this so far.

This is stated as the highest priority of the school followed by providing support for scientific and academic activities in Norway and abroad.

It is noted that securing international teachers was declared with low priority by the school, because the activities abroad provide the necessary exposure. It is not clear, however, if all candidates can benefit from this and a careful assessment of the benefits from inviting foreign lecturers to Norway should be made.

Future perspectives

The continuation of the school seems highly desirable for a country that is an important player in the petroleum and gas sector and has until now derived significant wealth from it. It was stated that the situation with recruiting new candidates is increasingly difficult as the younger generation turns towards non-fossil energy sources and technologies. The needs of Norway and the transition of the educational focus in the energy sector should be carefully evaluated and the teaching portfolio should be adjusted as necessary.

Gender aspects

About one third of the candidates are women. While this seems to be in line with both other science/technological disciplines and the situation in comparable countries, it could be considered how to increase the share of women, e.g. by a more inclusive approach in the network and by increasing the representation in the steering board.

Financial aspects

The budget of the network is higher than most of the Norwegian research school networks as it also includes co-financing of the industry. Until now, the budget has not been fully spent and therefore it is possible – from a financial aspect – to improve the activities of the school.

Overall evaluation and recommendations

The school is operational and has developed an impressive set of activities. The school has some weakness that could be rather easily solved: increased candidate involvement (also formal in the board), targeting the activities to the core members of the network and development of a stronger network identity.

The long-term perspectives of the network and its field should be evaluated, also with respect to recruitment of the best candidates into the sector. The school board can play an active and beneficial role in this regard. Fossil fuels as oil and gas will in the future play a smaller role in the energy supply than today; but it will for a long time still be an important part of the energy system.

Recommendations

The panel suggests that NFIP strengthens the involvement of the PhD candidates and empower them to contribute to the activities.

The research school should focus its network activities on the core members.

The panel recommends that NFIP considers the future perspectives for its activities and prepare the young researchers to work in a global setting in which sustainable energy resources are in focus.

The panel recommends that the Research Council continues funding until 31.12.2023.

Good practise

- All activities have international PhD participation to strengthen international network presently and for the future.
- Short term mobility grants for PhD candidates.

7.10 Norwegian Research School in Bioinformatics and Biostatistics (NORBIS)

Facts about NORBIS

- *Operation period:* 01.04.2015-31.03.2023
- *Grant:* 24 000 000 NOK
- *Host institution:* University of Bergen (UiB). *Partners:* Norwegian University of Life Sciences (NMBU), Norwegian University of Science and Technology (NTNU), Nord University (NU), University of Agder (UiA), University of Oslo (UiO), University of Stavanger (UIS), and University of Tromsø – The Arctic University of Norway (UiT)
- *Recruitment/enrolment procedure:* Open web-based application at the school home page
- *Candidates:* 240 admitted, including 112 women. 57 candidates have completed, including 25 women. No information on doctoral candidates having withdrawn their membership or ended without graduation.
- *Activities:* 49
- *Contributors:* 199 (posters and candidate talks not included)
- *Organization and management:* Steering board of 10 members: 8 members from the partner institutions (one member each), 3 of them women, and 2 candidate members. Scientific Advisory Board (SAB) of 3 members from University of Cambridge, Simula Research Laboratory and University of Oslo (all men). Director in 20 % position, codirector 10 % (in-kind from UiO), coordinator in 100 % position (normal situation).

Objectives of the research school

The NORBIS research school aims to provide a high-quality PhD education through its network of excellent research groups in Norway within the fields of bioinformatics, biostatistics, and systems biology.

The school will educate methods-oriented researchers who will in the next round develop, teach, train, drive, and support use of bioinformatics, statistical genomics and computational biology within the wider area of molecular life science. The school will be highly visible in the international research community in the field, in the society and among relevant industries.

This new arena for research and research education will improve the PhD education, increase the recruitment to this fast-growing scientific field, and give an overall international perspective to the PhD training.

Achievements

The research school has achieved its overall vision of offering PhD courses within the cross-disciplinary fields of biology and statistics in a network consisting of all relevant institutions in Norway. The school has developed a range of new courses. They have 17 courses in the portfolio, which is more than the promised amount (10 courses) in the application. The number of candidates is also beyond the expectations, in total there are 187 PhD candidates enrolled in the school. So, the main objectives of the school seem to be achieved. There are a few (what can be called secondary) objectives – such as creating closer contact to the industry and meeting places for the PhD supervisors – that has not been fully achieved yet. These objectives might be worth to reconsider in the future.

