

Skjemainformasjon

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Host

Information about host institution and center

Name of centre	CITE
Host institution	NTNU
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About the centre

About the centre

Is the centre already established at the time of application

No

Describe briefly the plans for establishing the centre (maximum 1500 characters)

NTNU Centre for Integrated Teacher Education (CITE)

- Enhancing the relevance of practice and research in teacher education

CITE aims to promote excellent teacher education across Norway, building not only on current integrated teacher education programs, NTNU 5-year integrated teacher education (ITE) programs, but also drawing on the best international research and development activity. In a recent evaluation in connection to NTNU's successful application for EU's 7th framework, the international panel described NTNU's teacher education to be "among the leading in Europe". The four pillars of teacher education are academic subjects, subject matter didactics, pedagogy and practice. In pursuing integrated teacher education, CITE will combine the strength and depth of academic subject departments at NTNU with expertise in subject didactics and pedagogy from these departments, from the Program for Teacher Education (PLU) and from the Unit for University Pedagogy (UniPed). The practice area will be supported by NTNU's advanced school partnership model. CITE's activities will include strengthening the connections between academic departments and teacher education, through the work of researchers from the centre and through dialog with student teachers. The overall goal of CITE is to produce excellent teachers who will create high-quality learning environments in school and thus improve pupils' learning outcomes.

Describe briefly the aims and current as well as planned activities of the centre (maximum 1500 characters)

The NTNU integrated teacher education (ITE) program covers Natural Sciences, Mathematics, Language Studies, Social Sciences, History and Geography. Together with PLU, these departments will collaborate on establishing CITE, led by the FUL inter-program board. CITE will be allocated space on campus and will have a full-time leader, 5 x 50% positions as researchers who are binding elements between CITE and the involved faculties and institutes. The steering system will consist of a discursive community of graduate positions as per budget, an international advisory board and with FUL as the board of CITE. Rector at NTNU is the head of FUL and this ensures that CITE will have a strong position in NTNU. This contribute to a realization of CITEs be a center of excellent education in teacher education. Appointments to positions and the advisory board will be supervised by FUL. NTNU envisages a rapid start to CITE activities, including launch events designed to publicize CITE within NTNU, to its school partners and at national level. A priority task will be to raise the profile of NTNU teacher education research and student R&D projects through a research review led by CITE, with results published on the CITE website. Dissemination will include workshops, bring together teachers and researchers, those from PLU and the faculties, increased use of the annual conferences, as well as relevant journals. We also aim to arrange international conferences in the area of CITE.

Application Document

Application Document

Upload application document

[profile_SFUfinalfinal.pdf](#)

Timeline and budget

Timeline and budget

Upload planned timeline and the activities to be conducted

[timeline_SFUTimeline2.pdf](#)

Upload plan for financial resource acquisition

[financial_SFU Funding.pdf](#)

Upload budget

[SFU COSTS overview and details.pdf](#)

Attachments

Attachments

- profile_SFUfinalfinal.pdf
- financial_SFU Funding.pdf
- SFUKarlsen CV2.pdf
- cv_jas_2011.pdf
- CV_FR_juni11_kort.pdf
- SFUCVBrumo1.pdf
- budget_SFU COSTS overview and details.pdf
- SFUreferences2.pdf

Comments

Comments to the application form (maximum 1500 characters)

NTNU Centre for Integrated Teacher Education (CITE)

- **Enhancing the relevance of practice and research in teacher education**

1: PROFILE AND VISION

We propose establishing a centre of excellence for integrated teacher education (*CITE*) at NTNU, focused on our 5-year integrated teacher education (ITE) programs, with the vision of “*shaping the future education of secondary school teachers by a targeted strengthening of NTNU’s 5 year integrated teacher education programs and related educational research*”.

The success of *CITE* will be achieved through increasing the integration and mutual support activities of the four pillars of teacher education that are the trademark of NTNU’s ITE programs. These provide graduates of the ITE programs at NTNU with a unique blend of qualities: excellent academic subject knowledge and skills; competence in subject specific learning activities and tools; extensive knowledge of pedagogy; theoretical and practical subject didactics competence; strong teaching skills. The candidates apply these qualities to enhancing the learning outcomes of their pupils and developing their own teaching practice. Publications describing the development and impact of innovative methods and tools in ITE are published in highly ranked international scientific journals. Quality in research is also reflected in the large number of PhD and postdoctoral students trained at NTNU. *CITE* activities and approaches will have high national visibility, and *CITE* will be internationally recognized for its development of university-based integrated teacher education. Furthermore, *CITE* will contribute to developing the quality of teaching and learning in other professions and disciplines at NTNU.

The profile of *CITE* will include the disciplines covered by the five ITE programs but will focus on making strong connections between these disciplines, pedagogy, didactics, practice and research across NTNU and beyond. *CITE* will also draw on the strong position of NTNU in technological areas, as well as on its professional learning competence in medicine and architecture.

2: QUALITIES IN ESTABLISHED EDUCATIONAL ACTIVITIES

NTNU is a key institution in teacher education at university level in Norway. High quality integrated 5-year programs are currently offered within the areas of natural sciences, mathematics, language studies, social sciences, history and geography. The ITE programs were established in 2003, but the history of teacher education at NTNU dates all the way back to 1922 and the Norwegian Teacher College in Trondheim. Today, the teacher education programs are the second largest at NTNU by student enrolment, outnumbered only by the master’s programs in technology, and teacher education is one of NTNU’s top priorities in professional education. The ultimate goal for NTNU’s teacher education is to produce excellent teachers who will create high quality learning environments in school and thus improve

pupils' learning outcomes. Since teachers' competence in their academic subjects is crucial to this goal,¹ one of NTNU's key advantages is its long tradition in high level academic subject education.

In 2011, NTNU offers 5 ITE programs: History with Teacher Education, Geography with Teacher Education, Language Studies with Teacher Education, Mathematics and Natural Science with Teacher Education and Social Science with Teacher Education. Each student chooses two academic subjects for the teaching profession. The programs are built on the four pillars of teacher education: academic subjects, subject matter didactics, pedagogy and practice. The strength of the programs rests on the comprehensive integration of these elements, which will be the task of CITE.

Result factors

There is stiff competition to enter the ITE programs, with 2.7 first choice applicants to each position, which raises the admission point limit close to an average of 5.0 school points. These figures are the highest in Norway² and at the level of the technology master's programs. The number of students in the ITE programs has increased continuously from 95 in 2003 to 200 in 2009.³ For example, the Mathematics and Natural Science with Teacher Education program (LUR) is now by far the largest integrated program of its kind in Norway, serving approximately as many students as the combined total for similar programs at all the other universities. In spite of the increased number of students, the required number of points for admission has steadily increased. A survey among students⁴ shows that the LUR program is well known and has a good reputation – the natural choice for someone who wants to be a mathematics and natural science teacher. Similarly, the program Language Studies with Teacher Education has steadily grown since it was started in 2003. After nearly eight years, it is now established as an important and highly prioritized program of study at NTNU, admitting up to 75 students per year.

Students have given consistently good feedback on the academic quality and learning environments of the programs,⁵ based on criteria set by the NTNU quality assurance system (see below). For example, surveys among students in the LUR program show that they experience subject courses as demanding, but at the same time appreciate their depth. The students' learning outcomes are documented through exams and candidate studies, and match the high points scores required for admission.

The relevance of teacher education and its attractiveness in the job market is an important indicator of quality. At NTNU, approximately 25 % of the ITE students have gained positions at their partnership schools (see below), which is very high for the Trondheim area, where the job market for teachers is tight.

Process factors

Four faculties –Humanities (HF), Information Technology, Mathematics and Electrical Engineering (IME), Social Sciences and Technology Management (SVT) and Natural Sciences and Technology (NT) – are responsible for the ITE programs. NTNU has therefore developed a clear

management structure for this educational area, shown schematically in Fig. 1. FUL, the Executive Committee of the Teacher Education, with the Rector as **its chair**, is responsible for strategic development of ITE, including coordination and quality assurance of the ITE programs. FUL approves the structure and specializations in ITE curricula. The Rector appoints the Head of FUL, and the four faculties are represented on FUL by their vice deans for education. Three program councils, each with a host faculty and led by a program leader, are responsible for the detailed planning and quality assurance of curricula, learning outcomes, student activities and evaluation of their respective programs, as well as following up decisions made by FUL. The different departments offering subject specialization in the ITE programs are represented in these councils. Both the program councils and FUL have student and external representatives. The program councils report to FUL through their host faculty.

