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S C H A P

## **KNOWLEDGE IN THE CLASSROOM**

**about sharing knowledge for innovation**

**Schooling for Tomorrow The Netherlands**

**Final Report, July 2008**

# Knowledge in the Classroom, about sharing Knowledge for Innovation

## 1. Introduction

1. The Dutch contribution to the third phase of *Schooling for Tomorrow* was devoted to the theme 'sharing knowledge for innovation', one of the spearheads of the national innovation and education policy. The goal of this contribution was to come up with a cohesive framework, based on a number of current projects, in which knowledge for innovation is acquired and shared in an optimal manner. The projects were part of the innovation plans for primary and secondary education that have been drafted by the sectors themselves. This was in line with the Dutch governance philosophy for education.

2. Dutch educational policy has, since the early nineties, been aimed at a greater autonomy for schools. Government created a climate that made bottom-up innovation possible by giving responsibilities and means for innovation to the sector organisations of primary and secondary schools. Schools were given more freedom so they initiated many experiments with new forms of learning, teaching and organisation in education.

Doubts about the quality of this innovated education have led the government to take a more active role since 2006. A tentative search is taking place to find a new balance between the tasks and responsibilities of schools and government. The actual policy line is that the government is responsible for 'what' has to be taught and learned, and that schools are responsible for 'how' it will be taught and learned. And of course, one realises that 'what' and 'how' are interrelated and that there is a grey area between the two, but the bottom line is to acknowledge this distinction.

Government has also become more active by emphasizing the need for more evidence informed innovation, with an important role to research and knowledge. Schools are developing into learning organisations and government stresses the importance of 'learning innovation', based on evidence informed policy and practice. The intention is to enhance the knowledge productivity index of primary and secondary education and so lay down a permanent basis for meeting the challenges of the future: basic education that is successful in fostering the development of the talents of all children to the optimum extent. *Schooling for Tomorrow* can provide a vital contribution ensuring a future-proof education.

3. Four pilot projects constituted the *Schooling for Tomorrow* project in the Netherlands:

- Knowledge communities for horizontal knowledge sharing (mutually between schools) in primary education. The intrinsic theme for the projects was: formation of parameters for a redesign of education; new learning schemes and setting out routes of innovation. With this, among other things, use has been made of the OECD evidence based practice / practice based evidence programme.
- Knowledge communities for exchanges of knowledge between education and research in secondary education. These knowledge communities focused particularly on qualitative improvement in education based on future orientated themes as a

different organisation of education, team building and the school as a professional working community.

- The *Kennisrotonde* [Knowledge Roundabout] project that deploys ICT for knowledge development and knowledge sharing in both primary and secondary education. The 'Knowledge Roundabout' functions ideally as a clearing house that both educational practitioners and educational researchers can use in the further development of their activities with the aid of ICT resources.
- The *Academic Teacher Training Schools*, for both primary and secondary education, a project that focuses on teacher training in particular, which partly takes place in and by the schools themselves. The pilot scheme is aimed at investigating the skills that will be demanded of future teachers and the question of how the acquisition of these skills can be incorporated into teacher training programmes.

4. However different in the angle from which the theme 'sharing knowledge for innovation' is approached, all the projects are or were future-oriented in their aims. Based on different issues, connections are made between the projects involved, focusing specifically on the theme of 'sharing knowledge'.

5. A study group on national level was formed to enhance the cohesion between the different activities, to take stock of the results and thus create a common framework. The study group was also the contact point for the outside world with respect to the Dutch contribution to SfT as a whole. This final report describes the study group activities during the second year of SfT and the results brought forward by all study group activities, as well as activities and results of the underlying projects.

6. In this report, the project activities are described according to the format required by OECD/CERI.

## **2. Activities**

7. The separate projects started during the period 2005 until spring 2006. During the year 2007, some projects were in full swing, but the knowledge communities in secondary education had already ended. Evaluations of these knowledge communities are partly available.

8. The overall project 'sharing knowledge for innovation' ran throughout the year 2007. The bulk of the work has taken place in this year.