Organisation and management

There is a board with one representative from each of the partner institutions and two PhD candidates as well. The board decides the course programme and hence approves the course content and curriculum. Together with the coordinator of the school, administrative procedures have been developed. The board does also include advice from a scientific advisory board (established by the school to give advice), when the course programme is decided. This seems to function very well. This is one way of securing the quality of the activities of the school. The board meets once per semester and it has during the year also contact via e-mail and Skype. While contacts during the year via e-mail or Skype to smooth the decision-making process on smaller issues are necessary, it could be considered to increase the number of board meetings (for example with one more per semester using Skype/Zoom). The role of the host institution and the administration seems to be large. This can to some extent be necessary in order to make the administration of the school efficient. On the other hand, it runs the risk of not including the partner institutions in the decision-making process and hence over time support and energy can be lost.

Coordination, facilitation and national network

The board has twice a year sent out calls for activities. This has overall functioned very well. The partner institutions have proposed and offered more courses and workshops than needed. The school wants to offer courses that fit into the cross-disciplinary profile. The courses give the candidates a possibility to supplement their course plan. The school has a nice homepage and communicates with the members via e-mail and the homepage. The candidates have asked for other social media channels and the school is working on this.

There is a challenge in coordinating the course supply in relation to the partner institutions' approval process. In addition, there is a lack of participation at the annual conference by the PhD supervisors. These are, however, ordinary and common issues; nevertheless, it is worth to get it solved in the future.

Activities

An impressive set of activities exists in the research school, herein courses and workshops, an annual conference, summer schools, and transferable skills courses (writing courses, communication skills, innovation, etc.). The courses are systematically evaluated by the candidates and the school, and when necessary adjusted by the board in cooperation with the lecturers.

As the school spans a number of scientific fields and hence attracts candidates from different PhD programmes, it has been a "challenge to design courses to fit across the fields and to some extent also to set up the annual conference so that all participants find it relevant and attractive". The school is considering how to give clear communication about the preconditions for each activity. At the annual conference, every PhD candidate has the opportunity to present his or her work and to receive detailed feedback. This seems to be a very successful and a potential fruitful way of scientific interaction between candidates and senior members in the network.

Internationalisation

The school has developed a travel support scheme for candidates who want to go on a research stay at a foreign institution. When needed, the school uses international lecturers at the courses. Beyond this, the internationalisation has not been a focus area. However, a fair number of foreign candidates are attending courses, so the school could consider its international role in the future. Further, the focus of the school is an area where the international research frontier is moving fast. While the

travel support scheme can help candidates that do not receive other grants, which can be a good idea if the candidates are good, it can run the risk to "compete" with the candidates' local support scheme. It can also be questioned whether the school should help candidates that cannot receive funding elsewhere. It might be a good idea to focus the support scheme towards activities not financed by others and where there is a clear value-added for the candidates in relation to the school and its activities.

Future perspectives

The research school will continue its activities, which will also require further funding. There is a need for the cross-disciplinary activities, because ordinary PhD programmes rarely offer such activities. The research field is developing these years and it might be a good idea to secure the PhD education in a national network. The school consists of a core group of candidates and candidates that only follow one or two courses. This gives some issues related to develop an identity and the sense of belonging to a network among the candidates.

Gender aspects

There is nearly equal number of both genders among the PhD candidates. For postdocs the gender distribution is well balanced (44 % male and 56 % female). For supervisors the gender balance is 22 % female and 78 % male.

Financial aspects

There seems to be no special issues. The school can financially support its activities and even pay travel etc. for the members of the school.

Overall evaluation and recommendations

The overall impression of the school is good. The leader and management of the school are reflective, and they have established the school according to the application. The school should now be in the position to take the next steps. The panel notices that the leadership of the school will change in the near future, and it will be important to make this transition as smooth as possible. Some suggestions for improvement are given below.

Recommendations

The panel suggests that the research school strengthens the common research school identity among the candidates and supervisors.

The panel recommends that NORBIS put more focus on internationalisation of the network.