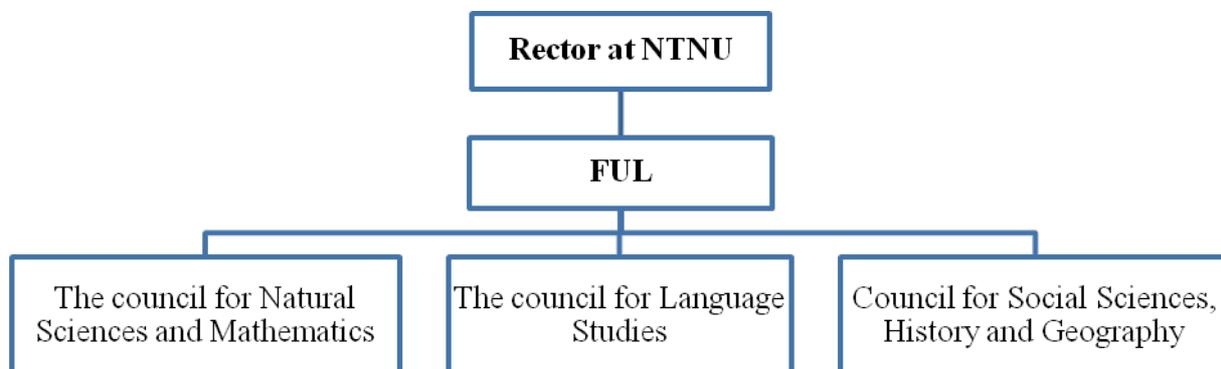


Figure 1: Organizational map showing the management structure of the ITE programs at NTNU.

Academic and administrative coordinators are associated with each of the five ITE programs. This has proved to be important for program quality, since the coordinators have regular contact with the students throughout their studies, and can therefore take rapid action to improve teaching and learning activities if required. In addition to the program coordinators, Program for Teacher Education (PLU) – the academic unit responsible for the teacher training part of the teacher programs (*not* a program in itself) – has an administrative coordinator position shared by *all* the ITE programs.

The students take an active part in developing the programs, promoting quality teaching and education through both responses to evaluations and participation in management bodies. Their commitment is highly appreciated by the boards at various levels, where they contribute new ideas and initiate discussions about NTNU’s institutional policies. They also show their dedication through the ITE students’ associations. ⁶

The systematic quality assurance of the ITE programs follows the yearly cycle described in KVASS.⁷ The departments are responsible for the teaching and evaluation of individual courses. As part of this process, a majority of the courses have student reference groups that provide evaluations, both written and through meetings of student representatives with course leaders. This feedback is used to develop the quality of the courses and programs within the semester, and to further develop the curriculum. The program councils conduct surveys among the students, such as the one referred to for the LUR program above, and ensure that the learning outcomes of the courses are aligned to the learning outcomes of the programs. In addition, individual and group guidance dialogues provide unparalleled opportunities to gather student views on the quality of the program as a whole, and thus secure student influence on the programs. For example, the Social Science program engages in such dialogues during the second semester. FUL monitors quality criteria and common quality issues concerning the ITE programs. The annual quality reports from the ITE programs are approved by FUL, which, in turn, has its report approved by the Rector.

ITE students need to develop *identities* linked both to the academic subject(s) and to teaching as a profession. Therefore, the ITE programs aim to develop strong subject foundations at an early stage. ITE students take classes with students in other professions (e.g. engineering) and disciplines. Foundational activities also include teacher seminars and guidance dialogues, in order to build an ITE student community with a common commitment to, and pride in, teacher education and the teaching profession.

Input factors

Staff Quality

NTNU's Unit for University Pedagogy (UniPed) ensures that all academic staff teaching in the ITE programs have appropriate teaching qualifications, via the Educational Development Program. Most academic subject departments also have staff with research competence in didactics.

ITE programs involve academic departments carrying out research of high quality at an international level. An example is the Department of Mathematical Sciences (IMF). In a recent evaluation of higher education quality by the Centre for Higher Education Excellence, seeking to identify the best master's and PhD programmes in Europe, IMF was the only Norwegian member of the ranking list of excellent mathematics programs.⁸ An expert evaluation of the programs in physics and mathematics in 2008 states that "*The courses are taught at a very high level with emphasis on abstraction and understanding of the subjects. The curriculum in mathematics at NTNU is at the absolute forefront internationally*".⁹ In a recent evaluation of physics research in Norway conducted by the Research Council of Norway, three of the research groups in Department of Physics were rated excellent.¹⁰ Further examples are the Department of Scandinavian Studies and Comparative Literature, one of Norway's most

active research departments with a strong record of high quality publications, and the research group at the Language Acquisition and Language Processing Laboratory at the Department of Modern Foreign Languages, which has been recognised internationally for the high quality of its research in language development and language processing.

Program Design Quality

Courses in the ITE programs are based on the idea of ‘constructive alignment’, with strong connections between learning objectives, student activities and assessment.¹¹ This stimulates accountability, and guides the students towards becoming lifelong learners and autonomous, knowledgeable professionals.¹²

The ITE programs are based on both inductive and deductive approaches to learning and teaching. Teaching is therefore progressively changing, from lectures in large auditoriums to more student-centered dialogic activities in seminars and smaller groups. Consequently, assessment has become increasingly formative. The National Qualification Framework has initiated a full revision of all program plans, and ITE at NTNU is amongst the first teacher education programs in Norway to complete this process.

Teaching and learning quality

All teaching at NTNU is expected to be research-based. The high quality of research within the academic subject areas is one of NTNU's key advantages in developing research based teacher education. The academic staff teach topics close to their areas of research, and students' thesis topics match their supervisors' research profiles. ITE students study and adopt scientific research methods in all courses. There is also a continuous focus on how courses might benefit from research performed by academic staff. For example, there is a separate course on research dissemination in geography. Several of the staff participate by giving lectures on their research projects and how results are conveyed through scientific articles, popular science journals and other media.

For almost 20 years NTNU has developed methods for distance learning, gradually involving e-learning methods to a large extent (for example *Take Credit*, *Ponte Italiano* and *Iveren* for English, Italian and French respectively). This year, the disciplines of Norwegian and English have received NOK 750 000 from Norway Opening Universities (NOU) to develop new forms of technological interaction between students and teachers. This emphasis on innovative technological development of academic strategies directly influences other aspects of the departments' mission, and the process thus becomes influential and inspirational for the academic community. NTNU has in recent years developed a cross-disciplinary research program in learning with ICT (LIKT).¹³

Educational Research and PhD programs

PLU has a PhD program in teacher education, unique to Norway, which currently has 25 students. PLU is also the coordinator for a Nordic research network in science didactics.¹⁴ Faculty of Natural Sciences and Technology has a PhD program in science didactics, which is also unique in Norway. PhD students in didactics have also graduated from the Departments of Chemistry and Mathematical Sciences.

Recently NTNU has established a new research unit (NTNU *Skole- og Læringsforskning*), whose mission is to study on teaching, learning and the school system, in order to establish a knowledge base for the further development of teaching as a profession, and for ITE at NTNU in particular.

NTNU is coordinating the S-TEAM (Science-Teacher Education Advanced Methods) project, in EU Framework Programme 7, with the participation of 26 universities from 15 countries. S-TEAM is disseminating inquiry-based science teaching methods through innovative teacher professional development programs, in order to increase engagement with STEM (Science, Technology, Engineering, Mathematics) subjects.

Partnership and Practice

NTNU began forming partnerships in 1998 and has partnership agreements with 18 lower secondary and 18 upper secondary schools. One coordinator per school has a 15 % position at PLU to administer student placements and to link school practice and academic teaching. The coordinators collaborate for a half-day per week with university staff in planning, implementation and evaluation of practice and on-campus teaching.¹⁵ The schools in each partnership are deliberately grouped to maximize diversity, and 700 in-service teachers are involved in mentoring ITE students. To become mentors, they must undertake training in supervision at PLU. NTNU spends 2.5 times as much on student practice as the average teacher education institution in Norway.¹⁶ As a result of this meticulous guidance, some of the ITE students (5-10% of those accepted per year) decide that the teaching profession is not for them.

Each student has an individual plan for professional development, based on close interaction with academic staff, coordinators and mentors in schools. During the practice pedagogic courses, students are allocated to permanent base groups, with four to five students per group, linked to their personal supervisor. The base group ensures that students have close peer support, shown by research to be essential for effective development.¹⁷ Supervisors carry out practice visits as well as three individual development dialogues each year. Each of the seven partnerships gives a weekly seminar, linking theory to teaching practice. Each partnership also has one school adoption during the final practice period, where all the ITE students in a partnership, the partnership coordinators and academic staff from the university take over the school for a fixed period.¹⁸ The school adoption process gives a flavour of 'real world' practice for the ITE students, whilst the mentors receive in-service training.