*Which activities (e.g. events, consultations, etc.) have been organised and when?*

9. The *Knowledge Roundabout* started in 2005. A main activity is the hunt for innovative ambitions within primary and secondary education. Schools can report their main questions concerning innovation. This is an ongoing process, by the end of 2006 more than 120 questions are identified. Sharpening the questions and looking for existing knowledge to help the school a step ahead are further activities. If there is no existing ict solution available to help the school, effort and budget is put in projects to create the

knowledge. Spreading the news (existing and new developed knowledge) is of course another main activity (through website, brochures, reports, meetings, weblogs, podcasts et cetera). The project ended ultimo 2007.

10. There are three knowledge communities for secondary education: *Onderwijs anders organiseren* (organising education in a different way); *De school als professionele gemeenschap* (school as a professional community) and *Leidinggeven aan teams in de bovenbouw havo/vwo* (leading teams in the last two or three classes of secondary education). The communities were started in 2005 and the concluding meetings were held in the last months of 2006. In 2007 evaluations of these communities took place.

11. The *Academic Teacher Training Schools* were in full process during the year 2007. This means that several research projects have been started.

12. For the overall project, two-monthly meetings were held to discuss several specific topics and to further develop the framework. The members of the study group are listed in the next subsection. Halfway the year, a symposium has been organised, with an invited speaker from the UK, to discuss the futures-oriented approach and specifically user involvement. Another symposium was held in February 2008. This symposium presented the end results of the study group to a broader audience, in order to fine-tune the recommendations before publishing them in a final version. These activities are described in more detail in the following paragraphs.

13. A total of six meetings of the study group have been held in 2007 (following the four meetings of 2006). The fifth study group meeting took place on February 14<sup>th</sup>. The *Knowledge Roundabout* was the central theme at this meeting: how does this project relate to futures thinking, knowledge development and knowledge management. The *Knowledge Roundabout* differs from the other participating projects in the sense that it is not aimed at a certain subject matter (only very broadly: the use of ICT's for innovation), but is explicitly directed at managing existing knowledge and developing new knowledge. Experiences with users and providers of knowledge in this project are therefore very important for 'Sharing knowledge for innovation'.

14. The sixth meeting took place on April 18<sup>th</sup>. The main subject of this meeting was the demand articulation by schools and educational professionals: which knowledge is needed by whom and are these actors able to articulate their questions properly and at the right level? It appears that specific skills are needed to do this. If these skills are not present, a 'knowledge coach' is a possible way to solve this problem.

15. The seventh meeting took place on June 13<sup>th</sup>. This meeting was organised as a combined meeting with the Strategic Commission for Primary and Secondary Education (Strategisch Overleg voor Funderend Onderwijs, SOFO) of the Ministry of Education, Science and Culture. This Commission consists of the directors of all directorates within the Ministry concerned with primary and secondary education, with teachers as well as with knowledge and futures thinking. Study group members gave short presentations of the four projects participating in 'Sharing knowledge for innovation' and the Commission

members asked questions. A discussion about the importance of futures thinking followed. CERI's enterprising role towards futures thinking in education was enthusiastically welcomed.

16. A separate and broader meeting took place on June 5<sup>th</sup>. The study group organised a seminar in which the relationship between educational practice and educational research was the central theme. For this seminar, professor Andrew Pollard, director of the Teaching and Learning Research Programme, a large research programme in the UK, was found willing to tell the audience how this relationship is being optimised in his programme. Cooperation between researchers and schools/teachers is one of the main success factors in the research projects within this programme. The participants looked upon this programme as an inspiring example of evidence informed innovation. Before that, professor Marc Vermeulen, director of IVA / University of Tilburg and scientific expert in the study team, gave a presentation about futures thinking in education, the central theme of *Schooling for Tomorrow*. Which ambitions do schools have concerning innovation and how can they gather the necessary knowledge to realise their ambitions? Drs. Liesbeth van Welie, at that time director of the Knowledge Unit of the Dutch Ministry of Education, moderated the seminar, that was attended by representatives from educational practice, educational science and educational policy.

17. The eighth meeting took place on August 29<sup>th</sup>. This meeting was dedicated to some general issues as well as the issue of reporting the results of the project. Among other things, the discussion was about several other publications and activities that are related to the subject of *Schooling for Tomorrow* (like the Quality Agenda for Primary Education, the policy paper Working in Education and the report of the Commission Teachers – Rinnooy Kan) and how the various activities can be connected. Besides these issues, the general structure and content for the final report (for the OECD as well as for other target groups) was discussed.

