SCHOOLING: A SUSTAINABLE LEARNING ORGANISATION?

Perceptions and forces at play in institutional change in education in the light of the up-take of ICT

ERNIST organisational change study

Alan McCluskey
with the collaboration of
Dr Margit Hofer and Prof. David Wood

ERNIST organisation change study

The present report is part of a study aimed at improving understanding of the institutional response to change, especially in relation to the integration of ICT in education. The study was carried out by Alan McCluskey (CTIE), Dr Margit Hofer (European Schoolnet, Brussels) and Prof. David Wood (Nottingham University). It covered specific projects in Switzerland (EDUCANET2), Austria (eFIT), The Hague in the Netherlands (FRONTER) and the United Kingdom (WORKFORCE PATHFINDER) as well as a pilot study in the Swiss canton of Neuchâtel. The study was part of ERNIST, a research project funded by the Education and Culture Directorate General (DG-EAC) of the European Commission as preparatory work for the e-Learning Programme. The ERNIST project was led by European Schoolnet. Swiss participation - from the Swiss Agency for ICT in Education (CTIE) - was funded by the Federal Office for Education and Science (OFES).

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School: a sustainable, learning organisation?

1. Aims and methods

Developing strategies to handle change

In handling changes due to the integration of ICTs in education, how do decision-makers and other actors involved develop suitable strategies? On what knowledge do they base their response to change? What strategies do they develop to build their knowledge of the situation so as to improve decision-making? How do they tie results from research work into their understanding of the situation? How do they assess the pertinence of the solutions they have chosen? Extremely little is known about patterns of organisational response to change in the education system as far as the integration of ICTs is concerned.

Strategies for handling the integration of ICT in education can usefully be understood in the light of possible evolutions of education as depicted by scenarios for the future. Reference is made here to the four scenarios developed in the THINK report[1] and subsequently adjusted and completed in the THINK AGAIN report[2]. These four scenarios can be summarised as follows. In the first, the introduction of ICT reinforces the centralised control over schools. The second refers to the idea of the school as a «learning organisation». The third places citizenship at the centre of preoccupations, as schools become key learning nodes in the local community. And finally, the last scenario sees the breakdown of the system as ICT fails to deliver the goods. In this study, particular attention is paid to the second of these scenarios. To what extent is there a move towards the school as a sustainable learning organisation? The Canadian author Michael Fullan has given much thought to change and sustainability in education and the role of leadership in such change[3]. His work is also a very useful backdrop to this study.

Taking the issue of learning platform development as a starting point

One of the major issues for ministries and educational agencies is the development of suitable criteria for selecting and creating Learning Platforms. Much creation of learning platforms is sporadic, fragmentary and uncoordinated[4]. In those cases where national solutions exist, they do not always correspond to local users' needs. Studying existing learning platforms is being dealt with elsewhere. Here the perspective proposed is not centred on the solutions themselves. It addresses the context and the dynamics of the system as a whole and the institutional strategies adopted to reach solutions. How do the actors respond to this complex challenge? What are the different perspectives of the various actors involved? And how are these perspectives conciliated in the working of the system? How do the actors relate to research work? How is the question of assessment and accountability dealt with?

Four of the five series of interviews (EDUCANET2, FRONTER, eFIT and NE 01-04) addressed issues related to learning platforms. The remaining series, TSW Pathfinder, looked at the problem of teacher workload (an issue that turned out to be important in the uptake of ICT in schools).

Learning platforms?

A number of terms have been coined to describe platforms used for online learning. A search on the Internet for pages about VLEs[5], for example, makes it clear that the term is predominantly British in use. Becta[6] uses the generic term «learning platform» to mean a software system that manages learning materials and access for learners. Learning platforms include integrated learning systems (ILS), content management learning systems, virtual learning environments (VLE) and managed learning environments (MLE). Rather than use VLE as a generic term in this study when in fact it has a specific non-generic use on the part of those who employ it the most, we suggest using the term «learning platform».

A learning platform, according to Becta (ibid.), offers a system for managing and delivering student learning materials and, depending on the system chosen, other facilities such as:

- Mapping of content to the curriculum and, in some cases, organising the delivery of content to students
- The ability for teachers and pupils to create and upload their own content
- Communication tools (for example, e-mail, on-line discussion groups, chat, conferencing)
- Assessment tools (to assist with the creation and delivery of multiple-choice or other test, for instance)
- Student activity and assessment tracking
- Student information and management (for example, to organise students into classes or groups, and to create school calendars)
- Secure log-ins for staff, teachers and parents
- Home-school links, giving parents the opportunity to monitor their child's progress, communicate with teachers, etc.
- Interoperability with school information management systems, so that data can be exchanged between the management information system (MIS) and the learning platform

Exploring the institutional response to change

Taking the issue of learning platform development as a starting point, this study seeks to explore the institutional response to change – from a systemic perspective – via a series of interviews with the mains actors in the United Kingdom, Switzerland, the Netherlands and Austria. This choice of countries is dictated by a desire to have differing national contexts. The actors involved in the process include ministries, agencies, industrial players, developers, researchers and teachers. The interviews enable the formulation of a variety of perspectives on the organisational structure and the identification of key issues.
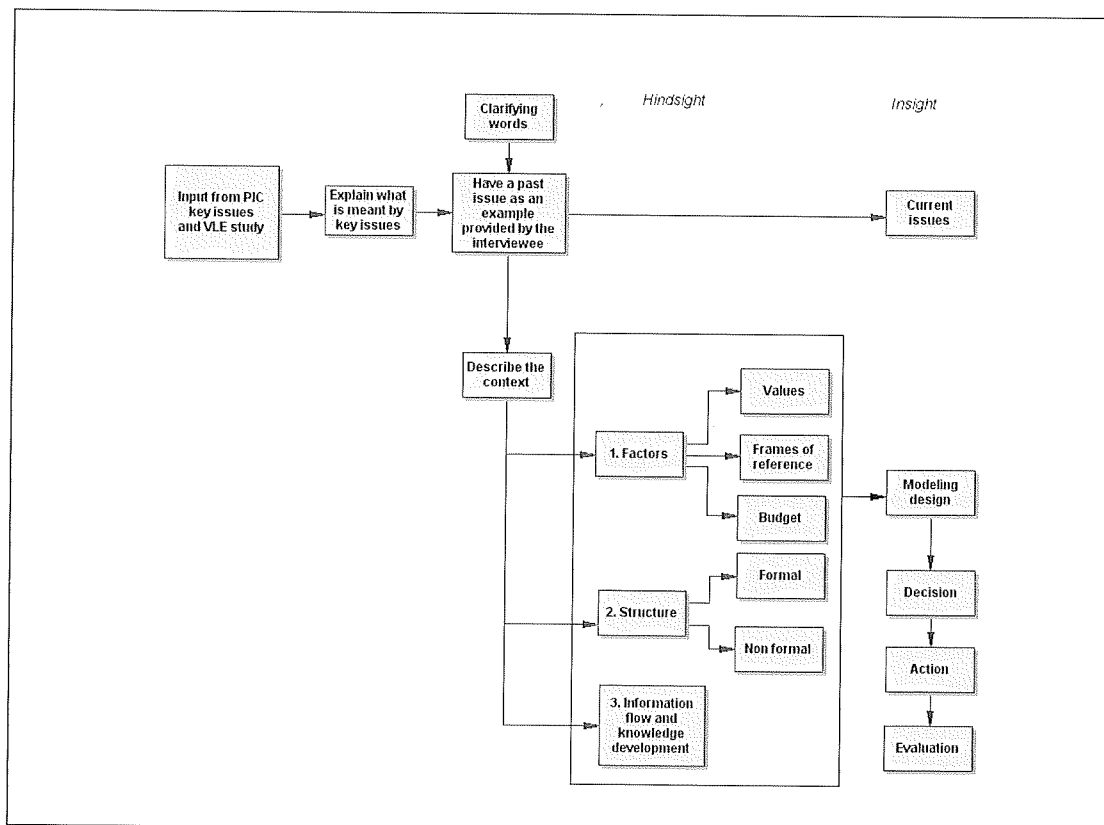
It was initially planned to follow each series of interviews by a workshop. The idea of these workshops was to pave the way for improved collective understanding on the part of the actors themselves. As such, it was seen as a first step in setting up a

network of actors concerned by the question of understanding the dynamics of institutional change and improving strategies for the integration ICTs in education. After an initial experience during the pilot project, the idea of workshops was set aside. Although meetings are seen as an integral part of managing institutional change, management itself was not necessarily perceived as a collective learning process and actors were reticent about taking the risk of getting involved in such a process.

It was also planned to tie in this work with other threads of ERNIST by identifying users' needs in terms of research results and providing a test bed for the transposition and delivery of pertinent results from the relevant research fields. In reality, research turned out to play a relatively small part in handling the projects studied. In addition, the relevant threads of ERNIST evolved away from the transposition of research results that was postponed to a subsequent project.
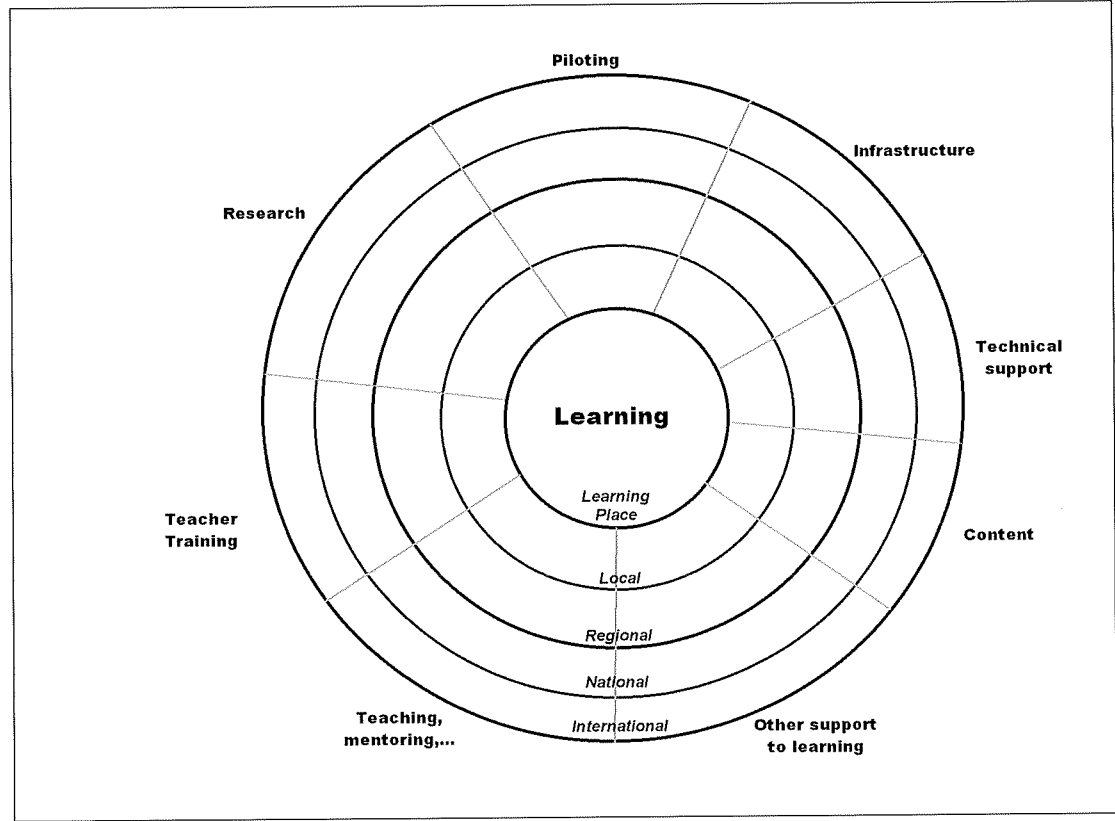
The interviews

Using individual interviews, this work involves identifying and clarifying past and present key issues that individuals perceive as being major challenges to the introduction of learning platforms. By «key issues» we mean: the identification and the naming of an interrelated group of activities whose current organisation or whose

organisation in the near future requires significant change on the part of the institution either to solve a problem or to improve ways of working and communicating.