The panel recommends that the scientific profile of courses can be polished, so the background of the candidates fits even better to the content of the courses.

Since the research school has a wish to act within an interdisciplinary learning setting, the panel recommends that lecturers and teachers are trained to do so.

The panel recommends NORBIS to secure (gender) diversity among speakers and other invited guests establishing an inclusive and diverse scientific space in which the female PhD candidates can mirror themselves.

The panel recommends that the Research Council continues funding until 31.03.2023.

Good practise

- The school has established a scientific board to give advice on the quality of the activities.
- At the annual conference, every PhD candidate has the option of presenting their work and to receive detailed feedback.
- NORBIS has established a scientific board as part of quality assessment.

7.11 National interdisciplinary Research School Religion-Values-Society (RVS)

Facts about RVS

- *Operation period:* 01.01.2016-31.12.2023
- *Grant:* 23 400 000 NOK
- *Host institution:* MF Norwegian School of Theology, Religion and Society. *Partners:* University of Oslo (UiO), University of Bergen (UiB), Norwegian University of Science and Technology (NTNU), University of Agder (UiA), University of Tromsø – The Arctic University of Norway (UiT), VID Specialized University, Volda University College (HVo). International partners: Uppsala University, Umeå University, Boston University.
- *Recruitment/enrolment procedure:* Closed model, admission by application.
- *Candidates:* 86, of them 61 women. 7 men and 7 women have graduated. 3 candidates withdrew their membership.
- *Activities:* 86
- *Contributors:* 18
- *Organization and management:* Steering board of 12 people, of them 7 women. Of them 2 PhD candidates. Scientific director in 50 % position, coordinator in 50 % position, assistant coordinator 15 % position.

Objectives of the research school

Primary objective:

1. Create a network of both small and large fragmented research communities in different institutions and disciplines in the field of religion, values, and society, across Norway and Sweden, thereby strengthening doctoral research, education, and international publications.

Secondary objectives:

2. Produce, gather, and guide research on religion and values as formed through social interaction, and view the social dimension in the light of both regional, Nordic and international developments
3. Contribute to the building of cross-disciplinary and cross-institutional networks, providing better opportunities for scientific innovation as well as theoretical and methodical specialization
4. Be a useful supplement to the regular PhD programmes in the member institutions
5. Facilitate coordination and cooperation between the regular PhD programmes in the member institutions
6. Strengthen the participants' international orientation in their research, enabling them to publish their research internationally
7. Improve PhD supervision in the Research School and in the membership institutions
8. Promote new knowledge about central questions within the field in a way that will influence public opinion of these questions.
9. Enable PhD candidates to finish their doctoral degree within the required time, and so to ensure scientific gains for each of the participating institutions.

Achievements

RVS's goal is to build a network of research communities in different institutions and disciplines in the field of religion, values and society in Norway and Sweden in order to strengthen doctoral research, education, and international publications. It is a cooperation between 11 universities and with 86 PhD candidates (2016-2019). RVS is very wide in different ways with several ambitions and

secondary goals. It has worked well and has heightened the quality of doctoral education for the participants.

One of the goals is to be a useful supplement to the regular PhD programmes in the member institutions, but in practice it is more than a supplement including goals for supervision, doctoral dissertations, dialogue with the public opinion, internationalisation and international publishing and courses, summer schools, writings seminars, annual seminars and digital supervisor groups. In the self-evaluation it is said that RVS played an “essential” role in the PhD education for the members, and that some of the PhD candidates said that their identity was bound up with the research school. Still the doctoral candidate must be a part of a PhD programme at the member universities. This might be the main challenge for RVS, but anyhow it is an ambitious school following the goals with different priorities and with leaders showing a great interest developing their research school.

Organization and management

RVS is a continuation of an older research school including seven universities and four new institutions. It is a challenge to make 11 universities in two countries cooperate, but it seems to work well. The task of the board reflects the scope of RVS: most important are strategies for involving and following up the doctoral candidates, academic activities, and internationalisation. Secondly are, among other goals, involving academic staff and supervisors from the member institutions. Most of the members of the board have key roles in RVS’ activities and at the partner institutions, which makes the cooperation work better. The board meets twice a year and discusses the activities and the cooperation between the member institutions.