To prepare the students for a research-based development of further professional in service practice, *students* need to carry out *research* during their teacher education. Therefore, ITE has established obligatory R&D projects during the student teachers' final placements. The results are presented at an annual conference for students, tutors, mentors and other interested parties, as part of formal assessment. The learning objective is to develop the students' R&D competence, based on theoretical approaches and research-based methods.

NTNU is continuously developing new models to enhance the integration of practice into teacher education and to create closer links to the school system. One example is the PiL (Practice as integrating tool in teacher education) project in language studies and mathematics,¹⁹ which uses the students' experiences during their internship period²⁰ as a basis for reflection, and to encourage a more scholarly approach to their own professional practice. The results indicate that the student participants shift their perspectives away from their own teaching, and towards their pupils' learning, when reflecting upon their practice.²¹ The ongoing evaluation of the project also focuses on how school mentors, coordinators and principals perceive their contribution to the professional education of teachers. This model will be further adapted to other ITE programs.

Collaborators

As the current host of the Norwegian National Graduate School (PhDs) in Teacher Education (NAFOL), NTNU will play a central role in developing Norwegian teacher education on the basis of research findings. NAFOL is organized as a partnership between 7 Norwegian universities and 17 university colleges. At present 43 PhD students participate in NAFOL; the plan is to increase the number of students to 80 within two years.

MNL (Mid-Norway Network for Teacher Education) is a network for regular cooperation between the four teacher education institutions in Mid-Norway. Close contact with school owners is important in order to exchange information on school development, teacher training, and mutual R&D projects. SAFO (*Cooperation Forum with school owners*²²) for Lower Secondary and SAFO for Upper Secondary, connects NTNU staff to selected school owners.

All departments at NTNU have extensive *international collaboration* with leading universities within their subject areas. In teacher education, NTNU collaborates with the University of Washington (USA) Pennsylvania State University (USA), Åbo Akademi University (Finland), the University of Leeds (UK) and Utrecht University (Netherlands).

3: POTENTIAL FOR INNOVATION AND DISSEMINATION

CITE is planned as a resource centre for development of the main elements in ITE in close collaboration with the academic disciplines. The integration of the four pillars in teacher education is the overall challenge for all teacher education at university level in Norway today. *CITE* will develop the necessary focus and commitment to make this integration the basis of excellent teacher education.

The establishment of *CITE* fits well with the current management system and will help it to address current challenges in teacher education. FUL will continue to have overall responsibility for the quality of the ITE programs, whilst the ITE program councils and the respective academic departments will be responsible for implementing the actions proposed in the present document. However, the vision of *CITE* should be shared by all participants, and should thus be developed in line with NTNU's strategic plan for the ITE programs. *CITE* as a physical resource centre will actively support and encourage the targeted pursuit of excellence throughout the academic departments involved in the ITE programs.

The primary tasks of *CITE* will be to:

- A. Support, encourage, and evaluate the development of excellence in teaching and learning activities within the ITE programs;
- B. Support and nurture integration of the four pillars of teacher education (academic subjects, subject matter didactics, pedagogy, and practice);
- C. Coordinate and support relevant educational research within academic departments associated with the ITE programs;
- D. Develop active collaboration with high quality educational centers at selected foreign institutions;
- E. Disseminate the research results associated with *CITE*, and evaluations of the educational models developed in the ITE programs, to other study programs within NTNU and to appropriate national and international forums.

Researchers and postdoctoral/PhD students will develop activities and perform research directed to the five ITE programs, as well as to the practice field. *CITE* will support and coordinate this work, and in addition, the leader of *CITE* and one postdoc/PhD will carry out high-level research into school practice.

Targeted actions and activities under each of these five main areas will be as follows.

A. Development of excellence in teaching and learning activities

- Support and encourage the introduction of innovative teaching technologies, if proven to facilitate better learning outcomes;
- Take initiatives and propose appropriate changes or adjustments of the teaching methods and learning activities to the Head of FUL;
- Evaluate the effect of pioneering teaching and learning activities; take initiatives to implement and coordinate such evaluations.

B. Integration of the four pillars of teacher education

- Support and contribute to further development of the PiL project, with emphasis on covering subject areas not included in the pilot project;
- Take the initiative in proposing (to the Head of FUL) changes in the curricula to enhance the integration of the four pillars of teacher education;
- Coordinate and evaluate actions taken by FUL, the program councils, and the academic departments to promote the enhanced integration of the four pillars of teacher education;
- Host workshops and working seminars to promote actions that may improve the quality of teaching and learning activities, with emphasis on all four pillars of teacher education.

C. Performing relevant educational research

- Coordinate and encourage the development of didactical research in academic departments on teaching and learning activities in academic subjects;
- Take initiatives to develop other relevant educational research projects, for example to investigate how recent entrants to teaching evaluate their teacher education, and how principals and school owners evaluate this education (This will be a focus for selected PhD and postdoctoral projects);
- Develop collaboration with the Program for Research on Learning with ICT (utilizing high quality e-learning environments at NTNU);
- Develop research within the EU Science-in-Society project S-TEAM, where innovative teaching methods within STEM subject areas have been identified, developed and disseminated, and which is part of a network of leading teacher education institutions in Europe;
- Initiate and develop research within NAFOL and the school research unit “*Skole og Læringsforskning*”.

D. International collaboration

- Establish and develop collaboration and exchanges of academic staff with similar centers at foreign institutions;
- Use the connections established in S-TEAM to access relevant, innovative research and contacts;
- Nurture and support a strong international profile of the research activities associated with *CITE* in order to be at the forefront of international educational research.

E. Dissemination plan

CITE will conduct dissemination within NTNU through

- The *CITE* researchers’ link to their respective departments and faculties;
- The existing systems of educational development at NTNU, including UniPed;
- A minimum of one workshop per semester for staff of ITE programs and other study programs;

- Dissemination of results from *CITE* to students in formal and informal forums;

Regionally, *CITE* will

- Present results at the annual student teacher *FoU i Praksis* conference;
- Encourage students to lead seminars at practice schools, to publicize results of their R&D projects and discuss possible consequences for school development;
- Present results at least once per semester at the forums for school owners (SAFOs);
- Disseminate results to the public through a minimum of five actions per semester.

Nationally, *CITE* will:

- Host an annual workshop, focusing on teacher education, for all teacher educators in Norway;
- Present thematic elements in plenary or round table discussions at the annual “*FOU i Praksis*” Conference in Trondheim;
- Increase the focus on teacher education in courses and PhD research projects within NAFOL.

Internationally, *CITE* will:

- Exchange PhD/postdoc students and academic staff, through NTNU’s international contacts;
- Present and discuss experiences and research within the S-TEAM network, as a source of inspiration and new knowledge;
- Present research at international conferences and in peer-reviewed scientific journals.

(See also the time line attached to this application).

4: ORGANISATIONAL PLAN

Geir Karlsen, professor of pedagogy, will lead *CITE*. He plays a key role in many new initiatives and changes in teacher education at NTNU, and leads a number of national and international research and development projects in education. The leader of *CITE* reports to the Head of FUL, which will serve as the board for *CITE*. This organization ensures a direct link between *CITE* and the management structure for the ITE programs (see p.3 and fig 1, above). To support and advise the *CITE* leader, there will be a working group which meets weekly with representatives of the academic staff from each of the four faculties participating in *CITE* and contributing to the ITE programs. *CITE* will furthermore have an international advisory board with outstanding researchers in teacher education. PhD and Postdoctoral students will be linked to NAFOL and supervised by academics from the respective departments involved in ITE.

NTNU Centre for Integrated Teacher Education (CITE)

- Enhancing the relevance of practice and research in teacher education

Endnotes

1. See e.g. Falch & Naper (2008); Nordenbo et al (2008)
2. NTNU (2010)
3. Information from Felles Studentsystem (FS) <http://www.ntnu.no/adm-sa-sfs/systemer>
4. Conducted in the academic year 2010-2011
5. NTNU (2010)
6. See :ERUDIO - <http://www.erudiontnu.org/> and SPANSKRØRET-
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7. KVASS: <http://www.ntnu.edu/studies/education-quality>
8. <http://www.excellenceranking.org/eusid/EUSID>
9. Hansen (2008, s.6)
10. NOKUT review of physics departments:
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11. Biggs, 1996
12. Kansanen, 1997
13. LIKT: Læring og Informasjons- og kommunikasjonsteknologi: <http://www.likt.ntnu.no/>
14. NorSED; <http://www.naturfagsenteret.no/binfil/download.php?did=6911>
15. Ramberg &Haugaløkken (2005)
16. Rambøll Management (2007)
17. McNally & Blake (2009)
18. Haugaløkken & Ramberg (2005)
19. Slettbakk *et al* 2011
20. When students spend a whole semester in school
21. Slettbakk *et al* 2011.
22. The Norwegian term 'school owners' is equivalent to a school board of governors or local authority governing council in other national contexts.