In handling change, it is interesting to start from the driving forces behind change and then to move on to understand ways and means to respond to those forces given the current context. The starting point in understanding change is necessarily a set of explicit or implicit values and frames of reference that underpin choices. The context plays a key role in dictating issues and in effecting strategies. The institutional response to these (probably evolving) issues involves strategies, actors, means, ...

Starting from a key issue currently being resolved, the interview involves the mapping out the context in the chosen countries in terms of the institutional actors involved, the channels of communication between them and the forces exerting an influence on the activities and the communication between these actors. Making the forces explicit will include, amongst other things, exploring the working culture and procedures related to the development and integration of learning platforms. Depending on the actors, this might involve trial and error, peer exchange or peer review, open source methodology or management by decree.

The «geographical» metaphor is useful because it allows a graphical representation of the situation that can be shared with others. Practical experience will show to what extent such a map really does facilitate communication about the subject. Some people have difficulties reading maps!

We mentioned above our intention to pay particular attention to the possible move to a sustainable, learning organisation. To do so requires making explicit existing strategies to develop and exchange knowledge (in particular in relation to possible research) and exploring the extent to which ICT is used to assist those strategies. At the same time, a more historical perspective helps understand mechanisms aimed at sustainability.

2. The sustainable learning organisation

The notion of «learning» in organisations and that of the «sustainability» of change are closely interwoven. From the longer-term perspective, there cannot be learning without sustainability and there cannot be sustainability without learning. In the current context, the integration of ICT (in education as elsewhere) is part of a dynamic constellation of factors that includes learning and sustainability as key concepts alongside the search for ways and means to understand and handle extremely complex, interrelated systems as well as the quest for a more satisfactory, deeper value-system to make sense of this complex world and to guide our choices. This chapter seeks to go beyond a synthesis of the results of the ERNIST organisational change study (described in the subsequent chapters) to open vistas that set the integration of ICT in education in the wider perspective of learning, sustainability and the quest for deeper values.

An organisation for learning for all

Learning comes in different sorts and sizes and takes place in a great variety of locations. For young people, school has for a long time been seen as the most important place of learning, although there are differing opinions about what is to be learnt and how it is to be learnt. It is interesting to note that in the EDUCANET2 interviews, the message was clear: school no longer has a monopoly on learning, hinting that competition was growing and needed to be taken into consideration, even at compulsory school level.

It is less common to talk about the need for teachers and other staff to learn continuously. Depending on the subject being taught, there are varying pressures on teachers to keep up-to-date in their area of expertise. New technologies and innovative methods also require some learning on the part of teachers. In addition, in their daily practice, many teachers experiment to some degree or another, but it is extremely rare to find an organised, collective «learning-experience». However, it is not only these types of learning that are being referred to when we talk about a «learning organisation». In an article[7] written in preparation for a workshop tour of the UK and Ireland, Michael Fullan describes the learning organisation as «a place where people are continually discovering how they create their reality and how they can change it.» In other words, «organisational» learning is largely about developing new ways of working and new forms of communication with respect to the context in which we live and work, and, as we will see later when talking about sustainability, in relation to the values that underlie our action and motivate our choices.

The preparatory documents for the OECD Educational Ministerial meeting in Dublin (2004) state that «there is a growing interest in ways to build cumulative knowledge across the profession, for example by strengthening connections between research and practice and encouraging schools to develop as learning organisations.»[8] It interestingly draws a parallel between teachers themselves as life-long learners and

their effectiveness as teachers especially in preparing pupils as future life-long learners. One would need to know to what extent life-long learning is perceived as the continuing pursuit of subject-based learning or if it also embraces wider skills including those related to organisational change. Emphasis in the document is put on teachers' understanding of individual learning processes with no mention made of organisational learning. One might wonder if this apparent lack is due to a failure to incorporate the contextual nature of learning and to take into consideration the influence of the structures of groups and institutions on learning. Coherent and enticing as the above OECD vision is, the small sample of cases studied here seems to indicate that we are still far from achieving it.

A learning divide between pupils and teachers

In the ERNIST Organisation Study interviews, it was apparent that there is a clear divide between pupils and teachers when it comes to learning. Put rather bluntly, pupils learn whereas teachers teach. A teacher's main job is to teach. Little time and even less recognition is granted to learning on the part of school staff. This lack of time and the pressure of other activities were given as major barriers to adopting new ways of working in the integration of ICT in education. The move to a learning organisation requires both an official commitment on the part of the organisation to put such learning on its agenda but also a willingness of individuals to adopt a learning culture. The UK has been a pioneer in recognizing the need to free school staff for learning, in particular head teachers, who are actively involved in a learning process about leadership with other head teachers (one day a week). Note that these heads remain in school whereas teachers specialised in ICT-use are often taken out of school to train other teachers, as the shortage of competent people is so great. In most schools, learning (on the part of pupils) is strongly associated with assessment. Maybe it is this tradition and the fact that teachers shy away from judgement, when it comes to themselves, that curbs their will to learn together. The fear of judgement was apparent in the interviews when talking about setting standards for learning resources and evaluating material produced by teachers.

Strategies for capacity-building

The most common strategy for «capacity-building» is training. Training is an organised activity that is familiar in that it resembles the learning that goes on with pupils. It is limited in time, takes place in a given context, follows a predetermined pattern and often is assessed. In the Fullan article mentioned above, the author puts forward a less familiar but more powerful type of learning: «lateral capacity building», that is to say, the development of competencies on the part of staff through peer-based learning. He posits that there are several successive steps in the move to lateral capacity-building: the realisation that capacity-building is important; vertical capacity-building using external trainers at a regional level; lateral capacity-building across peers. All of the cases studied here used external, regional-based trainers, even in the UK where elsewhere (in fostering leadership) a more peer-based learning is being introduced.

Gathering, developing and sharing knowledge

Alongside training, it is interesting to observe to what extent actors have formalised ways and means of gathering, developing and sharing knowledge and information. In the cases studied, very little recourse was made to research in gathering knowledge for decision-making. In one case, although research was used to evaluate a pilot project, the subsequent general rollout of the experience took place without waiting for the research results to be available. It would be extremely interesting, but probably quite politically incorrect, to question decision-makers about the knowledge basis on which they make decisions.

For technical subjects, the call for tender was occasionally used as an information-gathering strategy. More frequently commercial reviews and product demonstrations were a major source of know-how. In one case (eFIT) an extremely extensive study catalogued and evaluated over 250 e-Learning platforms. In most cases, no formal exchange mechanisms had been set up to share information amongst staff or other actors involved. Attempts to use Web-based tools for such exchange have been unsuccessful. For some, formally exchanging information was a luxury they couldn't afford (both in terms of time and money). For others it was supposed to happen «spontaneously» without the need for organisation. Many hadn't even thought about it. This attitude seems to indicate that the predominant culture in schools is not that of a learning organisation.

Best practices

One of the aspects of capacity-building that gets a lot of press is the sharing of best practices. The TSW Pathfinder project was specifically designed to generate exemplary practice that could then be used in the general workforce remodelling rollout. Best practice in Pathfinder was collected by external experts in the form of interviews and published in short case studies. That is to say it was selected and reformulated by people not directly involved in the process. This is an apparently cost-effective strategy in that a limited number of people with skills in writing and synthesising do the job in a focused way and the school staff are not too distracted from their work by the process of developing best practice. The downside of this apparent economy is that the actors in the field would have a lot to learn from being involved directly in the process of selecting good practice and formulating it so as to share it with others. As it is, well-polished case studies tend to shift emphasis from the importance of personal experience and the sharing of it with others in a more constructivist approach to learning by the consumption of ready-made recipes in a more instructionist approach where the actors are dispossessed of their experience. Effectively, best practice has its roots in personal experience. One of the barriers to having the actors develop best practice themselves is that they often underestimate personal experience. They consider it of little interest or use to others. This attitude was illustrated in the FRONTER case. Many teachers also find it very difficult to write down their experience, partly because of a fear of judgement, but also because of difficulties with writing itself. But above all, such a shared learning experience is not widely seen as being part of the teachers' role, even on the part of those who see schooling itself to be based on constructivist principals.

Networking

One of the essential ingredients in any process aimed at wide-scale sharing of knowledge is the capacity to develop thriving networks. It was repeatedly stressed in the interviews that many teachers are isolated in their classroom. Sharing knowledge and practice with colleagues is not part of their culture. Several reasons were put forward for this: fear of judgement; the way the curriculum is organised in terms of hermetically-sealed subject-based packages; the organisation of the teachers' working day (they leave the class to go straight home after lessons); the architecture with few collective working spaces; ... On occasions when a nascent network could have been fostered, as in the case of the EDUCANET2 testers or the users of FRONTER, little or no energy was invested. The question here is not one of fault, but that of priorities. Such a community-based approach to learning at a staff level was not on the agenda, although, in the examples given, the platform itself was a community-based tool.

Handling change

Developing a learning organisation is necessarily about handling change. Many of the people interviewed underlined the slowness of change in education. Although this slowness was often regretted, the pragmatic suggestion was to accept that change in education could only take place in small steps. In the case of FRONTER, it was clear that there was little room for «disruptive» change. It might be interesting to explore the perception of school as a valuable force in favour of a certain social stability. If school is more about stability than change, then the idea of the «learning organisation» in education might be misplaced. However, as there are so many projects related to change and innovation, there are clearly forces pushing to accelerate change. Competition is one of those forces. In talking of the loss of monopoly of schools with respect to structured learning (in relationship to EDUCANET2), actors were expressing concern about school being displaced or replaced by other organisations. This competition is more evident at the tertiary level than in compulsory schooling.