18. The ninth meeting took place on October 31<sup>st</sup>. This meeting was dedicated to the general outline of the final report for the Dutch educational field. Especially the main line of reasoning was subject to discussion: what should be the core message of the report? It was decided that the report for OECD would be written according to the OECD-guidelines, but that the Dutch report would have a different format. Also, the organisation of the final symposium was subject to discussion.

19. The tenth meeting took place on December 10<sup>th</sup>. In this meeting the organisation of the final symposium (programme, speakers to be invited, target audience, location et cetera) was the central theme. The study group decided that it was important to dedicate a substantial part of the symposium to practitioners. A smaller part of the tenth meeting was about the conclusions and recommendations of the final report.

20. On February 20<sup>th</sup> 2008, the final symposium of the project took place. Participants from education, policy and science were present. At this symposium, David Istance, OECD/SFT, presented the main future trends relevant for the education sector in the

Netherlands. Next to his, there were various other presentations and the draft conclusions and recommendations of the study group were discussed.

21. A final study group meeting took place on April 18<sup>th</sup> 2008. The final version of the Dutch report of the project was discussed and finalised, and arrangements were made to produce the English version for the OECD.

*Which participants have been involved in these activities?*

22. A wide range of people and organisations are participating in the projects:
- In the *Knowledge Roundabout* the schools are key participants. Within schools different parties are involved: management, ict-coordinators, teachers and the pupils of course. A variety of experts is involved on ict and education and other disciplines, from other educational sectors (vocational training, higher education) and outside education. Partners are found within government, research organisations, businesses, inspectorate, consultancy, expertise centers and educational support centers. The networks supporting the main activities of the *Knowledge Roundabout* are growing and developing continuously.
  - In the knowledge communities in primary education schools, their practice supervisors and researchers are the participants.
  - For the knowledge communities in secondary education: In the knowledge community *Onderwijs anders organiseren*, the participants were: 4 managers of schools for secondary education, 3 researchers, 4 consultants/supervisors and 1 coordinator. The participants of the knowledge community *De school als professionele gemeenschap* were: 6 managers of schools for secondary education, 4 researchers and 3 consultants. In the knowledge community *Leidinggeven aan teams in de bovenbouw havo/vwo* the participants were: 4 schoolteams consisting of 3 managers from the same school for secondary education and 1 coordinator
  - Participants in the *Academic Teacher Training Schools* are schools for primary and secondary education, as well as teacher training institutes.
  - The study group consists of representatives from the four projects constituting 'Sharing knowledge for innovation', representatives from the Ministry itself, a scientific consultant and a secretary/reporter to the study group. The list of members is in annex 1.

### **3. Developments**

*Have there been any changes in the aims and why?*

23. There have been no changes in the general aims of the project.

*Have there been any changes from the original design (as reported in the initial and intermediate report) and why?*

24. The basics of the framework for 'sharing knowledge' as presented in the initial report has changed in the sense that the framework has been expanded with an explicit section 'futures thinking', in addition to the sections 'knowledge development' and

'knowledge management'. This was announced in the intermediate report and has been carried out during the period that followed.

#### 4. Results

25. This section describes the results of the total project, including the results of the first project year.

*What have been the outputs in terms of products such as tools, methodologies, scenarios and training sessions?*

26. The *Knowledge Roundabout* is the longest running project and was officially ended ultimo 2007. The website, with facilities for exchanging knowledge between schools, teachers and experts, is filled with questions and answers. Every individual question has its own output, sometimes resulting from existing knowledge, sometimes as a result of a new project. In 2006 the first projects presented their results.

On popular issues separate brochures have been developed with the latest scientific insights and practical guidelines for schools. Every three months there has been a spotlight theme with additional activities. For schools the *Knowledge Roundabout* process in itself is an important result. It has helped them in thinking about innovative ambitions and how to come to solutions. Furthermore they highly appreciated the support they received during this process.