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Timeline for CITE with activities and milestones (*in bold italic*) for two periods of five years each

YEAR	1st quarter	2nd quarter	3rd quarter	4th quarter
2012	<ul style="list-style-type: none"> - <i>Official opening of CITE</i> - first year plan; dissemination, press profile and actions taken - first postdoc starts - information to the regional contacts; SAFOs, MNL - researchers from each of four involved faculties - members for an advisory board 	<ul style="list-style-type: none"> - <i>advisory board meeting; strategic plan on developing ITE, (tasks A-E in the application) for the first 5-year period</i> - CITE website established - the conference “FOU i Praksis” - the student R&D-project conference - <i>FUL decides the strategic plan on developing ITE (tasks A-E in the application) for the first 5-year period</i> 	<ul style="list-style-type: none"> - internal dissemination workshops at NTNU, including ITE and other educational programs - information to the regional contacts; SAFOs, MNL 	<ul style="list-style-type: none"> - Workshop with invited academics and leaders from all teacher training institutions in Norway - First PhD starts - international student and researcher exchange for the next year initiated
2013	<ul style="list-style-type: none"> - information to the regional contacts; SAFO, MNL - second postdoc starts - second PhD starts - internal dissemination workshops at NTNU, including ITE and other educational programs - Annual report from Centre leader to FUL on activity, achievement and activity plan for the next 12 months 	<ul style="list-style-type: none"> - the conference “FOU i Praksis” - the student R&D-project conference - advisory board meeting; activity and dissemination 	<ul style="list-style-type: none"> - information to the regional contacts; SAFOs, MNL - internal dissemination workshops at NTNU, including ITE and other educational programs 	<ul style="list-style-type: none"> - Workshop with invited academics and leaders from all teacher training institutions in Norway - International student and researcher exchange for the next year initiated

YEAR	1st quarter	2nd quarter	3rd quarter	4th quarter
2014	<ul style="list-style-type: none"> - information to the regional contacts; SAFOs, MNL -third PhD starts - internal workshops at NTNU, including ITE and other educational programs - 2,5 year evaluation on development of teaching and learning (external evaluator) - Annual report from Centre leader to FUL on activity, achievement and activity plan for the next 12 months 	<ul style="list-style-type: none"> - the conference “FOU i Praxis” - the student R&D-project conference 	<ul style="list-style-type: none"> - advisory board meeting; 2,5-year evaluation and revised strategic plan - information to the regional contacts; SAFOs, MNL - internal dissemination workshops at NTNU, including ITE and other educational programs 	<ul style="list-style-type: none"> - National conference on educational research and development - First postdoc finished - Based on the 2,5-year evaluation, FUL decides a revised strategic plan on developing ITE (tasks A-E in the application) for the second half of the first 5-year period - International student and researcher exchange initiated for the following year.
2015	<ul style="list-style-type: none"> - information to the regional contacts; SAFOs, MNL - internal dissemination workshops at NTNU, including ITE and other educational programs - Annual report from Centre leader to FUL on activity, achievement and activity plan for the next 12 months 	<ul style="list-style-type: none"> - the conference “FOU i Praxis” - the student R&D-project conference 	<ul style="list-style-type: none"> - information to the regional contacts; SAFOs, MNL - advisory board meeting; activity and dissemination - internal dissemination workshops at NTNU, including ITE and other educational programs - first PhD finished 	<ul style="list-style-type: none"> - Workshop with invited academics and leaders from all teacher training institutions in Norway - International student and researcher exchange initiated for the following year. - Second postdoc finished - Second PhD finished
2016	<ul style="list-style-type: none"> - information to the regional contacts; SAFOs, MNL - internal dissemination workshops at NTNU, including ITE and other educational programs - Annual report from Centre leader to FUL on activity, achievement 	<ul style="list-style-type: none"> - the conference “FOU i Praxis” - the student R&D-project conference - summative evaluation on the first 5-year period on integration of the four pillars in teacher education 	<ul style="list-style-type: none"> - information to the regional contacts; SAFOs, MNL - internal dissemination workshops at NTNU, including ITE and other educational programs - advisory board meeting; based on the summative 5-year 	<ul style="list-style-type: none"> - international conference on educational research - Third PhD finished - FUL decides the 5-10 year strategic plan on developing ITE (tasks A-E in the application)

YEAR	1st quarter	2nd quarter	3rd quarter	4th quarter
	and activity plan for the next 12 months		evaluation on integration of the four pillars in teacher education the board discuss the 5-10 year strategic plan	
2017	- Annual report from Centre leader to FUL on activity, achievement and activity plan for the next 12 months - third postdoc starts - information to the regional contacts; SAFOs, MNL	- the conference "FOU i Praksis" - the student R&D-project conference	- internal dissemination workshops at NTNU, including ITE and other educational programs - information to the regional contacts; SAFOs, MNL - advisory board meeting; dissemination and activity	- Workshop with invited academics and leaders from all teacher training institutions in Norway - Fourth PhD starts - International student and researcher exchange initiated for the following year.
2018	- information to the regional contacts; SAFO, MNL - fourth postdoc starts - fifth PhD starts - internal dissemination workshops at NTNU, including ITE and other educational programs - Annual report from Centre leader to FUL on activity, achievement and activity plan for the next 12 months	- the conference "FOU i Praksis" - the student R&D-project conference	- information to the regional contacts; SAFOs, MNL - internal dissemination workshops at NTNU, including ITE and other educational programs - advisory board meeting; activity and dissemination	- Workshop with invited academics and leaders from all teacher training institutions in Norway - International student and researcher exchange initiated for the following year
2019	- information to the regional contacts; SAFOs, MNL - sixth PhD starts - internal dissemination workshops at NTNU, including ITE and other educational programs	- the conference "FOU i Praksis" - the student R&D-project conference	- information to the regional contacts; SAFOs, MNL - advisory board meeting; 7,5-year evaluation and revised strategic plan on development of teaching and learning activities	- National conference on educational research and development - Third postdoc finished - based on the 7,5-year evaluation FUL decide the strategic plan on

YEAR	1st quarter	2nd quarter	3rd quarter	4th quarter
	<ul style="list-style-type: none"> - 7,5 year evaluation on development of teaching and learning activities (external evaluator) - Annual report from Centre leader to FUL on activity, achievement and activity plan for the next 12 months 		<ul style="list-style-type: none"> - internal dissemination workshops at NTNU, including ITE and other educational programs 	<p><i>developing ITE (tasks A-E in the application) for the first 5-year period</i></p> <ul style="list-style-type: none"> - International student and researcher exchange initiated for the following year.
2020	<ul style="list-style-type: none"> - information to the regional contacts; SAFOs, MNL - internal dissemination workshops at NTNU, including ITE and other educational programs - Annual report from Centre leader to FUL on activity, achievement and activity plan for the next 12 months 	<ul style="list-style-type: none"> - the conference “FOU i Praksis” - the student R&D-project conference 	<ul style="list-style-type: none"> - information to the regional contacts; SAFOs, MNL - advisory board meeting; activity and dissemination - internal dissemination workshops at NTNU, including ITE and other educational programs - <i>fourth PhD finished</i> 	<ul style="list-style-type: none"> - Workshop with invited academics and leaders from all teacher training institutions in Norway - <i>Fourth postdoc finished</i> - <i>Fifth PhD finished</i>
2021	<ul style="list-style-type: none"> - information to the regional contacts; SAFOs, MNL - internal dissemination workshops at NTNU, including ITE and other educational programs - Annual report from Centre leader to FUL on activity, achievement and activity plan for the next 12 months 	<ul style="list-style-type: none"> - the conference “FOU i Praksis” - the student R&D-project conference - summative evaluation on the integration of the four pillars in teacher education (external evaluator) 	<ul style="list-style-type: none"> - information to the regional contacts; SAFOs, MNL - <i>advisory board meeting; summative 10-year evaluation</i> - internal dissemination workshops at NTNU, including ITE and other educational programs 	<ul style="list-style-type: none"> - <i>international conference on educational research</i> - <i>Sixth PhD finished</i> - <i>Centre leader reports to FUL on the summative 10- year evaluation</i>

At the meetings in NAFOL and S-TEAM:

- Information at meetings in NAFOL once a year and contribution on courses where the theme fits CITE's R&D-activity
- Information in S-TEAM forums once a year

