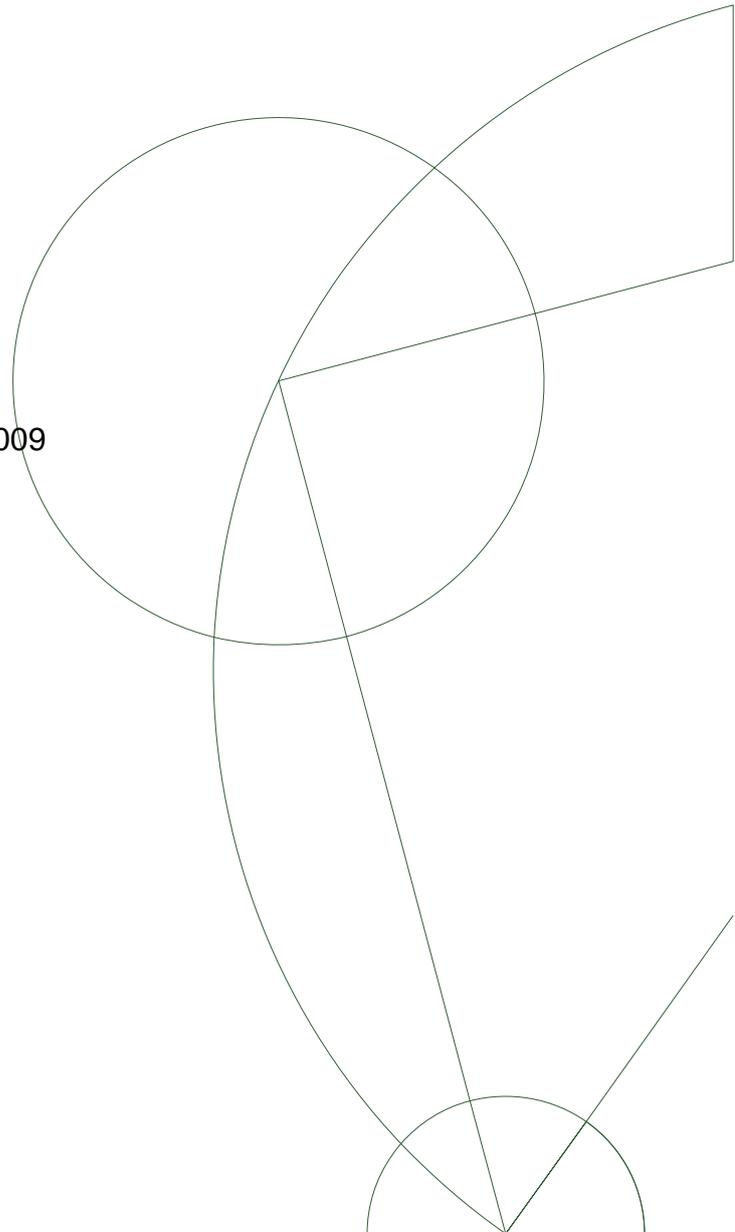




Strategy 2009 -13 for

Department of Science Education

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Preface

The current strategy for the Department of Science Education (DSE) has been prepared through dialogue among the employees at the Department throughout the autumn of 2008.

The strategy has been developed within the framework put forward by the *Strategy for Faculty of Science 2008-2013*, which is subordinate to *Destination 2012*, the strategy plan of the University of Copenhagen.

The strategy is the foundation for DSE's work within the fields stated, as a compass for daily decisions and as a pointer for future areas of action and long-term initiatives.

The strategy forms the basis for preparation of yearly action plans.

Jens Dolin
Head of Institute

1. DSE's Challenges, Values and Visions

The Department of Science Education is one of eight departments at the University of Copenhagen's Faculty of Science (SCIENCE), which also includes the Natural History Museum of Denmark..

It has been created in the interest of answering a need for strengthening and developing the teaching efforts at the faculty. Also it has been the wish to develop the faculty's knowledge on didactical and study-related sociological matters. Furthermore, it has been an aim to strengthen the museum field while making a strategic effort to push forward the didactics of science in Denmark.

Thus, DSE differs from other institutes at SCIENCE by acting as a service organ to the faculty, the society around it, and the other institutes at SCIENCE, all the while also conducting the common activities of an institute.

Also, the didactical subject area is one of a multi-faculty nature (subject-specific and pedagogical/didactical/sociological) and the activities are aimed at different levels of the educational system and different parties at the University of Copenhagen as well as in the environment around the didactics of science in general. Consequently, DSE has certain obligations in regard to maintenance of diversity in contacts and activities and to a high level of research-wise diversity. These circumstances are reflected in the most important of DSE's challenges.