Change disturbs and disrupts. The more change there is, the greater the insecurity of the actors involved in it. Sustainable handling of change requires finding a balance between diminishing the feeling of insecurity while still pursuing change. One of the major factors in handling change (and diminishing fear) is trust, as was illustrated in talk with people in Neuchâtel (NE 01-04). In a climate that is perceived as excessively judgemental, taking a critical attitude to ways of working and means of communication is not very welcome.

Sustainable or not sustainable

What do we mean by a «sustainable» organisation when it comes to schools? Sustainability is generally understood in terms of the depletion of scarce resources. The concept was initially reserved for resources found in nature (petrol, water, air,...) but can be extended to «human resources». Such factors as trust, confidence and

motivation are costly resources that once destroyed are very difficult to replace. The UK pathfinder TSW Pathfinder project, amongst other things, was launched to fight against decreasing motivation on the part of teachers.

For all the talk of the plethora of knowledge in the so-called «knowledge society», a lot of rich, tacit knowledge – known only to individuals based on their experience – is extremely fragile. It is even more so if individual teachers are isolated in their work and have very little exchange and collaboration with fellow teachers (as mentioned above).

However the notion of sustainability can be taken further, and it is here we find the link back to the learning organisation. In the article by Michael Fullan mentioned above, the author defines sustainability as «the capacity of a system to engage in the complexities of continuous improvement consistent with deep values of human purpose.» In so saying, Fullan brings together three elements: handling complexity, on-going learning and a set of deeper values. Those values are essential to guide decisions and assess change. It is they that make sense of the drive to foster the learning organisation.

In the interviews, we looked at the institutional ways and means employed to pilot change and to develop knowledge. We also explored underlying values in relationship to education, technology and change. There was however rarely an organised relationship between underlying values, a related drive to improvement and the management of change.

The depletion of human resources

One of the two main themes of the recent OECD Education Ministerial in Dublin (March 2004) was improving teacher supply and effectiveness. Two aspects were emphasised: retaining teachers and training them. The case of TSW Pathfinder in the UK illustrates the growing realisation that human resources are not unlimited. The number of teachers in the UK is declining and will continue to do so according to predictions. Note that according to OECD statistics, the UK is one of the better off European countries10. Increasingly difficult conditions are driving many teachers to quit the profession. This loss of teachers goes hand-in-hand with an irremediable loss of experience and know-how for the education system and society as a whole. The strategy adopted aims at retaining teachers by easing their workload and by improving the image of the profession in an attempt to attract new teachers.

Motivation

Motivation is a key, but endangered, resource in the educational system. Wage increases are seen as a powerful incentive for development and change. The only problem is budget restrictions. One of the interviewees in the UK mentioned that the overall axiom in education is «No change without money». The UK has a scheme to reward teachers on the basis of their performance. This does not extend to non-teaching staff. Others saw job satisfaction as a worthy recompense for effort, although this more «vocational» attitude to education was seen to be on the decline. Motivation is also dependent on the nature of the work being done. In any talk of change there is necessarily a tension between the desire to change and the demands

for performance, especially where external accountability is measured in terms of pupils' performance in tests and exams. There is a need to find the right balance between routine and experimentation, between execution of instructions and empowerment, between external accountability and job satisfaction. These factors are rarely taken into consideration in efforts to integrate new technologies.

Leadership

When visiting schools in the UK while studying TSW Pathfinder it was clear that leadership played an extremely key role in the successful rollout of change strategies. Michael Fullan, mentioned above, was one of the main architects of UK policy on leadership in schools. For him, leadership is not a privilege of a restricted few, but rather a capacity that needs to be developed as widely as possible. Fostering the widespread development of leadership skills is a key factor in assuring sustainability. The more the cases studied in ERNIST were technically oriented, the less the question of leadership was addressed. In FRONTER – which was more concerned with the up-take and pedagogical use of an existing platform – interviewees stressed the importance of having the backing of school heads in introducing the platform. The limited remit of such a project does not allow it to address essential questions like that of leadership. Without a holistic approach to projects there is a serious risk that the neglect of essential factors will jeopardise their success.

Structures

The longer-term success of any new action depends considerably on the way structures are organised around that activity. As can be seen from the cases of FRONTER, EDUCANET2 and NE01-02, much change is introduced through short-term projects with little or no provision for longer-term maintenance and development. In these cases, funding and structures are temporary in nature. One might call this the «impulse» approach: you give the system a costly shove and then expect it to adjust appropriately without any additional investment. To some extent this works as can be seen from TSW Pathfinder where modifying the approach to change in schools is likely to have a lasting impact in that it has led to long-term structural and role changes within schools. Other projects have not necessarily sought or managed to have such underlying impact. This may be a question of values. Although actors are invariably motivated by worthy values in wishing to integrate ICT, their starting point is the technology and not the values. As a result, their strategies do not necessarily take into consideration all the aspects that need to be dealt with. Note that the complexity and interconnected nature of education makes a more holistic approach to change somewhat daunting (if only in terms of the means required). The EDUCANET2 case illustrates this dilemma well.

The structuring of the organisation itself – in particular when it comes to decision-making processes – is also a factor in the sustainability of change. Two types of organisation appear in the following reports. On the one hand there is the «federal» approach in which a central organisation seeks to foster coordination and collaboration in the integration of ICT in education between partners over whom it has no means of constraint. This can be seen in the cases of EDUCANET2 and FRONTER.

One might also call this the «consensus» approach as it generally involves using persuasion to bring pertinent actors to a consensus as the basis for concerted action. It is a costly and time-consuming process that is often inappropriate in situations of rapid change. At the same time, it could provide a shared vision as a solid base for action. On the other hand, a strongly centralised organisation seeks to re-empower actors, as in the case of TSW Pathfinder in the UK. This top-down approach lacks flexibility and responsiveness as actors depend on instructions from elsewhere. Part of the DfES is currently trying hard to re-empower local actors in a move away from excessive centralism, but they encounter considerable difficulties due to the inertia of years of obedience.

Means

Clearly an activity is not sustainable without the money or the personal investment needed to pay for it. However, you can have the funding necessary for the activity and yet sustainability may still not be guaranteed because appropriate means are not available for related activities which are essential but which have not been included in project funding. This is the case with EDUCANET2 and FRONTER. There are a number of categories of seemingly «magical» activities that are supposed to happen spontaneously. Teacher-produced content is one example. Community building and networking are others. Piloting innovation and setting up partnerships also fall into that grey area of essential aspects of the integration of new technologies that are taken for granted to the extent that no money is set-aside for them. It is not just the funding bodies that take these activities for granted but also those who organise the projects. No provision is made for them, partly because if it were the budget would appear too high.

Evaluation

Evaluation is one of the major activities of schools as it serves to certify that successful learning has taken place (and less often it is used to assist and direct learning in the case of formative evaluation). Evaluation is also seen as a way of channelling effort and motivating the otherwise unmotivated. The results of summative evaluation are amongst the main criteria used for holding schools accountable for their results. This form of accountability is much more developed in the UK than in Switzerland, for example. It puts considerable pressure on teachers and sits understandably much higher on their list of priorities than the integration of ICT. In several cases, it was mentioned that teachers in the throes of preparing their classes for external exams were tacitly exempted from having to move forward on the integration of ICT.

More generally, public education is increasingly being held accountable for its results. Politicians and public alike want tangible proof of performance. This is notably the case in the integration of ICT in education where heavy investments beg the question of tangible returns. In a sustainable system there's a need to find a balance between confidence-building short-term results and longer-term accountability assessed on the basis of the deeper values mention above.

One of the unfortunate aspects of relying heavily on this type of external accountability is that it tends to disempower local players by making them dependent on a one-size-fits-all, external evaluation rather than developing their own judgement about what they know and what needs to be known, given the circumstances (whether it be pupils or staff). If a system is to be sustainable, especially in the perspective of the wider concept of life-long learning, a balance needs to be found between external accountability and the fostering of individual and collective ability to assess needs for learning and develop strategies to learn.

A question of values

The projects described here are the expression of strategies adopted to solve particular problems. They do not overtly express the values the players invest them with. In this section, we will try to get between the words, looking for clues to the values behind the projects. This task is made all the more difficult in that the fine line between values and beliefs is not easy to draw.

Although most education systems do have an underlying mission statement often referring to values, it is generally restricted to the role of school in educating the young and says nothing about the organisational role of the educational institution in society at large. It is interesting to mention here Michael Fullan's idea of «public service with moral purpose»[11]. He cites three commitments: «raising the bar and closing the gap of student achievement; treating people with respect which is not to say low expectations; orientation to improving the environment including other schools in the district.» That is to say, he extends the responsibility beyond that of educating the young as individuals to embracing a wider context.

The need to close the gap in student achievement meets wide-scale support. The recent OECD Education Ministerial meeting in Dublin[12], in addressing the key question of raising performance, pointed to the results of PISA 2000 indicating that «raising performance levels depends critically on the capacity of education systems to address the needs of poorly performing students and schools.»

The central place of the learner

According to the head of Radclyffe School (UK), the education of the youngster is the necessary yardstick for all change. Most people would not disagree with such a statement, although it would first be necessary to define what is meant by education (see below). At the same time, the more we move away from the pupils and the class situation and move up into the regional and national organisation, the less this «yardstick» seems appropriate. It sets all emphasis on the learning of the pupils and none, for example, on the learning of the staff (unless it is in the service of the pupils). It seems to contradict a value expressed elsewhere here of the school as a place of development for all involved, including the staff and the local community.

Educating the «rounded» citizen

Not surprisingly, there is a broad consensus that the major goal of school is to achieve excellence in the academic performance. This underlines the on-going importance granted to formal knowledge as the foundation for preparation for adult life. What is more interesting, is the goal to develop the rounded person, that is to say a person who can play an active, responsible role in society. Why is it more interesting? Because, coming as it does from the head of a secondary school, it extends the role of the traditionally academic school in embracing the idea that pupils, as future citizens, need to learn to play an active role in society. It implies that school adheres to the idea that citizens need to be active and responsible in society. It also admits that school has a role to play in that education to citizenship. As such, it opens the way to the third of the THINK future scenarios in which school is centred on the notion of active citizenship and plays a role as a key, learning hub in the local community.

The importance of exchange and collaboration

Although they hadn't necessarily developed the tools for it, teamwork amongst staff was seen by many actors as highly desirable, both in itself but also as a positive example to pupils. Many of those interviewed considered the isolation of teachers as counterproductive. This value system implies granting an importance to the wider role of the teacher in school that extends beyond that of teaching in class. It ties in with another value mentioned above of the responsible citizen actively participating in the community in which he or she lives and works.

Learners building knowledge

A number of actors expressed support for a constructivist approach to learning, that is to say, the conviction that learning is most effective when learners build their own understanding in collaboration with others through meaningful situations. The implications of such a value system are immense. Learning cannot be delivered in shrink-wrapped packets. It comes from meaningful activities in exchange and collaboration with others. As most meaningful situations in real life are not «subject-based» but rather «trans-disciplinary», the very organisation of school is challenged. As it puts emphasis on handling learning processes, it also challenges the underlying forms of assessment that are based on content and results rather than processes. Note that one interviewee expressed concern about opting for such a unique approach to teaching, arguing in favour of adapting various methods according to the needs of the learners.