Give presentations at international conferences

Reports in accordance with NOKUTs plan

Tall i 1000NOK

	COSTS										Total
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
Direkte og indirekte kostnader PhD	231	1 928	3 001	2 870	1 075	285	2 368	3 697	3 511	1 319	20 286
Direkte og indirekte kostnader Post.doc	960	2 000	2 080	1 090	0	1 180	2 460	2 560	1 340	0	13 670
Management	1 300	1 360	1 420	1 490	1 550	1 620	1 700	1 770	1 850	1 940	16 000
Other Personell	3 170	3 280	3 390	3 510	3 620	3 740	3 880	4 010	4 160	4 310	37 070
Procurement of R&D services	0	0	0	0	0	0	0	0	0	0	0
Equipment	0	0	0	0	0	0	0	0	0	0	0
Other operating expenses	1 420	1 420	1 420	1 420	1 420	1 420	1 420	1 420	1 420	1 420	14 200
Total	7 081	9 988	11 311	10 380	7 665	8 245	11 828	13 457	12 281	8 989	101 226

Detaljert budsjett PhD (årsverk føres her)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Enhet
Phd 1		1	1	1							NT
Phd 2			1	1	1						HF
Phd 3	0,25	1	1	0,75							IME
Phd 4							1	1	1		NT
Phd 5								1	1	1	HF
Phd 6						0,25	1	1	0,75		IME
Phd 7											
Phd 8											
Phd 9											
Phd 10											
Phd 11											
Phd 12											
Phd 13											
Phd 14											
Phd 15											
Phd 16											
Phd 17											
Phd 18											
Phd 19											
Phd 20											
Phd 21											
Phd 22											
Phd 23											
Phd 24											
Phd 25											
Phd 26											
Phd 27											
Phd 28											
Phd 29											
Phd 30											
Totalt årsverk Ph.D	0,25	2	3	2,75	1	0,25	2	3	2,75	1	

Detaljert budsjett Post.doc (årsverk føres her)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Enhet
Post.doc 1	1	1	1								SVT
Post.doc 2		1	1	1							SVT
Post.doc 3						1	1	1			SVT
Post.doc 4							1	1	1		SVT
Post.doc 5											
Post.doc 6											
Post.doc 7											
Post.doc 8											
Post.doc 9											
Post.doc 10											
Post.doc 11											
Post.doc 12											
Post.doc 13											
Post.doc 14											
Post.doc 15											
Totalt årsverk Post.doc	1	2	2	1	0	1	2	2	1	0	

Detaljert budsjett ledelse (beløp føres her)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Enhet
Center leader	1 300	1 360	1 420	1 490	1 550	1 620	1 700	1 770	1 850	1 940	SVT
Totale kostnader ledelse	1 300	1 360	1 420	1 490	1 550	1 620	1 700	1 770	1 850	1 940	

Detaljert budsjett annen personell (beløp føres her)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Enhet
Researcher 1 (ltr 77, 50%)	650	680	710	745	775	810	850	885	925	970	SVT
Researcher 2 (ltr 77, 50%)	650	680	710	745	775	810	850	885	925	970	NT
Researcher 3 (ltr 65, 50%)	510	535	560	585	610	635	665	695	730	760	IME
Researcher 4 (ltr 65, 50%)	510	535	560	585	610	635	665	695	730	760	HF
Visiting researchers	850	850	850	850	850	850	850	850	850	850	SVT
Totale kostnader annen personell	3 170	3 280	3 390	3 510	3 620	3 740	3 880	4 010	4 160	4 310	

Detaljert budsjett Kjøp av FOU tjenester (beløp føres her)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Enhet
Totale kostnader kjøp av FOU tjenester	0	0	0	0	0	0	0	0	0	0	0

Detaljert budsjett utstyr	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Enhet
Totale kostnader utstyr	0	0	0	0	0	0	0	0	0	0	0

Detaljert budsjett andre kostnader	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Enhet
Conferences and workshops	450	450	450	450	450	450	450	450	450	450	SVT
Other operating expences	700	700	700	700	700	700	700	700	700	700	SVT
House rental	270	270	270	270	270	270	270	270	270	270	SVT
Totalt andre direkte kostnader	1 420	1 420	1 420	1 420	1 420	1 420	1 420	1 420	1 420	1 420	1 420

Plan for financial resource acquisition:

According to the attached budget NTNUs contribution will be 26,9 mill (58%) including Phd's and postdocs, administration costs and house rental. From NOKUT we are budgeting with the announced grant of 4 mill. pr. year, with a total sum of 19,6 mill (42%). We have used the principles for budgeting of Centre of Excellent Research and the details is expressed in detail in the attached budget. All the sums are for the first 5 years. We have also made a budget for the next 5 years in accordance to the NOKUT call.

Tall i 1000NOK

	Funding plan										Sum
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
Own financing	3 959	6 043	6 900	6 040	3 910	4 187	6 637	7 638	6 640	4 143	56 097
Other public funding	0	0	0	0	0	0	0	0	0	0	0
Other private funding	0	0	0	0	0	0	0	0	0	0	0
International funding	0	0	0	0	0	0	0	0	0	0	0
NOKUT	3 122	3 945	4 411	4 340	3 755	4 058	5 191	5 819	5 641	4 846	45 129
Total	7 081	9 988	11 311	10 380	7 665	8 245	11 828	13 457	12 281	8 989	101 226

Detaljert budsjett egeninnsats

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Enhet
Egeninnsats SO PhD (årsverk føres her)											
SO PhD 1		1	1	1							NT
SO PhD 2			1	1	1						HF
SO PhD 3	0,25	1	1	0,75							IME
SO PhD 4							1	1	1		NT
SO PhD 5								1	1	1	HF
SO PhD 6						0,25	1	1	0,75		IME
SO PhD 7											
SO PhD 8											
SO PhD 9											
SO PhD 10											
Sum SO PhD	143	1 180	1 810	1 699	625	166	1 370	2 095	1 974	730	

Egeninnsats SO Post.doc.(årsverk føres her)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Enhet
SO post.doc 1	1	1	1								SVT
SO post.doc 2		1	1	1							NTNU sentral
SO post.doc 3						1	1	1			SVT
SO post.doc 4							1	1	1		NTNU sentral
SO post.doc 5											
SO post.doc 6											
SO post.doc 7											
SO post.doc 8											
SO post.doc 9											
SO post.doc 10											
Sum Post.doc	649	1340	1380	710	0	755	1560	1600	825	0	

Egeninnsats veiledning											Enhet
Veiledning PhD 1	0	84	87	91	0	0	0	0	0	0	0 NT
Veiledning PhD 2	0	0	87	91	95	0	0	0	0	0	0 HF
Veiledning PhD 3	20	84	87	68	0	0	0	0	0	0	0 IME
Veiledning PhD 4	0	0	0	0	0	0	104	109	114	0	0 NT
Veiledning PhD 5	0	0	0	0	0	0	0	109	114	119	0 HF
Veiledning PhD 6	0	0	0	0	0	25	104	109	86	0	0 IME
Veiledning PhD 7	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 8	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 9	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 10	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 11	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 12	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 13	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 14	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 15	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 16	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 17	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 18	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 19	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 20	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 21	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 22	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 23	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 24	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 25	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 26	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 27	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 28	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 29	0	0	0	0	0	0	0	0	0	0	0
Veiledning PhD 30	0	0	0	0	0	0	0	0	0	0	0
Sum Egeninnsats veiledning PhD	20	168	261	250	95	25	208	327	314	119	

Annen egeninnsats (Beløp føres her)											Enhet	
Cash Sentralt	500	500	500	500	500	500	500	500	500	500	500	NTNU sentrali
Cash SVT	500	500	500	500	500	500	500	500	500	500	500	SVT
Cash NT	500	500	500	500	500	500	500	500	500	500	500	NT
Cash IME	500	500	500	500	500	500	500	500	500	500	500	IME
Cash HF	500	500	500	500	500	500	500	500	500	500	500	HF
Husleie	270	270	270	270	270	270	270	270	270	270	270	NTNU sentrali
Dekker 20 % av totale OH kostnader												
Center leader	104	109	114	119	124	130	136	142	148	155	155	SVT
PhD 1		65	68	71			81	85	88			NT
PhD 2			68	71	74			85	88		92	HF
PhD 3	16	65	68	53		19	81	85	66			IME
Post doc 1	73	76	79			90	94	98				SVT
Post doc 2		76	79	83			94	98	103			SVT
Researcher 1	52	54	57	60	62	65	68	71	74		78	NT
Researcher 2	52	54	57	60	62	65	68	71	74		78	SVT
Researcher 3	41	43	45	47	49	51	53	56	58		61	HF
Researcher 4	41	43	45	47	49	51	53	56	58		61	IME
Totalt egeninnsats	3 959	6 043	6 900	6 040	3 910	4 187	6 637	7 638	6 640	4 143		

Detaljert budsjett annen offentlig finansiering	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Totalt annen offentlig finansiering	0	0	0	0	0	0	0	0	0	0

Detaljert budsjett annen privat finansiering	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Totalt annen privat finansiering	0	0	0	0	0	0	0	0	0	0

Detaljert budsjett internasjonal finansiering	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Totalt internasjonal finansiering	0	0	0	0	0	0	0	0	0	0

Søkes NOKUT	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	3 122	3 945	4 411	4 340	3 755	4 058	5 191	5 819	5 641	4 846
Totalt	3 122	3 945	4 411	4 340	3 755	4 058	5 191	5 819	5 641	4 846

Geir Karlsen

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Born: 25/7 1956

Married, 4 children



Profile

Philosophy of education, dramaturgy, religion and education,

Education

Dr. philos: Norwegian University of Science and Technology (2003)

“Møtets etikk og estetikk. Betragtninger om et alternativt lærerideal”.