Each partner institution has one member in the board and the board elects its chair among its members. The chair cannot come from the host institution. To the panel it is a good example of an ambition putting the partners in focus in a research school.

The board has two PhD candidates. This demonstrates a wish to include and even to give PhD candidates more influence and a broader representation. With 11 partners and 86 doctoral candidates it would be a good idea if the practical leadership of the school (scientific director, coordinator and assistant coordinator) create a dialogue group including one candidate from each university meeting a least once a year for getting feedback and new ideas.

Coordination, facilitation and national network

As said, RVS includes 11 universities represented by the faculties in the board. “Religion, value, and society” is a great and very important theme and could embrace many disciplines. However, RVS is a cooperation among academics with focus on religion. To fulfill RVS’s primary objectives, the research school should include other academics in some activities in order to give the candidates a feeling for the greatness of their theme and perhaps even for academic cooperation in the future.

The board members representing the partner faculties have great influence on the activities, and it is obvious that RVS wants it to be so. The scientific director, a coordinator and an assistant coordinator manage everyday administration. However, every activity is situated at different partner universities and for each activity a specific committee is put together in order to organize and host the arrangement (including RVS director, the coordinator and members from the host institution as well as one other RVS institution and one of the PhD board members). It is a good way to decentralize the planning and to engage the partners.

RVS announces applications for membership annually. The PhD candidates are chosen among candidates with interest for religion, value and society having applied for being a member. A

committee makes the decision according to scientific standards. Remembering that they might come from 11 universities all these probably have candidates being accepted and candidates being rejected. The risk for A- and B-groups are great, but again this is a result of a cooperation with that many universities.

Activities

RVS is broad not only in relation to the number of partners, but also in relation to activities. RSV wants to be a supplement, but that is questioned. They have an annual seminar (one day), a summer school (a week) and two courses (a couple of days each). It is mandatory to participate in a course and in the seminar every year. For third year candidates, RVS has made a writing seminar. Every second year, RVS organizes a seminar in Boston together with Boston University as a partner university. In all these activities, many senior scholars participate, including international scholars. All activities have topics. For the panel it is difficult to identify the PhD candidates' contributions and their work with dissertations.

The panel acknowledges the Skype meetings for lesser groups of candidates. It is a good idea to combine this with the traditionally physical meetings, and even to let these groups have more focus on the individual dissertation. RVS has given up this activity but the panel encourages RVS to reconsider this decision since meetings can be held across long geographical distances. Skype meetings may not be the ideal setting for supervising, but more a place for communicating ideas and problems in the work with dissertation. It is probably necessary to rethink about group composition ensuring that all candidates can have a group.

RVS has every year a summer school on Lesbos thought as a mix of scientific and social activities. It is a long way to go, but the panel is convinced that staying together in a location with atmosphere away from home is important for creating an identity and to let discussions take their time.

RVS has some other goals, one about finishing in time another to publish internationally. The panel thinks that these are important goals, which fit well for a research school of RVS's kind with great concern for the education of the PhD candidates. However, the mean to reach these goals is not to find in the activities. It might be a part of the Skype group or perhaps a part of the summer school. It is good even for first year candidates to listen to discussions about how to end what they have just started.

RVS has a very short, but good, education for supervisors (4 hours), and the panel is convinced that meetings among supervisors at the research school's arrangements is good for the quality of the supervision. All activities have written evaluations, and these are used in the development of new activities. Again, the panel wants to stress the idea of creating an organization for PhD candidates in order to obtain more reflections and ideas in a better way. Thus, it will be possible to use more candidates than the two members of the board in the committees. The professional life after the dissertation does not seem to be a part of RVS's work. The panel considers, however, that it is important to have some focus on this and recommend discussing the options for creating an alumni group.

Internationalisation

RVS has established a cooperation with one university in Boston. The purpose is to create internationalisation in everyday life and at the level of the PhD candidates. This is a creative choice and gives the PhD candidates important input and personal reflections and discussions. Anyhow, this is not the same as giving a candidate the possibility to visit a specific international environment, and

even if we understand RVS's choice, the panel wants RSV to consider whether it is possible also to let some candidates go away using a mobility grant from RVS, perhaps only for a shorter time (2-3 weeks).