The necessary distribution of responsibility and the need for coordination

Decision-making and initiative need to be permitted locally, empowering schools to act on their own behalf and to be more entrepreneurial. The motivation for such a value is that schools will be better able to play their role in society if they are freer to decide and to act according to local conditions. This belief is more prevalent where there is currently a move away from centralism. There is also a seemingly counter belief that more coordination and even central control would improve performance. It

would bring economies of scale and limit contradictory or incompatible local initiatives. This belief is generally found amongst those working in federal or highly distributed systems. Given these contradictory wishes and the possible pendulum swing between the two, there is a need to build a system that distributes responsibility, empowering and motivating groups and individuals, but also that favours coordination and collaboration.

Investing in people

According to the head of Bramford school (UK), school should invest in people, whether they be staff, pupils or members of the local community. Investing in people implies empowerment, formative evaluation and learning and results in greater satisfaction, increased trust, enhanced learning by all and better performance. This goal is indicative of a certain style of leadership which might be called management by empowerment.

The attitude to change and technology

Change is valued by interviewees but doesn't represent a value in itself, rather like technology is valued but not seen as a value either. If they were to be seen as values, that would imply that they are self-justifying. In political and commercial discourse this is sometimes the case.

Disappearing technology

This study chose as its field of exploration the development and integration of learning platforms in education. In talking to actors in several countries, it became clear that many factors quite outside the field of applied technology were pertinent to the successful integration of ICT in education. As a result the importance of technology per se diminished in the topics discussed. Some of those topics have been dealt with above under the headings of the learning organisation, sustainability and values. Now we would like to turn briefly to the technology and some of the outcomes of the study that directly concern ICT and its use.

The invisible technology

There was a consensus amongst actors interviewed that too much importance has been given to technology. They insist that there is a need to set technological considerations in a more healthy perspective with respect to pedagogical and organisational considerations. It may seem paradoxical that those people whose activity is centred on championing the integration of ICT should argue so forcefully in favour of giving it a lower profile role.

The key to understanding this seemingly contradictory situation probably lies in the word «integration». One thinks of integration as the process of making a place for and overcoming barriers against the technology being introduced, and this is clearly the first step. But integration also has to do with the unobtrusiveness and the naturalness of the use of that technology such that it in no way obstructs the activities people are

doing with it. One of the characteristics of a successful tool is that it becomes an almost self-evident extension of ourselves. Industrial players put enormous efforts into making technology user-friendly, not always with much success. Much of the work on EDUCANET2 and FRONTER was aimed at gathering users' reactions so as to improve user interfaces.

The President of the e-Learning Industry Group13 (eLIG) in a dinner speech for EUN's Policy Innovation Committee in Paris mentioned that industry has the responsibility to make technology «invisible». This was portrayed as the ultimate in user friendliness. The job of users, according to him, is to concentrate on usage. This position would be acceptable if technology were neutral with respect to usage, but it is not and never will be. Technology necessarily affects usage. As a consequence, users need to consider the workings of technology and the influence of its form on usage. The «disappearance» of technology and the subsequent «self-evident» nature of technology are likely to make the task of being aware of the impact of technology on usage all the more difficult. It is much harder to be critical about the impact technology has and the way we use it. In other words, the more invisible the technology the less thoughtful we may become about it. How is that? Every time we come up against the clumsiness of ICT, it forces itself on our attention. In that clumsiness, there is an opening – albeit annoying, if we are trying to get something done – that makes us aware of our relationship to the tools we are using. Historically, this «clumsy» stage may be short lived, leaving us only a small window of opportunity in which to develop a more reflexive culture in relation to the use of technology. In addition, as technology becomes more «invisible», activities such a FRONTER, NE 01-04 and, to a certain extent, EDUCANET2, will become anachronous in that their starting point is the technology they are trying to integrate. It could well become increasingly difficult to justify funding on technology centred projects.

Simplicity versus complexity

Part of the drive towards an unobtrusive technology concerns the ability to handle complex tasks in a simple way. The challenge of achieving this was strongly felt in the case of EDUCANET2. Users wanted a more powerful tool than the earlier version of the platform, but wanted to keep the same simplicity of use. It is possible, as one person suggested, that the threshold of what is considered too complex may rise as people become more accustomed to such tools, but many teachers would appear to be on the lower end of that curve. At the same time, those technically minded people who build the tools have such a high tolerance for technical complexity and what one might jokingly call «technological pain» that they find it difficult to grasp the difficulties of everyday users. That difficulty explains why communication with platform makers is so important. In the case of both FRONTER and EDUCANET2 it was stressed how important it was to be able to talk to platform makers who understood the requirements of education and teachers. To make such communication possible, in most cases it went through intermediaries, making it less immediate and also less responsive to users needs. There seems to be a necessary trade-off between improved mutual understanding (as it is translated and transposed into the «language» of the other group) and imperfect communication (as communication goes through increasing numbers of intermediaries).

Content

Content can range from straight web pages displaying static text and pictures to highly interactive modules along the lines of «learning objects» enabling pupils to directly interact with content. In talking to people about the use of EDUCANET2, a distinction was made between providing content and enabling interaction. Although the platform provided tools for developing content, more importance was given to community aspects and the interaction between pupils. This distinction may be somewhat artificial, but it clearly reflects the decision-makers' choice of using ICT to favour the building of knowledge through community, exchange and collaboration rather than by distributing and enabling interaction with pre-made «content».

There was considerable controversy across the cases studied about who should produce content. At one extreme, there were those who saw valuable online content as made exclusively by professional content makers. The role of teachers was then to integrate that content in the context of their lessons. At the other extreme, content was made by teachers themselves as part of their daily work and shared spontaneously with other teachers using ICT. Although creating and adapting «content» was part of many teachers' activities long before the advent of ICT, the time and effort required to produce and distribute on-line content raises serious questions about whether teachers should spend valuable time making it. This is particularly so in the checks-and-balances system introduced in the UK to try to reduce teacher workload. In parenthesis, one wonders if there is not a danger that such a workload «bookkeeping» might lead to some form of a «Taylorisation» of education in which actors are disempowered and demotivated by only doing a part of the work. Evidence from the study points, on the contrary, to greater motivation of actors, especially those in non-teaching roles.

Content is a striking example of the philosophy of «spontaneous creation», that is to say, the belief that certain things happen without any additional means and without any regulatory structure. In cases where teachers were meant to produce content, this belief was prevalent. Little or no means were made available to assist the creation of content by teachers or to encourage its exchange. It was as if provision of the technical platform was enough and that creation and exchange would then happen spontaneously.

EDUCANET2 (CH)

Eight people were interviewed.
- *Elvio Fisler, responsible for computing, working in the area of special needs education, Fondation Verdeil*
- *Matthias Fuchs, Dean in Information and Communication, specialist in e-Learning, Pädagogische Hochschule Zürich*
- *Christian A.Gertsch, oversight of the EDUCANET2 project, Swiss Educational Server (CTIE)*
- *Martin Raske, e-Learning content development, Lernwege GmbH*
- *Christoph Schiltknecht, Swiss Educational Server (CTIE)*
- *Paolo Pollini, Head of the Swiss Educational Server (EDUCA)*
- *Bruno Wamister, responsible for computing, and teacher at the vocational school Gewerblich-Industrielle Berufsschule (GIBB) Bern (GIBB)*
- *Fritz Wüthrich, President of the Steering Group of the Swiss Educational Server, Swiss Conference of Cantonal Educational Directors (CDIP)*

3. The challenges of an overarching e-Learning platform

Introduction

The first concept for a Swiss Educational Server[14] (SSE) was written in 1998 by the Swiss Agency for ICT in Education[15] (CTIE). Using money provided by the Milton Ray Hartman Foundation, a pilot server was developed as a proof of concept. The initial idea was to seek sponsoring for the SSE from industrial partners. This proved difficult. Subsequently, the Swiss Conference of Cantonal Ministers of Education[16] (CDIP) and the Swiss Federal Office for Professional Education and Technology[17] (OFFT) were approached. A study was carried out by PROGNOS explaining the «why» and the «how» of the server and a technical concept was written by ICARE. The CDIP organised a hearing attended by over 120 people during which not only was the concept of the server presented but also examples were shown from Austria and France. A subsequent meeting was held with some twenty experts from the cantons. At the end of the consultation process, which lasted over a year, both the CDIP and the OFFT signed a contract to finance the Server on a project basis.
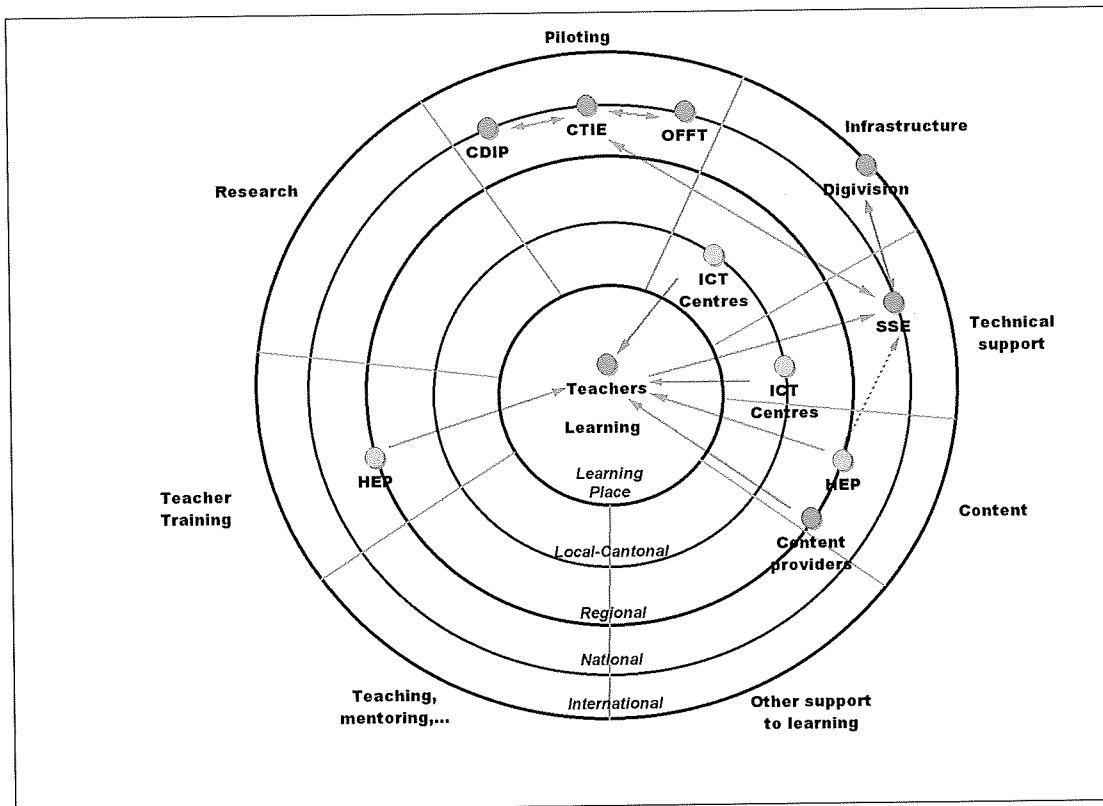
The initial concept of the server had three parts: 1) an information platform 2) a community platform 3) a learning platform. Only the first two parts were included in the first version of the server. EDUCANET1 was the community platform. Concerning content, two options were possible: a) linking to existing material but not producing own material b) producing own material. It was the second option that was favoured, although the tension between these two options still persists. The current tendency amongst most of the steering group members is to move towards a technical platform provided by the CTIE with content provided essentially by such actors as the members of the CDIP.