Cand. polit: University of Trondheim (1989)

Allmennlærer: Trondheim Lærerhøgskole (1989)

Peer-reviewed publications

> Karlsen, Meistad, Mescherova: "Religious change in Northern Norway during the 1990s: 1, *Skolen arena for verdiformidling eller verdiforvirring*. Artikkel i Religion og Livssyn 1/91. 5s. **Vedlegg 9.**

> Zakariassen og Karlsen: En høgskolepedagogisk teoriplattform (A theory foundation for university pedagogy). HIF research 1994:1.

> Zakariassen og Karlsen: Fortelling og evaluering. Fortelling som evalueringsredskap i høgskolepedagogikken. (Narrative and evaluation. Using narrative as an evaluation tool in university pedagogy). Hif research 1995:1.

> Zakariassen and Karlsen: Høgskolepedagogikk med liv og lyst. Sluttrapport fra prosjektet "Alt henger sammen. Kanskje vil det gå bra til slutt". (University pedagogy with heart and soul. End report from the project "Everything is connected. Maybe in the end it will

be alright"). HIF research 1996:6

.> Å starte en prosess. Erfaringer fra oppstartfasen av prosjektet

"Motivasjon i skolen". HIF research 1998:4.

> Changing times and the consequences for the social structures in the North. Alta: Høgskolen i Finnmark 1999.

> Mellom engasjement og beherskelse. Om stoisismen som utgangspunkt for emosjonell overlevelse i organisasjoner med dysfunksjonelle trekk. *Norsk pedagogisk tidsskrift* 1999

> Møtets etikk og estetikk. Betragtninger om et alternativt lærerideal.. Trondheim: Norges Teknisk Naturvitenskapelige Universitet 2002. ISBN 82-471-5142-1. 599 s.

> Om muligheten for å reformulere en pedagogisk etikk frigjort fra utopi. *Nordisk pedagogik* 2004;24

> Dramaturgi og didaktikk - mellom i og om. Et forsøk på å utvide undervisningens semiotikk.

<http://www.alt.hist.no/fou2004/paper/rapport/ALTrapport13.pdf>

> (How) can Religion contribute to a disclosure of Pedagogy in late modernity? Paper at Nordic Educational Research Association. Reykjavik 2004

> The Potential of Vulnerability. Challenges in personal teaching. PESGB <http://k1.ioe.ac.uk/pesgb/z/Karlsen.pdf> (2004)

> From Negative Theology to Negative Pedagogy? Impacts of Derrida's Deconstruction of Religion to Pedagogy. Paper at European Conference on Educational Research; Dublin 2005.

> Dramaturgi og iscenesettelse som utgangspunkt for fremmedspråkundervisning. (Dramaturgy and staging as a starting point for foreign language teaching) *PPU-serien* 2005(25)

> Teaching – the significance of improvisation and spontaneity. Paper at Nordic Educational Research Association. Oslo 2005

> Skolen I klem mellom det hellige og det sekulære. Paper på konferansen FoU i Praksis 2006.

- > Stilt overfor det som ennå ikke er. I: Steinsholt og Sommero (red): Improvisasjon. Kunsten å sette seg selv på spill. Damm forlag 2006.
- > Improvisasjon og undervisning innen rammen av lærerutdanning. Nordisk lærerutdanningskongress; 2006
- > Lærerutdanningens læreridealer - og noen alternativer. *Pedagogiska fakulteten vid Åbo Akademi, Blå (rapport)* 2006; Volume 17
- > Religion and pedagogy inspired by a journey to the Tuva-republic. Paper at NERA (Nordic Educational Research Association); Turku; 2007.
- > Karlsen & Ramberg: Practice as a pivotal point for a teacher education with relevance? Some experiences and challenges from a Norwegian perspective. Paper at FERA (Finnish Educational Research Association Conference); Vaasa, 2007.
- > Karlsen et al: Writing as a tool in school development. Article in cooperation with the Norwegian Educational Directorate (2008)
- > Nærhetsetikk for skoleledere. I: *Skoleledelse. Betingelser for læring og ledelse i skolen..* Tapir Akademisk Forlag, 2009
- > Karlsen & Haugaløkken: Religion, democracy and schooling. An attempt to frame the survey of Norwegian teachers' attitudes towards Muslim issues within some aspects of the ongoing philosophical debate on secularism and democracy. ECER (European Conference on Educational Research), 2009, Vienna
- > Karlsen et al: Teacher Attitudes Toward Muslim Student Integration into Civil Society. I: *Handbook on International Studies in Education.* Information Age Publishing, 2010
- > Vitensformer I estetisk praksis (Østern, Angelo Karlsen eds): "Påtrengende provokasjon som innfallsport til å koble elevene på" (n press).

In addition to this I have participated in numerous interviews and articles in the popular media. I have also participated in radio programs, and I have given many lectures and seminars for teachers and politicians.

Experience

2007-date: Professor, Program for Teacher Education (PLU), Norwegian University of Science and Technology.

1999 – 2007: Associate professor, Program for Teacher Education.

2005 – 2010: Deputy head of department, research leader.

1999: Associate professor of University pedagogy at Østfold University college.

1989-1999: Assistant professor at Finnmark university college.

1997-1999: Vice dean

1980-1989: School teacher

Projects

- School-motivation in Finnmark. Action research.
- Trommen (Buben) Theatre-project/action research in Narjan Mar, Russia and Alta, Norway.
- University pedagogy and teacher education, Finnmark university college.
- Dramaturgy and foreign language teaching. NTNU.
- Transe-Siberia. Participation at an international theatre/research group in the Tuva Republic, Siberia.

Recent research

- > Leading the S-TEAM consortium from 26 different universities under EU's FP7.
- > I have also recently led a national project about pedagogy in Norwegian teacher education, initiated by the Norwegian National Council for Teacher Education.
- > Participated in The Folk High School project (2010).

Other

I supervise several master's and two PhD students. Currently I am an 'opponent' [external examiner] for three theses. I am in charge of a PhD course "Philosophy and research".

Member of the advisory board of NAFOL (National school for research in teacher education)

School projects

2002-2004 *Alle barn er alles barn*. Prosjektveileder Barman skole.

2007-2009 *Fra stykkevis og delt til helt*. Prosjektveileder Eberg skole.

2007-2009 *Elever på banen*. Prosjektveileder Byåsen videregående skole.

The last two supervision projects were financed through the Norwegian Directorate for Education and Training

Research and professional profile

1. Initiatives, research and development in university education in general and specifically in teacher education.

In this area, which I regard as crucial for the CITE leader, I have published scientific articles and books, and have been working with initiatives, changes and evaluations in teacher education.

- I took the initiative and was the leader of the national/international conference "Research and development in Practice". The conference mainly addresses researchers from teacher education.
- In connection to the conference I – together with others – took the initiative to establish the journal "R&D in practice", a refereed journal, of which I was one of the editors for three years.
- I have – together with a college at the Finnmark University College – worked with a project in university pedagogy, a action research project resulting in three reports as listed in the publication list.
- I had the idea and took the initiative for the student teacher R&D annual conference

- I took the initiative in a project connecting dramaturgy and teacher education in foreign languages. This was a project in cooperation with colleagues from three different foreign languages areas. We also cooperated with a professional dramaturge. The project has been presented at different conferences and has produced a final report, as shown in the publication list.
- The PiL-project (described in the application), was initiated by me, and I was responsible for its framework and design, both nationally and locally at NTNU.

2. Initiatives and work with competence plans and development and qualification in teacher education. In my role as deputy head and research leader at the programme for teacher education I had the responsibility for developing such plans. Several initiatives were taken such as:

- Creating and establish a separate program for qualifying as an associate professor without a doctorate. (In Norway this method of qualification is called “førstelektor”)
- Initiating the research unit “SKOLE” (‘School’) at PLU

3. Leadership in teacher education

- Vice dean at Finnmark university college
- Deputy Head of Program for teacher education at NTNU.
- Research leader at Program for Teacher Education (PLU)
- Member of the Norwegian National Council for Teachers
- Taking the initiative to establish, and being the leader of, the S-TEAM project within EU’s 7th Framework program, with 26 partners from 15 countries.