Future perspectives

The hope for the future is to make the research school Nordic. To connect 11 universities and two countries is a great ambition, the Nordic is even greater. The panel thinks that RVS has worked well with the cooperation issues and really tried to solve problems and develop the cooperation building on the experiences from the older school, but it is worth considering if it is possible to make the existing structure Nordic. We are convinced that the experience of RVS could help a lot, but to make a new Nordic school is not only a question of more partners. The RVS could consider if a Nordic version should be more network and less school orientated. The Nordic aspect might be a good development for a Norwegian group that has worked well together for quite a long time.

Gender aspects

Looking at the total group of candidates, women dominates, 61 women and 25 men. It is perhaps not a problem. But if we look at the number of candidates that have defended their dissertations the ratio is 7 women and 7 men. This might indicate a problem. The panel recommends RVS to explore why it looks as if there are some barriers for women to finish their dissertation and to defend it.

Financial aspects

A major part of the cost paid by RCN is used for PhD activities and that is good. This shows financial input from the partners, as the participating lecturers and teachers add in their own time.

Overall evaluation and recommendations

RVS is an ambitious research school with great concern for doctoral education and for the cooperation between all the partner universities. RVS has a lot of goals and they have had different priority, some of them very high and some almost not existing, but the main goal about creating a better doctoral education has without doubt been in focus all the time and has succeeded.

The main challenge is to realise that RVS is not only a supplement to the regular PhD programme, but is essential for the PhD candidates. Thus, it is important to decide what RVS is to do and what is to be left for the PhD programme in the future.

Recommendations

The panel recommends creating a group for all PhD candidates to improve the representation of PhD candidates making it possible for the school to learn directly from the candidates. Even a lesser dialogue group would be fruitful in this broad research school. A PhD organisation will also act as a back-up for the candidates in the board.

RVS should continue the Skype group to be able to give more space for both the individual PhD candidate and discussions about the dissertation

RVS should consider whether it is possible in some of the activities to give more space for the PhD candidates and their dissertation.

The panel recommends that RVS offers PhD candidates mobility grants to visit important, relevant, research milieus for shorter stay as we assume that longer stays are supported by the enrolling universities.

The panel recommends RVS to work with gender equality in the education, starting with the relation between the genders in connection to PhD candidates defending their dissertation.

RVS should consider how to work with the problem of finishing in time and life after the dissertation, including a creation of an alumni network.

The panel recommends that the Research Council continues funding until 31.12.2023

Good practice

- A writing seminar in the last year of the education that assists the PhD candidate in writing her or his thesis.
- Combination of physical meetings with online activities in different forms of digital learning rooms in lesser and more individually responsive groups.
- Each partner institution has one member in the board and the chair is elected by the board among its members. The chair cannot come from the host institution. This is a good example of an ambition putting the partners in focus in a research school.
- It is even a good idea in relation to cooperation between partners to let activities be planned by a smaller committee with connection to the host of the specific activity.
- The inclusion of an international cooperation partner.
- Retreat on a place away from home institutions to create a room for creating identity and to let discussions take their time.

8 Attachments

Appendix 1 Mid-term evaluation of National Researcher Schools – Survey of doctoral students

The Research Council of Norway is now conducting a mid-term evaluation of 11 national researcher schools. The purpose of the evaluation is to assess how each researcher school has contributed thus far to achieving its respective objectives. The evaluation will also form a basis for learning and sharing of best practice.

In this survey we are asking you to evaluate the programme offered at the researcher school with which you are affiliated. All answers will be treated confidentially and will be presented in a way that prevents identification of individuals. These evaluations will form the basis of a report that will encompass, among other things, good examples and advice to the researcher schools on their future operation. The report will describe the individual researcher schools on a general level.

The survey should take about 20 minutes to complete.

A: Background

1. Name of the researcher school: *pre-filled in*
2. Your gender:
3. Name of institution that administers your PhD programme:
4. When were you admitted to the PhD programme (date and year)?
5. When were you admitted to the researcher school (date and year)?
6. How did you become affiliated with the researcher school?
 - By application.
 - I enrolled upon request.
 - I was automatically accepted via the PhD programme.
 - Other, please describe:
7. Your current affiliation with the researcher school:
 - I am a full member.
 - I have participated in some courses/seminars/meetings.
 - I have completed my degree.
 - I withdrew membership before completing my degree.
 - Other, please describe:

B: Courses, seminars/meetings and other activities

The national researcher schools are to help to enhance the quality and expand the capacity of the cooperating groups, in part by providing doctoral students with a larger course selection and better access to researcher networks and academic supervision. All researcher schools are required to have plans for quality-promoting internationalisation measures.