The Swiss Educational Server addresses those involved in education from infant school through to upper secondary school, including vocational training and special needs education. One of the main characteristics of the server is its plurality. It is in three languages (German, French, Italian) with additional parts in Romanch and English. The content reflects differences of orientation between the linguistic regions. The server is run by the CTIE and the steering group is made up of the OFFT, the CDIP, the Federal Office for Education and Science[18] (OFES), two representatives of the cantons and the CTIE.

After two years, it was decided to renew the server on the basis of feedback from users and a usability study. One of the major changes was the introduction of EDUCANET2 bringing in the learning platform and integrating it into the community area. Such a choice is significant as it marks a preference for a collaborative form of e-Learning rather than an instructionist approach.

As mentioned above, funding was provided on a project basis. As the framework for part of that funding has ceased to exist, it is now a question of moving funding to a more stable basis. This discussion is made more complex by widespread measures to reduce state spending. A new contract for the Swiss Education Server is currently being worked out with the CDIP and the OFFT.

Mapping out the situation

The main actors in relation to the current testing phase of EDUCANET2 are depicted in the following «map» using the sign •. The Swiss Educational Server (SSE) is run by the Swiss Agency for ICT in Education (CTIE). The activities of the server, including EDUCANET2, are funded by the Swiss Conference of Cantonal Ministers of Education (CDIP) and the Swiss Federal Office for Professional Education and Technology (OFFT). All these actors are situated at a national/federal level. The SSE is in direct contact with Digivision, the German firm that developed EDUCANET and EDUCANET2. The main testers (and users) of the new platform are the teachers. Note that any feedback from testers goes via the Server staff. There is currently no research going on about this work. A number of newcomers (those indicated by) are either involved in the process or have an influence on it. A few of the new Higher Education Institutions (HEP), along with a private company, are producing exemplary content for the platform. The cantonal educational ICT centres are potential partners. As newcomers, they have to assert and justify their presence. The way they will fulfil their mission is not yet necessarily fully determined. Given their position, they are likely to act as intermediaries between federal level organisations and teachers. In this changing situation, the existing actors like the CTIE and the SSE have to find a modus vivendi with these relatively new actors. To get a clear understanding of the dynamic of the adjustments necessary, it is important to understand that, in the federal system, there is a very great deal of autonomy of the local, cantonal and regional levels with respect to federal level organisations.

Perceptions of education, teaching, change and technology

An essential factor in understanding work on a platform like EDUCANET2 is the perception of the actors concerning education and teaching, as well as technology and change in educational institutions.

A constructivist approach

Many of those interviewed said they favoured a constructivist approach. «I favour a teaching and learning environment based on cooperative methods and approaches rather than the instructionist paradigm.» Or as another person put it «... you do not learn because somebody in front of you tells you something and says: «Learn this.»» The role of the teacher was seen as undergoing change: «It will change from possessor and transmitter of knowledge to coach. Teaching will act as a guide to life that is not exclusively tied to knowledge, but develops the ability to handle the challenges of such things as the new media, the Internet and ICT.» Motivation was seen as a key factor in learning: «Learning can only occur if you are truly motivated to learn. If you are, then you almost learn by yourself.»

Slow changing education

A number of interviewees were critical of existing institution-based learning: «All these institutional forms of schooling we use are rather limiting or frustrating to varying degrees.» Change was seen as being difficult in that context: «Education is not a good example of rapid change.» Another person also insisted that things go slowly. «They don't happen from one day to the next. Maybe we should consider this over a ten-year period. Then we'd see what changes the media have produced.» Change is not seen as easy. «Changes are necessarily linked to temporary disruption and entail costs.» Those «costs» are often born by individuals: «When teachers – who are interested in moving forward in the use of media – have to use their spare time to set up computer networks or have to pay for courses themselves, evolution is likely to be slow.» One interviewee insisted on praising teachers: «I'd like to praise teachers as very many of them have really made an effort to take part in this process and not persist in what used to be appropriate roles.»

Plurality of knowledge

Education was firmly set in the context of the increasing plurality of knowledge and information sources. «School no longer has a monopoly on education but now shares it with society at large, including international networks and above all the new media.» This situation could not be ignored, one person pointed out: «School has no other choice as children are necessarily in contact with that world.» Society was seen as highly networked both at work and in private life. «Exchange within these networks has become extremely important. Today nobody can claim a monopoly of education, of information or of knowledge.» This situation contributed to a change in the perception of the role of education. «Knowledge is available in all sorts of places. The difficulty is to develop strategies to get access to that knowledge. The most important role of schools is not so much to impart knowledge as learning strategies.» It is

interesting to note the central role given to teachers and teacher training in these changes: «The key role lies with initial and in-service teacher training. After all, it is teachers that make school, not politicians or organisations.»

The wider context

In talking about teaching and education, those concerned with the more political aspects set that discussion in a wider context. «Above all, a political consensus is necessary about where we want to go.» For those working closer to the preoccupations of teachers, the concern was different: «We lack the overall picture.»

Technology in the foreground

Another pertinent factor in understanding the integration of ICT in education lies in the perception of actors concerning technology. As elsewhere in the ERNIST organisational change study, much emphasis was put on the need to reframe the role of technology: «Technology is just a means to reach a goal.» It was seen by many as being too much in the foreground. «It should be like a pencil that you do not even think about when you are using it.» This need to have the use of technology become «natural» was put very graphically by one interviewee: «The technology which you envisage as a simple tool that should be a means for something else, is always moving into the foreground. It is always catching the attention of whoever is involved. Getting over that depends on technology developing such that it really disappears: like looking through a window at what is outside and not looking at the glass pane.» This perception of technology has a direct impact on the metaphor of an e-Learning platform. «What you are used to in everyday life dealing with people, moving in houses, buildings, rooms, using traditional tools like pens and paper, and books and bookcases you also find in the virtual space.» Using the term «intuitive», one person insisted that technology had to change to «become intuitive such that it posits no obstacles to the user.»

The invisible tool

As a counterpoint to the invisible «tool», there were those who insisted that its use needed to be carefully thought out: «There's no use making technology available without knowing why or because it is «modern».» The aspect of «modernity» was however defended by another speaker saying: «It is important for teachers to be used to a technology that seems modern so that they can share it with their pupils in class.» One can speculate that this position was justified partly by a need to reinforce the role of teachers as those who know and who are up-to-date, to dominate rather than feeling dominated by the technology. One person mentioned: «teachers are afraid they'll be replaced by the technology.»

What is EDUCANET2?

When listening to interviewees talking about EDUCANET2, there was an underlying tension between an integrated, overarching approach, in particular on the part of the

authors of the project and certain educational authorities, and a more distributed, less-monolithic approach adopted mainly by some teachers and teacher trainers. Those in favour of the overarching approach see EDUCANET2 as «very extensive», «catering for all users», «unified», «all-embracing» and «all-in-one». For them «having bits and pieces in different places makes things complicated». Talking about the related organisational structure, one person envisages as the best solution: «... an over-arching organisation that provides a learning platform – evaluated by those in the praxis – suited to some 90% of our needs. In addition, it should handle administrative questions.»

Those in favour of the «distributed» approach prefer to be able to pick and choose, refusing the logic of the «universal, one-size-fits-all platform». One says: «I'll continue to use EDUCANET2 for certain things because it is simple to use and convivial. For the more advanced groups, I'll use SPIP or ZOPE. I'll use different tools, trying to get closest to the real needs. « The position was well summed up by another person: «Intensive e-Learning in the future won't be limited to one tool but will use the most appropriate tool for a given task.» These people express concern about the necessary complexity of the overarching approach, in particular the administrative part. They do not however challenge the possible need for such an administrative tool, but are concerned about the additional workload entailed. Some prefer open source solutions like ILIAS to a proprietary platform like EDUCANET2. According to them, open source platforms make users less dependent on companies to cater for their needs. Strangely enough, one of the main concerns of the producers of EDUCANET2 was not to limit the users in doing anything they might want to do.

The person responsible for the technical aspects of the project posited three components to EDUCANET2: software (tools for communication, cooperation, learning; administration; support); content (didactics); e-enabling (building the capability to use the medium). In describing how they saw the platform, interviewees highlighted one or another of these components. Some place the accent on communication and cooperation. As one person put it, «... on the one hand the platform exists for a community that uses it and, on the other hand, it encourages the building of such communities by providing the tools needed to communicate with each other.» It is significant that this communication is seen as being both within schools and between schools. For others, the administrative aspects are paramount. One person said: «EDUCANET offers an institution the possibility to mirror its own structure in the virtual space.» Another insisted: «It is an empty space, a ready-made platform that comes without content. You have to define the classes and groups, enter the people and say what you are going to use it for.» Others concentrated on those tools they wanted to use: the mail service, the chat, the short message function, the file depository, the control panel, ... Content was important for one person: «EDUCANET2 makes it possible to post content on the net and to create online exercises including multiple choice questions and texts with blanks.» The idea of e-enabling also interested people but there were doubts about the feasibility of this aspect, given the limited financial resources. A number of people saw EDUCANET2 in the light of its predecessor, EDUCANET, looking forward to improvements on tools they had become accustomed to in the earlier platform. As one said: «What interests

me about EDUCANET2 are the extensions of EDUCANET1: the tree structure for the exchange of documents; creating additional levels in websites; ...»

Technology and ways of working

One school of thought believes that EDUCANET2 is not necessarily going to change ways of working. «The platform does not force you to drastically change your whole way of teaching. You could use just one or two tools from the platform.» As an illustration of this more conservative approach to the use of such tools one person said: «In vocational school, the normal way of working was for teachers to dump their documents in PDF on a server for pupils to retrieve, read and be tested on. Their idea of e-Learning was as a means of distributing documents instead of handing out photocopies.» One person went so far as to be sceptical about the extent to which such platforms are used «One hears a lot of figures about how many teachers have signed up to use the platform. If I consider my student teachers I see how quickly they sign up, get a password and possibly create a page but then go no further. I have doubts about how much really goes on in schools.» Other factors than the technology are seen as likely to resist changes in ways of working. One interviewee described how, using EDUCANET2, he can transfer a number of face-to-face lessons to distance learning and even to experiment with a whole day of distance learning. «Apprentices don't like this solution, as they prefer to come to school. It's a question of social considerations: they meet colleagues and talk directly to them.» Note that this experiment is part of an e-Learning programme encouraged by the school management. Teachers get time off for training. There is however little interest on the part of those responsible for the apprentices in their companies. «What is important for them is that the apprentices pass the final exams.»