27. For the knowledge communities for secondary education: the knowledge community *De school als professionele leergemeenschap* has written a publication called *De kunst van het bivakkeren. Leiderschap in scholen*. The publication contains methods for schools to become a professional learning community. The knowledge community *Leidinggeven aan teams in de bovenbouw havo/vwo* is also preparing a publication. The knowledge community *Onderwijs anders organiseren* has produced a final report, containing an evaluative analysis and success and failure factors.

The project organisation itself has published a booklet about the innovation process in secondary education, also containing descriptions of practices.

The three knowledge communities were based on regular meetings and training sessions. The participants took advantage of these meetings and passed on their insights and experiences to other managers of schools and researchers.

28. The study group of the overall project produced the following:

- On behalf of the study group a digital working space has been opened: a community on *Kennisnet*. Study group documents and other materials are accessible for all members. Members can also place their own documents and links.
- The study group produced a framework for *Sharing Knowledge for Innovation*. This framework also functioned as a basic questionnaire for the underlying four projects: the requested information was thus gathered in a systematic way.

- The study group produced a publication for relevant organisations in the Dutch situation: those organisations involved in policy making, as well as knowledge organisations and larger school boards.

*Which outcomes have been achieved in terms of reaching the general and targeted aims specified in the initial report?*

29. The following paragraphs describe the main results of the project. The results are followed by four basic principles for the future, each accompanied by a number of recommendations.

### **Knowledge and futures orientation**

30. To be prepared for the future, it is of importance that people and organisations involved work on it in a constructive way. It is not important to know exactly what is going to happen (because we will never know for sure), but it is important to have an idea of the band width within which developments will take place and to be able to respond in an adequate manner to various developments.

31. Based on the results of this project the conclusion is that futures thinking with respect to vision development and innovation in education does not take place on a large scale. And if it happens, it is mostly an activity of school leaders and not of teachers. To involve teachers in future oriented innovation, they should be part of this process. Ready made scenarios and trends can be helpful in the process, but room to build own scenarios seems a more active way to improve involvement.

32. The development and sharing of knowledge is necessary to implement future oriented innovations in a successful way. For a part, existing knowledge is sufficient for this goal, but since contexts and questions change continually there is a constant need for new knowledge. This knowledge should preferably be evidence informed, in the sense that it is scientifically corroborated or proved. At the same time knowledge should be practice informed, in the sense that it is derived from practice or is tested in practice. To make this happen, exchange and cooperation between science and practice is necessary.

33. In general the experts involved in this project agree on the fact that there is too little exchange between science and practice, as well as between educational practitioners themselves. Much practical knowledge remains implicit and is more anecdotic than evidence informed. Much scientific knowledge is not attuned to practice and not available in a suitable manner for educational professionals. These facts form the basis of various projects at the moment.

### **Problems and solutions**

34. In general, working in knowledge communities is seen as positive: it has many advantages, like raising the overall level of knowledge of participants, diminishing the distance between science and practice (if both are involved in a knowledge community),

realising a link to questions from practice. Examples of such knowledge communities have been started by the organisation *Schoolmanagers\_VO* in secondary education and within the project '*Broadening Technical Education*' in primary education. This does not mean that knowledge communities are always successful.

35. Teachers and school leaders often lack academic and other necessary skills (absorbing knowledge, formulating research questions, managing projects). It is important that they can have additional training or support in these fields. Intermediary organisations can play a role here. The training sessions provided by *Kennisnet*, and the development of educational master studies for teachers (like the master Learning&Innovation), are good examples of contributions to a more research oriented attitude and academic culture within the school. Moreover, the idea of *Stichting Beroepskwaliteit Leraren* (professional organisation of teachers) to create lectorates within schools and the feasibility of professional doctorates could be further explored.

36. There can also be problems with respect to timing: knowledge is needed 'now' and the processing of existing knowledge or development of new knowledge sometimes takes too long. Finally, the expected results are sometimes unclear or not feasible (for the individual participant or for the collective).

37. It is therefore of importance that knowledge communities have realistic goals, for the individual participants as well as for the collective. There should be a sense of ownership with respect to the questions to be answered. Knowledge should preferably be delivered 'on demand'. There should be a good project management and a clear structure. The financial side should be taken care of: clear and sufficient means are needed. It can be smart to accumulate money from various sources in a strategic way.