8. List up to ten courses, seminars/meetings and other activities that have been important for you:

	Activity name	Year
1		
2		
etc.		

9. Approximately how large a proportion of the overall training within your doctoral programme do researcher school activities comprise?

A modest proportion (<40%)	Roughly half (40–60%)	The majority (60–90%)	Practically all training (>90%)

10. Please give your general assessment of the *quality* of the researcher school activities: (Excellent, Good, Neither good nor bad, Poor, Very poor)

11. Please give your general assessment of the *relevance* of the researcher school's activities *for your doctoral work*: (Extremely valuable, Fairly valuable, Of little value, No value).

12. Please give your general assessment of the *relevance* of the researcher school's activities *for your future career*: (Extremely relevant, Relevant, Of little relevance, Not relevant).

13. From which of the following types of activities have you benefitted most? (Please rank from 1 (highest) to 7 (lowest):

	Large seminars/meetings
	Specialised scientific/academic courses
	Courses in general skills (e.g. communication, writing, project management, etc.)
	Personal follow-up and supervision
	International courses and workshops
	Research stays abroad
	Networking with other doctoral students and teachers

14. Do you have any further comments on courses and seminars/meetings? Suggestions for other/new activities at the researcher school? (Enter as free text.)

C: Personal follow-up and supplementary supervision

The formal, regulatory requirements for supervision are an integral part of the doctoral degree programme that admits the individual student. The researcher school may supply measures that strengthen the supervisory function.

15. Has the formal supervision you have received under the doctoral programme been adequate? (Yes, No, Don't know/No opinion)
16. Does/did the researcher school provide personal follow-up or scientific supervision beyond what you receive(d) through the programme that admitted you? (Yes, No, Don't know/No opinion)
17. If yes to #2, please evaluate the quality of the supervision you have received through the researcher school. (Excellent, Good, Neither good nor bad, Poor, Very poor)
18. If yes to #2, to what extent has your future career been addressed? (To an extremely large extent, To a large extent, To some extent, To a small extent, Not at all)
19. Do you have any further comments about the supervision? (Enter as free text.)

D: Network

20. What role has your contact with doctoral students from other institutions played in your doctoral work? (Pivotal positive role, Highly positive role, Somewhat positive role, No role, Negative role)
21. What role has your contact with teachers from other institutions in the network played in your doctoral work? (Pivotal positive role, Highly positive role, Somewhat positive role, No role, Negative role)
22. What role has your contact with international teachers in the network played in your doctoral work? (Pivotal positive role, Highly positive role, Somewhat positive role, No role, Negative role)

E: Internationalisation

23. Please give your general assessment of the researcher school's international profile for all of the following: (Excellent, Good, Neither good nor bad, Poor, Very poor)
 - International student environment
 - Use of experts from international institutions in supervision and instruction
 - Support for travel to scientific/academic activities abroad
 - Opportunities for research stays at institutions abroad
 - Course instructors from international institutions
 - Support for travel for doctoral students from abroad seeking to participate in the researcher training school's activities
 - English as the working language
24. Any further comments on internationalisation at the researcher school: (Enter as free text).

F: Organisation and practical frameworks

25. Please give your general assessment of the researcher school's organisation of activities. (Excellent, Good, Neither good nor bad, Poor, Very poor)
26. To what extent have you as a doctoral student had the opportunity to participate in and influence the design of the researcher school's scientific/academic programme? (To an extremely large extent, To a large extent, To some extent, To a small extent, Not at all)

27. Does the researcher school provide a framework for a good learning environment and beneficial contact with students from other institutions?
28. Any further comments on organisation and practical frameworks: (Enter as free text).