The other school of thought sees EDUCANET2 as a motor for change in ways of working. «If the technology is built in such a way that it intuitively suggests ways of working, that would be ideal.» An example of such a new way of working was the collaboration the platform made possible: «Teachers and students will be able to create documents either in teams or individually and let fellow students have access to those documents to criticise and edit them. They can discuss them in a forum or use any other of the communication tools. It is much more geared to cooperation and not simply having the teacher instructing the student.»

Relationship between the actors

Piloting by consensus

In the Swiss federal system, responsibility for school-age education is almost entirely in the hands of the Cantons. As a consequence, the education system in Switzerland is not built on a centrally decided schema. Any overall coordination between actors is necessarily based on consensus. As one person put it «Consensus in Switzerland can never be equated with one person or body dictating which way to go. The federal structures don't work like that. Consensus cannot come from a central decision. It has to spring from the fact that decision makers in the Cantons act on the basis of a

consensus. How should this be done? By drawing up, but not enforcing, the outlines of a direction to be followed and then convincing the Cantons to go in that direction.» The ICT Task Force was set up to make possible, to improve and to facilitate that coordination in the field of ICT in compulsory education. The ICT Task Force brings together the major actors both at a federal and a cantonal level (via the CDIP). The official role of this Task Force is not to finance or run projects but rather to have an overview of the situation. The underlying philosophy of the Task Force is that through sharing information about what members, both from Federal Offices and Cantons, are doing and through discussion, reach a consensus that that will be the basis for coherent action in the differing circles members work in.

The decision makers on a Swiss level – that is to say the representatives of the CDIP and the OFFT – provided the funding for EDUCANET2 (in the context of the Swiss Educational Server run by the CTIE). Subsequently the individual members of the CDIP – that is to say the twenty-six cantonal educational authorities – also need to create the necessary local conditions for the use of EDUCANET2. That implies providing the technical infrastructure as well as training teachers to use the platform. The Cantons have expressed the wish to use the platform, but whether individual cantons adopt EDUCANET2 or not, depends on them and is, to a certain extent, conditioned by the local context including existing organisations, their programs and their ambitions. In the federal system, there is no way Cantons can be obliged to comply in such a matter. In this process, the President of the Steering Group of Swiss educational server, who works for the CDIP, has a key role to play. He sees himself as a mediator between Swiss educational decision makers and those who run the Swiss educational server, including EDUCANET2.

CTIE

Understanding the place and role of the Swiss Agency for ICT in Education (CTIE) is essential in understanding the work on EDUCANET2. The CTIE is a small organisation based in Berne, employing some 25 people. Several Federal Offices and the CDIP delegate responsibility to the CTIE to run certain services in the field of ICT and education. The CTIE runs the secretariat of the ICT Task Force, for example, and manages the Swiss Educational Server (amongst other things). EDUCANET and EDUCANET2 are both part of Educational Server. The mission of the CTIE is to promote ICT in education in Switzerland and it does so by «informing, documenting and advising» the actors. It also provides services via the Swiss educational server (EDUCA). The main audiences are school authorities and teachers from infant school through to upper secondary school including vocational schools and special needs education.

The CTIE can be seen as a change agent in the process of integrating ICT in education. The impact of its action is restricted by the limited means it has available, but also by the influence it can have over processes it doesn't control. It is situated at the centre of a web of forces some of which are aligned to common goals, others of which are straining in different directions. It is probably symptomatic of this situation that many of the people interviewed expressed opinions about how the CTIE should play its role. The difficulty of that role was clearly expressed by one person who said that: «The

CTIE should create the structures not the content. However, the CTIE should set up partnerships to make such content. The CTIE should not limit itself to purely technical questions. On the other hand, the CTIE would be over stretched if it had to gather information about everything.» The same applied to training for EDUCANET2, as another person said: «I don't know if the CTIE will organise the related teacher training or if they will make a call for offers.» Challenged about the need to address a great many related issues in introducing software like EDUCANET2, one person said: «EDUCANET2 is a part of the wider picture. You don't necessarily have to roll out all areas for every new project. They need to be included but you need to take into account that a number of things are already underway.» There seems to be a relative consensus that the most appropriate strategy lies in partnerships. «The CTIE needs to be more active in setting up partnerships (related to training teachers). That doesn't mean that the CTIE has to pay everything, but rather that it should provide a clearer idea of what is or will be available and, even better, to publish exemplary work done with these tools.»

In-service training institutions

Some of the most likely partners of the CTIE in working on EDUCANET2 are the in-service training institutions. A couple of them are involved in testing the new platform. Such institutions work at a cantonal or regional level and as such are potential intermediaries in the drive to reach teachers. With the recent creation of higher education institutions dedicated to teacher training (HEP) through the specialisation of existing organisations and networking between them across cantonal boundaries, such training is likely to be more open to exchange and collaboration. Potential partnerships, according to one interviewee are hindered by insufficient communication. «Maybe the in-service teacher training organisations in the cantons should be better informed about what is available for teachers.... I could imagine that courses could be organised in which EDUCANET would be a central tool.»

Networking

As one interviewee pointed out, actors don't act in isolation. «There are all sorts of networks through the CDIP, via the SKPH (the network of HEP), through EDUCA and in work on projects. There is a web of relationships and networks.» When asked if those needed strengthening, he replied: «No doubt we could strengthen some of the hubs in that web. But it would be pointless to bring all actors together to make specific decisions. That would be too gigantic, too vague, too formless. The key hubs need to be encouraged and strengthened.»

This raises another question about the effectiveness of networking: that of the diversity of the field covered and the differing interests of the actors involved. Would it make sense for primary teachers and university professors to meet to discuss EDUCANET2? To which the interviewee replied «No.» Adding: «There is however a point of contact between the two levels: teacher training. Teacher training goes on at the Tertiary level and then teachers return to the Primary level. Institutions like the HEP are anchored in the tertiary level but at the same time need a very strong connection to the Primary level. These people, as «hubs», need to be strongly encouraged.»

Training

The shift from EDUCANET to EDUCANET2 is a move towards more elaborate service and greater complexity. This has its impact on training needs. Talking of the earlier platform, one person said: «One of the biggest advantages of EDUCANET was that it was so easy to use that it didn't require much technical training.» The story is quite different with EDUCANET2: «The platform is so complex that we have to train people in schools: the administrators in the institutions will have be trained by us. We will have to provide instruction on the new possibilities of the platform.»

Various suggestions were made about how wide-scale training could be undertaken. One person talked of a snowball effect. «Start with a limited number of teachers who know the platform well and who have already made content for it and have them teach others.» Another advocated a cautious approach: «It is better to go forward step by step rather than try to move forward on all fronts. It is important to find people who are enthusiastic for the project and want to try things out.» Use of ICT outside the school context was also seen as helpful: «People use the tools in a wider context, in their hobbies, in their private life. All the better. They become more competent in using them.» Motivation was also seen as a key factor: «There has to be a drive to use these tools.» It was suggested that wider-reaching change could come about from apparently simple uses of the platform like publishing material for others.

E-enabling

One of the key strategies in training people for the use of EDUCANET2 is «e-enabling», understood to mean the development of wider competences in the integration of the technology in education. One person who was strongly committed to the idea of e-enabling described it as follows: «E-enabling is a form of change management and takes place in face-to-face contact, not via an online platform.» For logistical reasons, he saw great difficulty in having to develop the required wide-scale face-to-face contact. «... if we really want to make EDUCANET2 successful, we need to go out into schools, and sit with the teachers to show them why and how the tools can be integrated, what know-how is required to enrich lessons.» Several people regretted that the initial training course in Berne set the scene by being a classical training course aimed at making the functions of the platform known. «It was not possible to discuss such things as e-enabling.»

One person raised the question of insufficient budgetary planning in such introduction of new technologies: «I've noticed with a number of e-Learning projects that when people draw up a budget, money is above all there to make the tools. Of course you need the platform... and once you've got that then you need a budget for content. And finally you realise you need to get the teachers up to speed and then there is no more money left. A lot of projects fail because of that. Money is invested first and foremost in tangible things. E-enabling is hard to describe and to grasp.»

Content

A number of content-related pilot projects ran parallel to the testing of EDUCANET2 involving the teacher training institutions of Zurich and Aarau. Their perspective was different from that of those testing the new platform. «They are not currently testing the functionality of the platform. They are creating content that will be implemented on the platform. That will serve as a «best practice show-case», to show future users the possibilities, especially of the eLearning modules.»

The question as to whether content should be created and by whom raised a number of issues. The central issue was who should create content. «Content has to be created, although not by a central organisation. All people in the community are working on it according to their different roles. We need to find a suitable division of work such that content can be made. We also need to make the platform widely known. We need to guarantee the user friendliness of the platform so that we can concentrate on content.»

One person stated: «I don't think it would be a very good idea to prepare a lot of content for teachers and then tell them they can begin to work, even if that is the tendency of teachers in Switzerland.» This person had a very demanding approach to teaching: «As a teacher you continually need to question the teaching process, asking: Why am I doing this? What is the methodology behind what I am doing?» He saw a danger in the ever increasing workload of teachers: «... if you have too much to do, you no longer have time to ask such questions.» He saw the creation of content as a complex, laborious process, saying: «I don't expect teachers to become «media authors» and have fun creating e-Learning content.»

Knowledge building

One of the hypotheses being tested in this study is whether or not educational institutions are «learning organisations». To what extent are the educational institutions geared to learning about themselves, in particular about their ways of working and communicating? What strategies if any have been adopted to improve those ways of working and means of communication?

Communication

Communication is a key factor in developing knowledge and it is perceived as important by the interviewees. When it comes to communicating with the firm developing EDUCANET2, preference goes to face-to-face meetings. «We have regular face-to-face meetings. That is very important.» Common perspectives are seen to facilitate communication. «Communication with the firm making the platform works very well because they are engaged in teaching ... That facilitates matters a lot. I have contacts with many sorts of firms producing all sorts of technology. One of the major difficulties is communicating with people who have no idea of how an educational institution functions.» Although there is constant contact by telephone and via email, face-to-face meetings are seen as a prerequisite for good communication. «Every

three months we meet. It is very important to know the people and to get the hang of their way of communicating. Once you know all these individuals it is very easy to also talk to them on the phone. Direct communication by phone is the most efficient.» Electronic exchange is seen as insufficient especially in complex matters. «Emailing alone would not be efficient. There are many questions that are not simple errors where you can say «Do it right». Those that are complex you have to explain.» The relationship with Digivision, the firm developing the software, is said to be good. «Digivision are very responsive... They never said: This is the product we are selling you. If you want anything more, you'll have to pay for it. That is not the way we are dealing with them. It is an on-going process that is very productive and efficient. « The difficulty is finding a solution to a problem which is technically feasible and which, at the same time, is acceptable. Working is more collaborative: «We don't say: «We need this solution. Do it.» It is more that we ask them for suggestions and whether they have similar experience with other clients.»