1.1 Challenges

- Diversity and synergy
It is very important to ensure correlation between the multifarious activities, thereby ensuring the best possible synergy. This can be done by directing the limited resources into selected areas of focus.
- Correlation between development projects and the research
DSE has a broad portfolio of development projects and facilitation projects that maintain contact to relevant environments and that contribute to the faculty's development of teaching, recruitment, execution, etc. These development projects are to be supported to the greatest extent possible.
- Anchoring and legitimacy at SCIENCE
As a new institute at SCIENCE a great challenge lies in establishing contact to, cooperating with, and becoming accepted by the academic environments. In particular, there is a challenge in developing the cooperation with the Natural History Museum of Denmark..
- Establishing a connected institute
DSE has undergone an expansive development in 2008-09 and therefore, organizing a supportive administration and a solid staff structure is a great challenge.
- Ensuring the physical conditions and attractive education facilities
DSE is to find a physical placement that provides optimal conditions for complying with its obligations. DSE is to function as a laboratory for education research and education development, which should be reflected in the facilities and the arrangement thereof. Furniture, IT equipment, teaching materials, etc. must be state-of-the-art and the offices must be arranged in a way that allows for great flexibility and functionality, making it possible to hold courses and present forms of teaching having high levels of exemplarity integrated.
- Ensuring resources for continued development

In a time of reduced basic funds, an increased part of the institute's activities is to be financed by external grants.

1.2 Values

The activities of the institute are based on openness and credibility, internally as well as externally. Emphasis is put on diversity and dialogue, and decisions are well argued for and academically well-founded. Each employee is provided with a lot of freedom within the given framework, but also a co-responsibility for ensuring that the institute functions as a working community.

1.3 Visions

The didactics of science are being established in Denmark, but are nevertheless ascribed a key role by a range of reports on scientific educations in Denmark as well as abroad. In the most recent *A Joint Lift - Report from the Task Force for Preparation of a National Strategy for Nature, Technology and Health* (2008) (original title: *Et fælles løft – Rapport fra arbejdsgruppen til forberedelse af en National Strategi for Natur, Teknik og Sundhed*) - it is directly recommended to have the didactics of science be a strategic research area. The research on and development of the didactics of science is currently taking place at a range of environments of subcritical sizes. DSE intends to take on a role uniting these environments and thereby influencing the research on the didactics of science and the teaching of science in Denmark. Furthermore, it is an ambition of DSE to become an internationally strong player, and DSE already has an established, international research cooperation that will be extended during the years to come.

DSE's visions for the years leading to 2013 are:

- to have DSE be an integrated part of SCIENCE
- to become an influential player in Denmark within selected areas of the didactics of science and to establish a cooperation with the majority of the Danish environments concerned with the didactics of science
- to develop the international dimension in order to have DSE become an attractive partner on international scene
- to have the education at DSE be exemplary in regard to pedagogical/didactical execution and to quality assurance
- to ensure up-to-date physical conditions for the work of the institute
- to organize a structure that provides high levels of employee satisfaction and great opportunities for academic and personal development.

2. A Stimulating and Joyful Workplace

DSE is to be an attractive workplace allowing for the institute to attract the best employees while ensuring the keeping of current staff. Therefore, emphasis is put on employee development (through courses, conference, etc.) and focus is put on optimization of the physical and mental work environment. The objective is to build a socially solid work place in which each individual employee feels attached and experiences great satisfaction from working.

This is to be ensured among other things through a high level of information among the internal staff, involvement of employees in the decision-making processes, extensive teamwork, and a broad range of social and academic events.

3. Useful Research

Research on and restructuring towards a modern teaching of science is a major area of action for DSE. This does not only count for education at the faculty. The challenges in the scientific area extend to the teachings at upper secondary level as well at the basic school level. Therefore, it is probable that DSE's research is most valuable at the tertiary level, but the efforts on the secondary and primary levels are important, too, and to be included.

DSE is to take part in the establishment of the fundamental scientific research on teaching activities and teaching development at SCIENCE as well as at other science educations. The requirement for the research conducted by DSE is that it is academically solid and applicable for a broad range of players. This is to be achieved through an effort on the following areas:

- The fundamental scientific research at DSE is to be of high, international quality. This is ensured through cooperation with leading Danish and foreign researchers, as well as through publication of research results in peer-reviewed magazines, and evaluations based on international standards.
- The core issues of the research are closely tied to teaching and the subjects, in order to ensure a high level of applicability.
- To achieve a necessary breadth in the research, competency must be built in a range of uncovered areas. This calls for more employees, more, PhDs, and more post.docs. This is to be made possible primarily via increased, external financing.
- DSE's research is focused around the following areas:
 1. Teaching (improvement and development of teaching of scientific subjects: Didactical design, forms of teaching, learning theory, transfer of knowledge, etc.)
 2. Education (improvement and development of educations in scientific subjects: Basing teaching on research, assuring quality, evaluating, transition issues, recruitment and maintenance, development of curricula, competency benchmarks, etc.).
 3. Education of teachers in scientific subjects (lecturer training, counselor education, supplementary training).
 4. Didactics of museums and science centers (facilitation and learning at museums and science centers, links between formal and informal learning environments).