38. Furthermore it is of importance to realise that in the core it is always about human relations. Therefore users, the practitioners, should be involved in the processes of knowledge development and exchange from the start, whether in knowledge communities or otherwise. As an example: a data analysis can be made an interactive process between scientist and user. In the end, practitioners as well as scientists should have something to gain from a project.

### **The role of research and science**

39. It is important to not only develop new knowledge, but also gather existing knowledge and present that in a practical way (reviews, syntheses and so on). This is more than just putting different sources together, it is in fact a process of transformation.

40. With respect to educational science the following can be concluded: it is of importance that educational sciences develop strong contacts with the field of practice. This furthers the development of applicable knowledge. However, the scientific quality of research can be under pressure and this should be guarded.

41. In teacher training in higher professional education there should be more attention for research-in-practice. Most teachers are ‘do’ers’: this is what they need in their turbulent every day practice. However, this is not sufficient. There should be a ‘think’-function in the school, close to the work floor. This takes time and money, but more specifically a change of culture. The projects of the *Academic Teacher Training Schools* are an important first step.

42. The educational innovations in primary and secondary education can gain considerably by adding a researcher to the project teams like in the *Knowledge Roundabout*, the learning communities in secondary education and the *Academic Teacher Training Schools*. This tightens the connection between science and practice.

43. The stories told about educational research should also be more compelling and show more vision. Dutch educational sciences are of a rather technical nature. Research is aimed at small parts of the process, often making use of advanced statistical methods. This does not trigger the imagination of practitioners. There is also a lack of overview studies and reviews, that combine the available research results in a meticulous way and attach more or less challenging conclusions to this. These studies should be written for a broader public of practitioners, opinion leaders and scientists.

44. It is not right that scientists are not present in the public debate about education and educational innovation: strikingly few renowned scientists can be seen on tv or in newspapers, for instance in the discussions about ‘the new learning’. Politicians don’t look for input from scientists (ties are thin) and neither are there good contacts with journalists. Scientists from their side do not often seek the public debate.

45. Another important matter is that not only the more traditional educational sciences should be involved in knowledge development for educational practice. New developments like in the brain and cognition sciences have much to offer to the education sector. Interdisciplinarity can add a lot. Which scientific disciplines can contribute to the result may differ per specific subject.

### **Basic principles and recommendations**

46. The study group formulated five basic principles and some recommendations. These are based on the experiences in the various projects, the importance of evidence informed innovation as expressed by politicians and other policy makers, the OECD and other international experts and the final conference of the project on 20 February 2008. These principles are more or less universal, but the recommendations could be seen by others as specific for the Dutch situation. Nevertheless, we made an attempt to translate the recommendations also into more general terms.

### **The first basic principle**

Schools for primary and secondary education themselves are responsible for their innovation. To direct education in a sustainable way at the future of their students, it is necessary that they innovate in an evidence informed way. Therefore, more knowledge about futures thinking and effectiveness of education is needed at the level of the school.

47. The consequences of this principle are the following.

- School leaders are per definition future oriented; they use innovations in a strategic way.
- School leaders and teachers consider it their task to evaluate their own teaching to make it future proof and to improve the quality of the teaching.
- They perform this task in a professional way, with a teacher/researcher and making use of up-to-date knowledge in the field of futures thinking, like the scenarios and trends study of the OECD-project *Schooling for Tomorrow*.
- School leaders and teachers take the initiative to formulate research questions and get these incorporated in relevant research programmes.
- They contact educational researchers to, on the one hand, have their own evaluations validated, and, on the other hand, cooperate in exploring new forms of learning and teaching. They also take care of making their own results available for other schools.
- Teachers will use available funds as much as possible to bring their professionalism to a higher level.
- Schools spend a certain percentage of their budget on their future quality by using it for development and improvement.

### **The second basic principle**

The sector organisations for primary and secondary education inspire and support the schools in their innovation by insuring that adequate knowledge is developed and disseminated. Furthermore, these organisations review the futures orientation of their sectors as a whole.

48. The consequences of this principle are the following.

- The sector organisations spend part of their time and money directly on inspiration and support of educational innovation at school level.