H: Benefits

29. Please rate the role you feel the researcher school has played in the *quality of your doctoral work*. (Pivotal positive role, Highly positive role, Somewhat positive role, No role, Negative role).
30. Which of the following researcher school activities has been most beneficial for you? Please rank from 1 to 8 (most beneficial to least beneficial):
- Scientific courses
 - Other training in researcher-related (general) skills
 - National network
 - International network
 - Supervision and other personal follow-up
 - Participation in international courses and workshops
 - Research stays abroad
 - Other, please specify:
31. Please rate the role you feel the researcher school has played in your ability to complete your doctoral programme. (Pivotal positive role, Highly positive role, Somewhat positive role, No role, Negative role)
32. What role has the researcher school played for your *future career plans*? (Pivotal positive role, Highly positive role, Somewhat positive role, No role, Negative role)
33. What role has the researcher school played for your professional network? (Pivotal positive role, Highly positive role, Somewhat positive role, No role, Negative role)
34. In what areas do you feel the researcher school has the greatest need for improvement? Identify up to three areas. (Enter as free text.)

Additional comments:

Appendix 2 Mid-term evaluation of National Researcher Schools – Survey of partner institutions

The Research Council of Norway is conducting a mid-term evaluation of 11 national researcher schools. The purpose of the evaluation is to assess how each researcher school has contributed thus far to achieving its respective objectives. The evaluation will also form a basis for learning and sharing of best practice.

In this survey we are asking you, as the faculty's/department's representative responsible for doctoral-level training, for your evaluation of various aspects of the researcher school in which your faculty is involved. The survey consists of a series of statements regarding the researcher school that you are asked to agree or disagree with. The survey is intentionally designed to include both negative and positive statements and should take about 15 minutes to complete.

Survey questions for the partner institutions:

To be completed by the dean of research/education who is responsible for the institution's relevant doctoral degree programme(s).

Name of the researcher school: *pre-filled in*

Name of partner institution:

Consider the following statements:

(To a very large extent, To some extent, To a small extent, Not at all, Not applicable/Don't know)

Impacts on the doctoral students

(Quality)

1. The researcher school promotes higher-quality doctoral dissertations.
2. The researcher school provides students with a broad national network.
3. The researcher school provides students with an expanded international network.
4. The researcher school helps to give the students a wider international orientation.
5. The researcher school helps students to form a broader network with the private and public sectors. (Attractiveness)
6. The researcher school helps to encourage more individuals to pursue doctoral-level training (i.e. aids recruitment) at my institution.
7. The researcher school creates a better environment for doctoral-level training at my institution.
8. The researcher school leads more students to complete their doctoral-level training.

(Satisfaction)

9. (Collaboration) The researcher school leads to greater satisfaction among doctoral students.
10. The researcher school helps the students to build a stronger scientific/academic community.
11. The researcher school leads to the division of PhD students in our doctoral programme into groups of best and second-best students.
12. The researcher school enables the students to collaborate more with the academic environment at my institution.

13. The researcher school enables the students to collaborate more with academic groups in Norway.
14. The researcher school enables the students to collaborate more with the international academic community.
15. The researcher school enables the students to collaborate more with working life outside academia.

(Relevance/career)

16. The researcher school enables the students to acquire more relevant expertise.
17. The researcher school strengthens the likelihood of success in an academic career.
18. The researcher school makes the students less attractive for the private and public sectors (outside academia).

Impacts on doctoral-level training

(Quality and renewal)

19. The researcher school has helped to raise the quality of doctoral-level training within its subject area.
20. The researcher school provides more personalised follow-up of students.
21. The researcher school has promoted better academic supervision for students.
22. The researcher school has helped to improve doctoral-level education at my institution.
23. The researcher school drains resources from the regular doctoral-level education.
24. The researcher school has facilitated activities that we would otherwise not have had the capacity or expertise to offer to students.

(Competition and collaboration)

25. There is good collaboration between the researcher school and doctoral degree programme at my institution.
26. The researcher school has a positive impact on the relevant academic environments at my institution.
27. The researcher school carries out its activities in competition with my institution's own doctoral degree programmes.
28. There is potential conflict between formal supervision and the scientific/academic follow-up students receive through the researcher school.
29. My institution had had little benefit from the researcher school overall.

(Strategy clarification)

30. The researcher school has the general support of the academic environment.
31. The researcher school is an important strategic instrument for the institution.
32. The researcher school is not well-suited as a tool for raising the quality of doctoral-level education.
33. My institution supports and facilitates enrolment of relevant students in the researcher school.
34. As dean I am not very involved in researcher school activities.
35. My institution gains little from its investments in the researcher school.



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