Communication with testers takes quite a different form. The people of the Swiss Educational Server keep a very detailed log-file where they enter the most minute detail of observations made about the platform. «Teachers inform us by email or they can use the template of the log-file and we then merge that with our file.» The log-file is mailed to Digivision on a weekly basis. From the perspective of the Server staff, there are different types of testers: «Some are very inquisitive and are all for trying out new functions they haven't encountered before. For us these are the more valuable testers. Others frequently hark back to something they find lacking in the platform...» Testers are dissatisfied with this communication. First of all they wonder if any attention is paid to their contributions. «We provide notice of bugs and a wish list. Unfortunately we have no idea if anything happened to our feedback.» Then there is the lack of notification of changes. «From time to time I notice a new feature has been added. It would be good if there was an online forum where Digivision made public the new features they have added.»

For the server staff, the problem is elsewhere. They point to the inappropriateness of much feedback, for example, the wishful thinking. «Wishful thinking does not go in the log-files. We keep a different file for further releases... There are so many things that are necessary that we can't afford to deal with things that would be nice-to-have.» Part of this refusal is due to time constraints. «We do not enter into a discussion of fundamental questions of teaching with the testers. That is not the purpose and we have no time for it. Our aim is to get as much information as possible from potential users. Some of the information we can use to change something and some of it is wishful thinking. Then we have to say: That's nice, but it is out of the question. It is not planned. It is not part of the product. Many responses fall into this category.» Asked about the possibility of making information about testing available to testers, one person replied: «Our time is so taken up by this daily business of dealing with and solving problems that there is no time to move to a meta-level to gather, rearrange and make available all this information.» A general argument given seemed to dismiss the problem somewhat off-hand: «You can devise any product but there will always be people who find it is to limited for their purpose.»

A number of people speculated on the reaction of future users to the platform. «I

wonder what the general response will be on the part of those who have been using the old platform. I suspect there will be a large number of the users who will say that it is a pity. The old platform was so simple to use whereas the new platform is sophisticated and has to be learnt and adopted.»

Exchange and collaboration

As we have seen above, the relationship between testers is essentially one way. It is also highly centralised: information flows from individual testers to the server staff. There is little or no horizontal exchange between testers. When questioned about the subject, the actors in the field are in favour of better networking. «If one could improve networking, that would be worthwhile goal.» Or as another person put it: «In the end it is not just a question of financing projects, but rather of sharing experience.» One person saw the role of the CTIE as facilitating networking: «The CTIE – including the Swiss Education Server and EDUCANET2 – should make the networking of pedagogical institutions possible. But it doesn't develop pedagogical models itself. This could be done by setting up partnerships.» A discussion group was set on EDUCANET, but it doesn't seem to have been used much. «I came across it not so long ago. There was relatively little exchange going on. The problem is that it consumes so much time. I had to make choices in favour of other priorities related to my work.» One institution working on content for the new platform hinted that the lack of horizontal communication might be due to rivalry. «It's more like competitiveness. We don't know what the others are doing but at some future date what we are doing will be presented together. There shouldn't be rivalry but rather discussion so we can make some progress.» Some felt that whatever communication they had was limited to technical issues. «A lot has been said about technology and which is the best platform... It could become a very interesting exchange if the CTIE were to take it up in the form of a critical discussion about content...» A person working in a vocational school was sceptical about creating new networks. Teachers at his level, according to him, are more interested in exchange with others teaching the same subject. He considered that pedagogical questions were sufficiently covered by the SIBP training. Time was a key factor: «With all these e-Learning things going on, ... I'd like to get back to working on things from my branch. In an innovative field like mine, keeping up to date is a real challenge.»

International exchange and collaboration

Asked about possible exchange and collaboration on an international level, one of the server staff replied that they had informal contacts with the German «Schulen-ans-Netz» (which uses the same platform). Such exchange is individual and in no way systematic. The idea of international exchange was appealing but seemed to fit tacitly in the category of «wishful thinking»: «It would certainly be very instructive to see what other countries are doing. The only way we have of following this is by reading the literature or by participating in meetings.» As for research, none has been undertaken as yet. «It is something we envisage for the future. The nature hasn't yet been decided. One possible subject would be the e-enabling measures.»

Future issues

The uptake of the platform

Amongst future issues mentioned by interviewees, the question of the uptake of the new platform was a source of concern, although there was confidence that difficulties could be surmounted. «Whenever something new is offered teachers are prone to be very critical of things that are different. Once they see what they can do with it I am confident that it will be accepted and adopted. «One particular source of concern was migration from EDUCANET to EDUCANET2. «Communicating the new platform as opposed to the old one may be a difficulty. There is a technical limitation that means it is not easy to migrate from the old to the new. There are ways you could do that, but not on a global scale. «The uptake of the new platform was related to the need for promotion and awareness work: «To motivate colleagues that they make wide use of the platform for eLearning.»

Insufficient framework conditions

Another issue addressed by interviewees was the insufficient framework conditions for the success of EDUCANET2. «In some primary schools, the only place the computer is connected to the internet is the director's office.»

Finances

The availability of means was also seen as a future concern. «There will be less money available than now. Nothing can be done in addition to what we are doing now. So we will have to shift the resources used for administration and communication from the old platform to the new one.»

Lifelong learning

Lifelong learning was also mentioned as a future theme that will be important for education. «In the modern world, people need to adapt to new situations, especially if you work for a large organisation. You need to be able to take part and to learn from that experience.» However the current education system does not cater satisfactorily for lifelong learning. «There is no satisfactory overarching framework within which to understand lifelong learning.»

Points for consideration

Simplicity versus complexity?

The EDUCANET platform was particularly appreciated for its simplicity. At the same time, users expressed a wish to have access to additional functionality. In providing those functions and more, much of the simplicity has been lost, possibly unavoidably so. The salient questions then become: to what extent will that complexity be a barrier to users? And can that complexity be reduced?

An overarching solution versus individual freedom of choice

A part of the complexity of EDUCANET2 springs from the choice of it being an integrated platform that requires a complex infrastructure to guarantee communication between the different parts of the platform and with the user. The solution chosen entails a considerable amount of administrative work. To what extent, for example, is it necessary to export the whole school structure to the virtual school space? Doing so could be seen as putting unnecessary constraints on an otherwise freer structure. It could also be seen as using the technology to conserve existing structures that may not be conducive to learning in the future.

For those who only want to use a limited number of features, that infrastructure would probably be too cumbersome. One could argue that such people don't need to use the platform. However, the underlying philosophy of those making the platform is that it should cater for as many needs as possible and be adopted by a very large audience. This decision to provide an overarching solution – with a number of very good arguments in its favour, not the least of which are compatibility and cost effectiveness – runs up against the opposition of those who claim the right to pick and choose. These people have history, the market forces and increasing individualism on their side. Maybe the answer, if there is a satisfactory answer, lies in strictly limiting the «overarching» structure to only those elements that need to be overarching (the question of access using a system like LDAP, for example) and then putting most energy into assuring interoperability, and encouraging exchange and collaboration. It is not certain, however, that such a merit-worthy but probably unsubstantial project (an online platform is tangible whereas exchange and collaboration are difficult to demonstrate) would attract sufficient funding to work. Exchange and collaboration are part of a mysterious category of activities that are supposed to be spontaneously self-generating.

Limits to the consensus approach

The question of the nature of EDUCANET2 and the related activities also point to a possible role for a «central» organisation in a federal system where the major question is who does what for the system to work best in the interests of everybody. And where such central organisations have little or no say over what local bodies do. EDUCANET2 was set up within the framework of a contractual agreement between the CDIP, the OFFT and the CTIE. In that framework, the individual cantons finance the development and running of such services as EDUCANET2 through the CDIP. However they are not contractually obliged to create the local conditions necessary for the satisfactory deployment of the service. In other words, individual cantons contribute to the financing of a service that they are then free not to use.

The «soft» consensus approach mentioned in the interviews shies away from constraint. It relies on persuasion and, because of its slowness, is ill adapted to fast moving, complex situations. Piloting by consensus here has to do with diminishing the barriers due to questions of «territory» such as to enable some form of coordination. A possible improvement might lie in shifting consensus, once obtained, to a more contractual relationship on the basis of that consensus. This would require a more realistic estimation of workload seen from a holistic perspective (see next point).

Local considerations versus prerequisites of the larger context

One of the underlying hypotheses of this study is that satisfactory management of the integration of ICT in education requires a holistic approach. The reality turns out to be more complex. The failure to take into consideration the wider context can be seen in the attitude to content but also to e-enabling and community building. For EDUCANET2 to work satisfactorily it requires users, those users need to have certain competencies and know-how and there also needs to be content. None of these things are fully catered for in the programme EDUCANET2. It may well be that the holistic approach is not an integral part of current management culture. That in turn might feed on the erroneous idea that technology alone is sufficient to produce the needed changes. From an economic perspective, there are convincing reasons not to adopt a holistic approach. If these three aspects: networking, e-enabling and content had been fully integrated into the EDUCANET2 project, the corresponding budget would probably never have been accepted. On the other hand, the failure to organise satisfactory strategies to cater for these aspects of the project could well make the use of the platform much less effective than it could be.

Consumerism or community

To give an example of the impact of limited resources, let's look at the attitude to testers and future users. Although advocates of the project clearly expressed a preference for a constructivist approach to learning based on a community of exchange, testers were not seen as a community but rather cast in a consumerist role. One could imagine that a network between testers could be the starting point for an active community of users – one that is dearly needed for the subsequent success of the platform. But, given the limited means available, staff are too busy to cater for networking amongst testers and users. Somehow it is expected to happen spontaneously.

An invisible technology versus a thoughtful technology

Finally, on a more philosophical and yet extremely important note, there is an underlying tension between the desire for an omnipresent but invisible technology, one that is seen as natural and intuitive, one that you hardly need to think about, and the need to understand and pilot the use of that technology such that it corresponds to our values in society. These may not need to be contradictory if the drive for user-friendliness is accompanied by empowerment of users to reflect on ways and means of using the technology.

Fronter, The Hague (NL)

The interviews in The Hague were organised by Peter Molenaar of HCO. Many thanks to him for that. Thanks go also to Ferry de Rijcke of the Dutch Inspectorate who put us in contact with Peter.