4. Other

- Member of the board of Klæbu Sparebank
- Member of Klæbu municipal council

- Member of the board of Klæbu forum for industries.

Summary:

- I have been working both practically and theoretically with new ways of developing relevant teacher education, especially in cooperation with colleagues and researchers from areas other than my own. I see this as being of crucial importance for all teacher education.
- I have been able to work as a leader in varied roles, using my strengths of creativity, communication skills and strategic leadership based on legitimacy.
- Through my other roles and experiences outside my professional life, I have gained insight into processes of crucial importance for society, education and of course, teacher education: serving, reflecting and renewing.



Professor John Brumo

Born: 28.11.70.

Married, two children.

Head of Department, Department for Scandinavian Studies and Comparative Literature, NTNU.

Research interests: Multimodal texts, Modernism, Didactics, Literary history

Teaching

- Have been teaching at all levels in Scandinavian Studies (mainly literature)
- Have actively worked with e-learning in many forms, Podcasts, Student Response System etc
- For several years, have been assessing master theses (“sensor”) at the University of Oslo, Tromsø, Volda and Stavanger.
- Have been teaching Norwegian didactics at the Program for Teacher Education
- For several years, I have been a “village leader” in NTNUs experimental and interdisciplinary *Experts in team* (“*Ekspertene i team*”), on the subject of “Practical Rhetoric”.

Administration:

- Head of Department, Department for Scandinavian Studies and Comparative Literature (2009-2013)
- Member of Art Council Norway (“Norsk Kulturråd”), Section for Literature and public journals. (2004-2009) The Council is managing the Norwegian Culture Fund and advising the central government and public sector on cultural affairs.
- Member of Program Council of the Integrated Teacher Education in Languages (2006-2009)
- Board member of the Faculty Council (“Fakultetsrådet”) at The Faculty of Arts (2006)
- Referee for the journals *Digital kompetanse*, *Nordic journal of Digital Literacy* and *Norwegian Literary Yearbook*

**Selected
publications:**

Modernitet og historisitet i norske 1930-tallsromaner. Dr. art.-thesis in Scandinavian Literature, Faculty of Arts, NTNU, 2001.
(book)

Norsk modernistisk litteratur, Fagbokforlaget / Landslaget for norskundervisning, 2004.
Skrevet sammen med Sissel Furuseth. (book)

Leserens poetikk. Leserrollen hos Roland Barthes, Peter Brooks og Wolfgang Iser. Master thesis in Scandinavian Literature, 1996, NTNU.

”Å erkjenne subjektiviteten. Nylesning og leser-teori”, artikkel i *Motskrift*, nr.1, 1996.

”Atle Kittangs `Tre forståingsformer i litteraturforskninga` 21 år etter”, artikkel i *Motskrift*, nr. 2, 1996.

”Den mangfoldige teksten” (anmeldelse), *Norsklæreren*, nr. 2, 1998. s. 59-62.

”Maskinenes stønn. Fart og fartserfaring i 1930-tallets litteratur” i Bråkehielm/Petterson (red.) *Modernitetens ansikter*, Uppsala, Nye Doxa forlag, 2000.

”Under den store mulighets vinger. Maskin, modernisme og Johannes V. Jensen.” i Anne Kristine Børresen/Knut Ove Eliassen (red.) *Den litterære maskinen*, Trondheim, 1999.

”Det levende moment. Modernitetserfaring hos Nils Johan Rud.” I Furuseth m. fl. (red.) *Saklighet og sanselighet. Norsk prosa-modernisme på 1930-tallet.* Oslo, Gyldendal akademisk, 1999.

”Modernitet i norske 1930-tallsromaner.” I Malan Marnersdottir og Jens Cramer (red.) *Nordisk litteratur og mentalitet.* Torshavn: Føroya Frodskaparfelag, 2000.

”Nytt om metafiksjon” i *EDDA* nr. 2, 2002

”Nytt om Ivar Lo”. Anmeldelse av *Den moderne Ivar Lo-Johansson* av Magnus Nilsson, *EDDA* nr.2, 2004

”Olav H. Hauges modernisme” i *Motskrift* nr.1 2002.

”Obstfelders blikk” i *EDDA* nr.1, 2003

”Persepsjon og materialitet i Rolf Jacobsens *Jord og jern*”, i Anne Beate Maurseth og Erik Østerud (red.) *Estetiske teknologier 2*, Spartacus forlag, 2004. s 281-305

”Den uegennyttige subjektivitet. Knut Hamsuns *Fra det moderne amerikans Aandsliv*”, i E. Arntzen og H. Wærp *Tid og rom i Hamsuns prosa*, Hamsun-selskapet, 2006

”Dopplers kjønn – parodi eller politikk” (sammen med Britt Andersen) i Gimnes/Paulson (red.) ”– inn i det ukjente” Tapir, 2006.

”Med *Detektor* i norskstimen. Opplegg og analyse” i *Norsklæreren*, nr. 2, 2008.

”Det ligger hunder begravd overalt”. Litt om filmarbeid og måloppnåelse i norskfaget” i H. Hestnes. H. Otnes, A. Østern (red.) *Idehefte 2*, 2008

Curriculum Vitae

Frode Rønning

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N-7051 Trondheim
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E-Mail frode.ronning@hist.no

A. EDUCATION

1989 Awarded degree of Dr.Scient in mathematics (complex analysis)
1982 Teacher training (PGCE)
1980-1982 Master studies (Cand.Scient) in mathematics (complex analysis)
1977-1980 Studies in chemistry and mathematics (bachelor level)

B. EMPLOYMENT

2011-present Professor 2 of mathematics education, NTNU, Dept. of Mathematical Sciences
2000-present Professor of mathematics, Sør-Trøndelag University College, Faculty of Teacher and Interpreter Education (HiST-ALT).

C. SELECTED PUBLICATIONS IN JOURNALS WITH PEER REVIEW

1. On the range of a certain functional over the class of close-to-convex functions, *Complex Variables: Theory and Applications* 14 (1990) pp. 1-14.
2. On a multiplier conjecture for univalent functions (with V. Gruenberg and St. Ruscheweyh), *Trans. Amer. Math. Soc.*, vol 322, no 1 (1990) pp. 377-393.
3. PC-fractions and Szegő polynomials associated with starlike univalent functions, *Numerical Algorithms*, 3 (1992) pp. 383-392.
4. Integrated partial sums of convolutions of univalent functions, *J. of Math. Anal. and Applications*, vol. 175 (1993) pp. 186-198.
5. Uniformly convex functions and a corresponding class of starlike functions, *Proc. Amer. Math. Soc.*, vol. 118, no 1 (1993) pp. 189-196.
6. On uniform starlikeness and related properties of univalent functions, *Complex Variables: Theory and Applications* 24 (1994) pp. 233-239.
7. Integral representations of bounded starlike functions, *Ann. Polonici Math.*, 60.3 (1995) pp. 289-297.
8. Some radius results for univalent functions, *J. of Math. Anal. and Applications*, 194 (1995) pp. 319-327.
9. Conditions on the logarithmic derivative of a function implying boundedness (with T.H. MacGregor), *Trans. Amer. Math. Soc.*, vol. 347, No. 6 (1995) pp. 2245-2254.
10. Duality for Hadamard products applied to certain integral transforms (with S. Ponnusamy), *Complex Variables: Theory and Applications* 32 (1997) pp. 263-287.
11. Integral transforms of functions with the derivative in a halfplane (with S. Ponnusamy), *Israel Journal of Mathematics*, vol 114 (1999), pp. 177-188.
12. Sharp starlikeness conditions for analytic functions with bounded derivative (with St. Ruscheweyh and N. Samaris), *J. Australian Math. Soc. (Series A)* 69 (2000), pp. 303-315
13. Integral transforms of certain subclasses of analytic functions (with Y.C. Kim), *J. Math. Anal. and Appl.* 258 (2001), pp. 466-489
14. On the preservation of direction convexity under differentiation and integration, *Rocky Mountain Journal of Math.* Vol. 34 No.2 (2004), pp. 1-10
15. Integral transforms of a class of analytic functions (with S. Ponnusamy), *Complex Variables and Elliptic Equations*, Vol. 53 No. 5 (2008), pp. 423-434