- They make the knowledge and experience thus gathered available for all schools within the sector. They do the same with instruments that are developed elsewhere, like the scenarios and trends study of the OECD project *Schooling for Tomorrow*.
- They consider it their task to take care of synthesis in this field and to process knowledge for improved accessibility for schools and teachers.
- They make sure that schools and teachers can train themselves in the field of more academic and research oriented skills, articulating research questions and managing innovative projects.
- They consider it their task to make the questions raised by innovation in their sector become subject of research.
- The sector organisations spend part of their time and money on innovation at the level of the system: is the sector as such future proof or is it necessary to innovate also on that level.

### **The third basic principle**

The researchers in the field of learning and teaching keep in mind the need of schools to innovate education in a evidence informed way.

49. The consequences of this principle are the following.

- There is a need for more research to facilitate evidence informed innovation at school and sector level.
- More forms of action research will be developed, in which school leaders and teachers work together on more evidence informed learning and teaching (see *Teaching and Learning Research Programme*) and of which the results are made available for meta research.
- Researchers consider serviceability to evidence informed educational innovation as one of their ethical standards. Not as their only standard: inspiration driven by scientific curiosity remains of equal importance.
- Dissemination of research results is an indissoluble part of every research project. The role of the user should be taken as a point of departure for this.
- Existing programme organisations for scientific research will improve dissemination of results for their programmed research.
- Researchers do not limit themselves to the analysis of isolated aspects, but try to keep the whole educational process in mind.
- There is a need for more (financial) room for design and development oriented research.
- Schools and teachers will be actively facilitated (time, money, interaction, networks) to contribute to research and subsequently experiment with the results in their own practice.

### **The fourth basic principle**

Institutions in the educational infrastructure take responsibility for the translation of knowledge questions in R&D projects and disclose scientifically developed knowledge on behalf of educational practice. Teacher trainers stimulate a research and result oriented attitude of their students. Making use of and critically reflecting on knowledge of colleagues, other experts, scientific sources and data on learning and development of students are part and parcel of this attitude.

50. The consequences of this principle are the following.

- The institutions in the educational infrastructure (school support, pedagogical centres, curriculum and test development institutes, teacher training institutes, expertise centres) profile themselves as mediators and brokers between science and practice, and vice versa.
- These institutions use their means to strengthen design and development oriented research.
- These institutions evaluate proven practices in order to upgrade them to generic working principles of good education.
- These institutions take the initiative to start up a discourse between scientists and practitioners, for example through new technologies and Wiki-like procedures.
- Both in initial teacher training and in post-initial (for instance a master phase), teachers have to be able to learn research skills.
- Teacher training institutes turn out teachers who reflect in a critical way on teaching and learning methods. Well trained teachers show a result oriented attitude by systematically registering and analysing the progress made by students and adapt their pedagogical and didactical working methods to the highest standards.

### **The fifth basic principle**

The government is responsible for the education system and guards, in the general interest, future proof and evidence informed education. This should be done for a longer term than the governing period of a single Cabinet.

51. The consequences of this principle are the following.

- The government considers it its task to stimulate schools to organise their education in a more future oriented way. The dissemination of instruments like the future scenarios and trends study of the OECD is one of the ways to do this.
- The government considers it its task to stimulate schools to organise their education in a more evidence informed way. It therefore provides an adequate educational

knowledge infrastructure, in which knowledge is developed and shared that is relevant for educational practice. To increase capacity more money is needed.

- The government considers it its task to stimulate schools to develop forms of research activities in the own school.
- The government considers it its task to provide a knowledge infrastructure that enables 'open innovation' to take place and in which scientific quality, practical application and independent thinking are guaranteed.

## Appendix 1

### Members of the national study group *Schooling for Tomorrow The Netherlands*

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- Jan Heijmans, consultant E&S
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- Marc Vermeulen, University of Tilburg / IVA (scientific consultant)
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## Appendix 2

### Framework 'Sharing Knowledge for Innovation'

In the framework presented below, the basic principles of Schooling for Tomorrow, formulated in the OECD Starter Pack, and those of the Dutch project 'Sharing Knowledge for Education' are linked together. In the framework, futures thinking, as well as sharing knowledge (existing of the two columns 'knowledge development' and 'knowledge management') are integrated. The figure shows this as three circles, which represent the three domains. The three domains were looked at from a number of focal points.