4. Useful educations and exemplary teaching

Teaching and education activities conducted by DSE are aimed at education of teachers and development of scientific facilitation. DSE contributes to didactical qualification of future high school teachers through courses. Also, DSE contributes to qualification of the teachers at SCIENCE and other faculties through masterships and qualification of scientific facilitation through teaching in communication and facilitation, and through cooperation with the museums.

- The teaching activities and the education activities arranged by DSE are exemplary in the sense that they put forward high standards for teaching. This means that the teaching is based on the most recent subject-specific didactical research, and the participants achieve a great academic benefit in the form of measurable strengthening of the academic competencies.
- DSE develops a quality standard for teaching. DSE's teaching is continuously improved and adheres to DSE's procedure for quality assurance, as stated in the quality standard.
- The development effort of DSE is anchored in the academic environments and the teaching activities conducted by DSE are aimed at the current and future teaching practice of the participants, in order to have current and future practice qualified by research.
- The academic environment at DSE helps develop the scientific, subject-specific didactical foundation for the teaching at the faculty and for the teaching at the high schools in the subjects of the faculty.
- All teaching activities and facilitation activities reflect the most recent research-based knowledge on the content and structure of the activities, in order to ensure that the participants of the activities become qualified to bring state-of-the-art, research-based knowledge into play.
- DSE offers students of DSE's classes a great study environment. Dissertation students are offered a modern workplace, and all students feel welcome at the institute.
- Until 2013, DSE will consolidate the teaching and education offers that are currently offered and develop courses that can comply with the future need for supplementary training courses for the faculty's teachers, among others initiated by the teaching action plans of the institutes.
- DSE will participate in the development of a high school teacher education or orientation on bachelor level. Additionally, DSE will participate in supplementary training of high school teachers when this is part of existing projects.

5. Development Projects Full of Prospects

Aside from common institute tasks (research, teaching, and facilitation), DSE handles a series of development tasks related to the institutes, the faculty, Copenhagen University in general, and to other education environments. By virtue of their network structure, the development projects are a part of DSE's ambassador work for SCIENCE, all the while also serving as an important foundation for the development of DSE's teaching, research, and facilitation. Furthermore, the development projects contribute to development, facilitation, and implementation of subject specific didactics and education oriented sociological knowledge at SCIENCE and other academic environments.

- A substantial part of the development work is to be carried out in cooperation with DSE's research activities, either by contributing to the organization of future research projects or by applying existing research.
- Development tasks at faculty and institute level are prioritized ahead of external development tasks.
- Development tasks at faculty level are prioritized in cooperation with pro dean of teaching.
- Efforts are put into ensuring wide spreading of development projects at the institutes.

6. Facilitation and Communication at the Centre

DSE is to facilitate own activities to the faculty and the world around it while also participating in the realization of the faculty's communication strategy.

- The knowledge of DSE's courses and development research activities is to be spread among people at Faculty of Science, the remaining University of Copenhagen, and other academic connections and society in general. This is to be achieved through purposive marketing, academic publications, events, and participation in public debate.
- The website is the pivotal point for communication of all activities at DSE, this being current publications, course activities, debate contributions, events, etc. It is essential that all important events and documents are reported to the webmaster in good time, allowing for the website always to appear updated, not least in regard to future events. During the period 2008-2009 special attention will be paid to elaboration on content and/or framework for the following areas:
 - About the Institute
 - Lecturer training
 - Research and Development Projects
 - Teaching/courses, and,
 - the English-language environmentAlso, focus will be directed onto the issue of ensuring references to the DSE website, from other relevant cooperation partners and portals (EMU) as well as via a systematic dissemination of news
- *NAFADISE* is a series of lectures during which research-based results and development projects are presented in an open forum of people sharing an interest in didactics. The target group is researchers and teachers within the field. The events will be announced among other places on the DSE website and in newsletters, inclusive of the faculty level. Focus will be directed onto the issue of reaching broader target groups, especially in regard to lectures that are considered to be relevant to a broader range of people.
- DSE is principally responsible for a series of publications:
 - MONA, DSE's publication series and a science didactical newsletter. The target group is the entire scientific didactics environment
 - DidakTips. The target group is the teachers at the faculty
 - The students' series consists of the bachelor and dissertation projects conducted at DSE.All publications are subject to a target group and marketing analysis in the interest of optimizing the resource consumption.