D. SELECTED PUBLICATIONS IN CONFERENCE PROCEEDINGS WITH PEER REVIEW

1. Language and concept development in geometry, In M. Johnsen-Høines & A. B. Fuglestad (Eds.), *Proceedings of the 28th Conference for the International Group for the Psychology of Mathematics Education* (Vol. 4, pp. 137-144). Bergen; Norway: PME, 2004.
2. Young children's perception of a rhombus. In J.-H. Woo, H.-C. Lew, K.-S. Park, & D.-Y. Seo (Eds.), *Proceedings of the 31th Conference of the International Group for the Psychology of Mathematics Education* (Vol. 1, pp. 277). Seoul: PME, 2007.
3. Barns språk for å uttrykke ulike former for symmetri. In T. M. Guldal, G. Løkken, N. Naastad, & F. Rønning (Eds.), *FoU i praksis 2007. Rapport fra konferanse om praksisrettet FoU i lærerutdanning* (pp. 321-331). Trondheim, Tapir Academic Press, 2008.
4. Children's early work with multiplication and division. In C. Bergsten, B. Grevholm, & T. Lingefjärd (Eds.), *Perspectives on mathematical knowledge. Proceedings of MADIF6, The 6th Swedish Mathematics Education Research Seminar*, Stockholm, January 29-30, 2008 (pp. 85-96). Linköping: SMDf, 2009.
5. Young children's perception of geometric objects. In C. Winsløw (Ed.), *Nordic research in mathematics education. Proceedings from Norma08 in Copenhagen, April 21-April 25, 2008* (pp. 45-53). Rotterdam: Sense Publishers, 2009.
6. Tensions between an everyday solution and a school solution to a measuring problem. In V. Durand-Guerrier, S. Soury-Lavergne, & F. Arzarello (Red.), *Proceedings of the Sixth Congress of the European Society for Research in Mathematics Education*. January 28th - February 1st 2009, Lyon (France) (ss. 1013-1022). Lyon: INRP. <http://www.inrp.fr/editions/editions-electroniques/cerme6/working-group-6>
7. Epistemological and semiotic issues related to the concept of symmetry. Accepted for publication in proceedings from *CERME7, the Seventh Congress of the European Society for Research in Mathematics Education*, February 2011, Rzeszow, Poland.
8. Symmetrisation of an asymmetric multiplication task. Accepted for publication in proceedings from *NORMA11, the Sixth Nordic Conference on Mathematics Education*, May 2011, Reykjavik, Iceland.

E. SELECTED MISCELLANEOUS PUBLICATIONS

1. En katedral för lärande i geometri, In G. Emanuelsson & E. Doverborg (Eds.), *Matematik i förskolan* (pp. 15-19). Göteborg: NCM, 2006 (previously published in *Nämnamnaren* nr 3, 2003).
2. Å regne i kunst og håndverk. In J. Fauskanger, R. Mosvold, & E. Reikerås (Eds.), *Å regne i alle fag* (pp. 186-189). Oslo: Universitetsforlaget, 2009.
3. Hvor mange kanter har en firedimensjonal terning, *Nämnamnaren* nr 3, 2009.
4. Islamic patterns and symmetry groups, *Philosophy of Mathematics Education Journal*, 24, 2009. Retrieved 8 February 2010 from http://people.exeter.ac.uk/PErnest/pome24/ronning%20geometry_and_Islamic_patterns.pdf
5. Symmetrier i islamiska mönster, *Nämnamnaren* nr 1, 2011, 12-19.
6. Symmetri i skola och konst, In B. Bergius, G. Emanuelsson, L. Emanuelsson, & R. Ryding (Eds.), *Matematik – ett grundämne, Nämnamnaren TEMA 8* (pp. 169-182). Göteborg: NCM, 2011.

F. RESEARCH AND DEVELOPMENT PROJECTS

- Test project with ICT-based distance teaching (UNIT- AVH, SOFF), 1991-1992.
- Project leader for the research part of *IKT-støttet allmennlærerutdanning* at HiST ALT 2000-2001.
- Member of national steering board for ICT-based in-service education in mathematics for teachers (SOFF/NUV) from 2002-2004 and 2005-2006.
- Local project leader for Teaching Better Mathematics at HiST ALT, from 2006.
- Local project leader for TEDS-M (Teacher Education Study, Mathematics) at HiST ALT, 2006-2008.

Name: Jon Andreas Støvneng
Born: October 15, 1962
Nationality: Norwegian
Present position: Associate professor
Academic degree: Dr.ing.

Work experience: Postdoc at NORDITA, Copenhagen (January 1991 - December 1992); NFR postdoc at Department of physics, NTH, Trondheim (January 1993 - December 1994); Researcher at Department of chemical engineering, NTH/NTNU and Statoil Research Centre (January 1995 - December 2002); Associate professor (temporary position) at Department of physics, NTNU, Trondheim (January 2003 - December 2004); Associate professor at Department of physics, NTNU, Trondheim (since January 2005); Deputy Head at Department of physics, NTNU, Trondheim (since September 2009); Leader of Educational Committee at Department of physics, NTNU, Trondheim (since 2005)

Fields of interest and present research activities: Computational physics and chemistry, primarily density functional theory (DFT) applied to problems within catalysis and condensed matter physics. Focus is preferably on systems of experimental interest in the physics department. Recent and present research activities:

1. Adsorption of atoms and small molecules on surfaces of α -Cr₂O₃. Chromium oxide has a variety of applications, ranging from catalyst in petrochemistry to corrosion protection on stainless steel. Of particular importance, therefore, is a thorough understanding of the interaction of chromium oxide surfaces with different atoms and molecules. We have investigated three different terminations of the chromium oxide (0001) surface, and adsorption of atomic H, Cl, and S, as well as the molecules H₂, Cl₂, and HCl on these surfaces. With so-called nudged elastic band (NEB) calculations, these molecules are shown to dissociate on the chromium oxide surfaces, with energy barriers in the range 4 - 6 eV. (People: Ø. Borck, K. N. Nigussa, K. L. Nielsen)
2. Parametrization of a reactive forcefield (ReaxFF) for III-V and group IV semiconductor materials. When the target is the dynamics of large, reactive systems, quantum mechanical methods like DFT are computationally too expensive. An alternative, then, is to construct an empirical forcefield which allows the breaking and formation of chemical bonds - a so-called reactive forcefield. Accurate DFT calculations are initially performed on small molecules and perfect crystals, and the DFT results are used as input for parametrization of the forcefield. Systems of particular interest are combinations of InAs and AlAs, as well as combinations of C, Si and Ge. An initial ReaxFF parametrization for indium shows good agreement with the DFT calculations for bulk In crystal structures. (People: O. Frisk, M. I. Sjøby, P.-O. Åstrand, A. v. Duin, K. A. Jensen)
3. Parametrization of a reactive forcefield (ReaxFF) for ferroelectric perovskites. See 2. above. In this project, the materials that are studied contain Pb, Sr, Ti and O. Of particular interest is the structure of the SrTiO₃/PbTiO₃ interface. (People: G. Oftedal, K. T. Olsen, A. v. Duin, Ø. Borck)
4. Structure and reactivity of Ce-Pt surface alloys. (People: K. N. Nigussa)
5. Interaction of oxygen with pure and K-doped NiTi shape memory surface alloys. (People: K. N. Nigussa)
6. Hydrogen transfer and hydroxy rotation reactions in vitamin E. (People: R. Aurlien, T. B. Melø)

Membership in academic and professional committees, scientific review work including peer-review, and other professional merits: Referee in Physical Review Letters, Physical Review A/B/E and Organometallics. Referee for the Austrian Science Fund (2009). Pedagogical prize from The Faculty of Natural Sciences and Technology, NTNU in 2007.

Doctoral students presently under supervision: Two. (One internal at IFY, one external at HiST.)

Selected academic and professional publications 2005 - 2011:

- Eilertsen, J. L.; Støvneng, J. A.; Ystenes, M.; Rytter, E.; Activation of Metallocenes for Olefin Polymerization As Monitored by IR Spectroscopy. *Inorganic Chemistry* **44**, 4843 (2005)
- Eide, O.-K.; Ystenes, M.; Støvneng, J. A.; Eilertsen, J.L.; Investigation of ion pair formation in the triphenylmethyl chloride-trimethyl aluminium system, as a model for the activation of olefin polymerization catalyst. *Vibrational Spectroscopy* **43**, 210 (2007)
- Möller, A. C.; Blom, R.; Swang, O.; Hannisdal, A.; Rytter, E.; Støvneng, J. A.; Piel, T.; On the nonsingle-site character of bis(2-dimethylsilyl-indenyl)zirconium(IV) dichloride/MAO and bis(2-trimethylsilyl-indenyl)zirconium(IV) dichloride/MAO: Polymerization characteristics and mechanistic implications. *Journal of Physical Chemistry A* **112**, 4074 (2008)
- Nigussa, K. N.; Støvneng, J. A.; Oxidation of pure and potassium-doped NiTi shape memory surface: A density functional theory investigation. *Phys Rev B* **82**, 245401 (2010)
- Nigussa, K. N.; Støvneng, J. A.; Theoretical investigation of the interaction of oxygen with pure and K-doped NiTi shape memory surface alloys. *Computer Physics Communications* **182**, 1979 (2011)

Publications and citations 1991 – 2011 (ISI Web of Science June 2011):