Seven people were interviewed in The Hague.
- *Göran Kattenberg worked for ACCESSION on the FRONTER platform*
- *Dick Hooijkaar, advisor to the «local minister of education» in The Hague.*
- *Marlies Bedeker, a «moderator» who goes into schools and accompanies teachers using ICTs in teaching.*
- *Ewald van Vliet, former member of the group that decided on the learning platform and who was also responsible for the study of available platforms.*
- *Peter Molenaar, works for HCO and plays a coordinating role between the different actors involved. He is a former school director.*
- *Hans Pronk, involved in teacher training.*
- *Paul Mengelberg, teacher using the new platform. ICT coordinator in his school.*
- *Additional background information was provided by Ferry de Rijcke of the Dutch Inspectorate.*

4. Cooperation versus autonomy?

The Hague

A tale of two cities
The Hague is like two cities that, in a way, are worlds apart. On the one hand there are those who work in ministries, in embassies, in international companies like Shell, and in international organisations like the International Court. The other part of The Hague has a very strong popular culture and has its own separate language. These two populations live in separate areas and their children attend different schools. Recently this division has become blurred by the influx of a large number of migrants in The Hague.

A long history of tension
The education system in the Netherlands was set up during the French occupation of the Netherlands in the late eighteenth century. Napoleon at that time was also reorganising the state in France. The French had a very strong centralistic tradition that was foreign to the Netherlands, were provinces and cities were relatively independent. The first law about education dates from the beginning of the nineteenth century and it was in 1802 that the Dutch Inspectorate was founded. Throughout the nineteenth century people fought to get back their right to open their own schools. There were three conflicting forces in the education system. The first was unity as imposed by the French and which some people thought necessary for economic development and nation building. The second was the freedom of citizens to found their own schools on the grounds of their religious and moral ideas. The final one was equality that came to the fore gradually, especially in the 20th century. In 1848, the freedom to found a school was embedded in the constitution and from then until 1917 there was a struggle for equal financial treatment of publicly and privately governed schools. In 1917 an agreement between political and religious forces led to equal funding by the state of both public and private schools. Currently, 65% of primary and secondary schools are privately governed. As a result, most people in the Netherlands do not see education as a matter for the state. People see education as something that belongs to citizens and about which they have the right to decide. There is still an on-going tension between freedom of schools and the unifying ambitions of the government.

Between the City and the school boards
In the city of The Hague the public education system is quite large, as in most cities in the Netherlands. There was also a large Protestant school board with a number of schools under its control and a large Roman Catholic school board. Recently these two have merged, creating an enormous school board with dozens of schools. As a result of this situation, in efforts to foster collaboration between schools in The Hague, it is not just the schools that have to be convinced but also these intermediary «governmental» layers. The joint Protestant/Catholic board have more schools than

the public system and they are expanding outside the city to nearby villages. If the municipality offers money in return for cooperation (as they did in the case of FRONTER) boards are likely to take the money but say they will cooperate if it suits them.
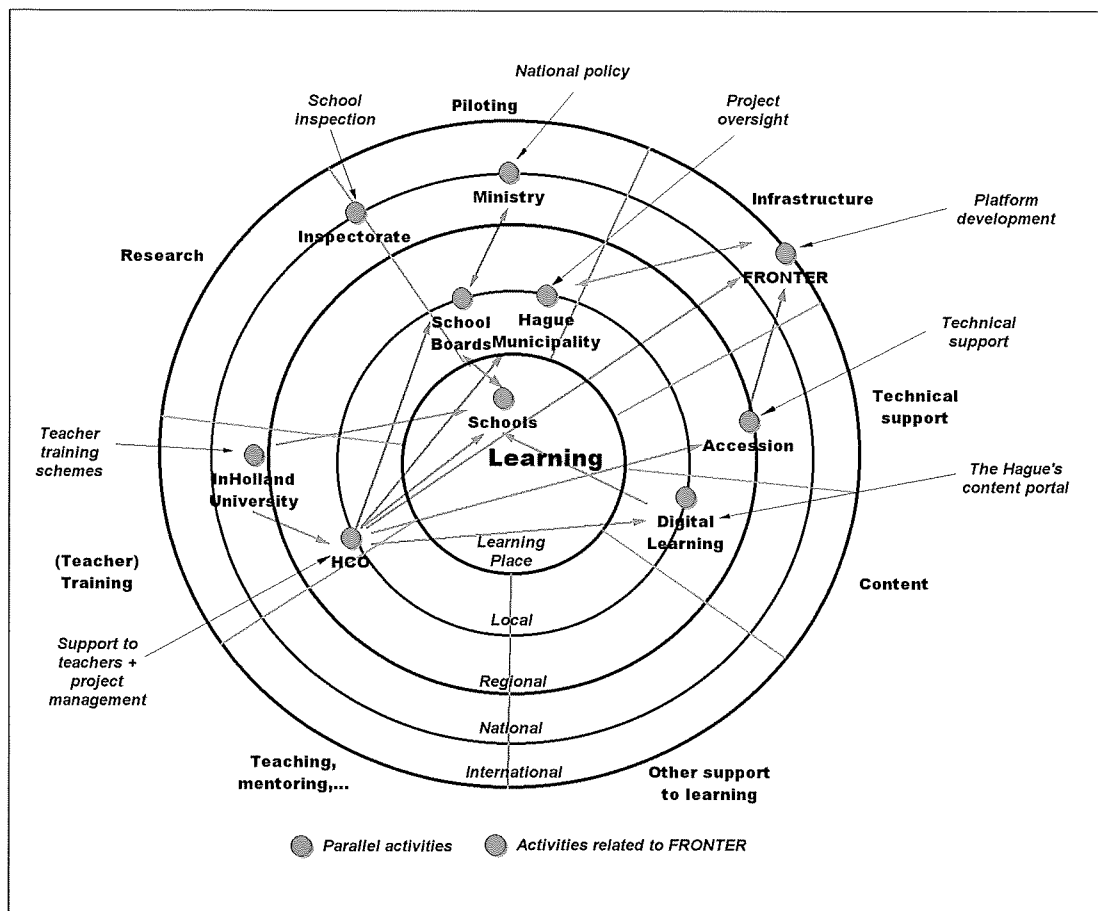
The structure

There are only two layers to formal education structure in the Netherlands: the minister and the school boards. The school board may be run by the municipality, but in most cases they are private school boards. The school board may be very large like the one mentioned above, but in most cases it will run only one school. Members of such small school boards often have only a few hours a week available for the school. They have no time to read new regulations, no time to understand educational policies and don't even have time to solve complicated problems in their schools. Formally a school board is still a school board whether it has such an amateur management or is run by an agency with a large number of people working for it.

Funding

Only money for school buildings comes from municipalities. ICT is not part of that budget. School boards are free to decide how they apply money to various schools that they have under their control. A school that is good at lobbying its board can get more money. Schools compete for students, especially secondary schools. So those with better equipment and nicer programmes can be more successful in attracting students. In secondary education, funding is directly proportional to the number of students. In primary school there is a fixed sum plus an additional amount per student.

A map of the situation

Technology

Vision of technology

How is technology perceived by the actors? Many interviewees seek to shift emphasis from technology to a more balanced perspective. Technology is seen as «a means, not a goal in itself». This was also reflected in the attitude of children as seen by one of the interviewees: «Children don't care whether you learn using a computer, a pen or a book.» The most extreme expression of this will to «re-size» the role of technology came from one person who said: «over focus on technology is harmful». Talking about the impact of IT on education, one interviewee felt «the short term is overrated, but in the long term it is underestimated». Despite the deliberate underplaying of the role of the technology, it was said that people in education prefer to deal with technology rather than the related pedagogical questions. «They are busy with technical things because they are much easier than the pedagogical things. Technical things are interesting. They work quicker than dealing with the pedagogical question. Pedagogical changes take a lot of time. For technological things you need some money, but when you have it, the technology works and that is it.» This vision of technology as providing easily won gratification is in apparent contradiction with those who

perceive the computer as an instrument of organisational and pedagogical change. They consider that «a teacher can use (it) to change or organise things in the schools». It is also in contradiction with those who see technology as having a bad reputation in education because there were «so many problems both with hardware and software». Key questions may well be «usability» and the possibility for teachers to claim ownership of the technology. One interviewee put it as follows: «Dutch teachers are interested in using technology. That is not a problem. But they want to use it in the way they think it should be used.» The project was slowed down in the beginning as there was a lot of resistance from teachers because of the question of ownership. «(Teachers) thought Digital learning was building on something they didn't want so they didn't use it with their students.»

What is FRONTER?

The web site of the makers of FRONTER[19] says that FRONTER is «an ideal framework for Web-based learning». The Accessium website[20] says of FRONTER that it is «a platform for collaboration and learning via Internet.» It goes on to say that FRONTER «is a place where you can meet your friends/colleagues/ students/supervisor for collaboration – organised almost in the same way as in the physical world». These «descriptions» have a promotional flavour to them that is perhaps not so surprising from the commercial players making them. Amongst interviewees, the perception of FRONTER varies considerably as can be seen from the reactions of people to the question «What is FRONTER?». It is a «technological platform», a «learning management system», a «virtual classroom», a «tool where teachers can put things for the students»... The question about what FRONTER is also brings answers about what it can do. It «makes a new form of education possible». One example given is «knowledge through collaboration». It is flexible, allowing different approaches such as «traditional absorption of knowledge, learning by collaboration and learning by doing». It is also seen as interactive and multicultural because it «enables students to have broader interaction – not only with their classmates – but with students from all different nationalities, cultures and backgrounds». FRONTER also works on shaping and personalising content as it enables «cutting educational material into little packages and giving a more detailed, more appropriate, more personalised route through education». It frees up the teacher to «spend more time with students who need more help». Although these uses appear to be attributed to the platform itself by the interviewees, not all of those uses are a direct consequence of FRONTER. Rather they are driven by the values and motivations of users who see in the introduction of the platform an occasion to use the technology as a lever for change. Maybe it is this fact that makes these descriptions strangely similar to those of the commercial players in that both seek to persuade, talking of fulfilling wishes and making promises of possible future realities.

Adapting the platform/collaboration with FRONTER

There is currently much talk in Europe and elsewhere about customisable, modular software as a cost-effective solution for widespread use of eLearninge-Learning. The transfer of the Norwegian-made FRONTER to The Hague is an interesting case as it

illustrates some of the difficulties encountered when shifting a platform from one culture and implanting it in another. You would expect language to be a main source of problems in adapting FRONTER. «Dutch education has a different terminology. The translation may have been too technically oriented in the beginning.» However the most obvious difficulties are not necessarily the most salient. Structuring web-based material is generally centred on a metaphor. «FRONTER uses a metaphor based on rooms and furniture, a bit like IKEA. That may be quite understandable to Norwegian people, but for the Dutch it has not been a success.» Then there is the reaction to the layout. «People in the Netherlands are more familiar with the use of the Internet at home and they see a lot of «flashy» sites. FRONTER is very plain in comparison... We tried to create new styles of graphic design and that helped but we are now back to the original design...» And there is the question of the overriding educational structure. «In the Netherlands, education is more structured. Teachers define a learning plan that students will then follow, whereas in FRONTER, there is more freedom for the student.» As far as usage by teachers is concerned, those who prefer controlled teacher-student interaction prefer Blackboard or Webcity. «In primary and secondary education they are more readily accepted than FRONTER which is more free. Schools that have gone further with implementing this technology don't want Blackboard or Webcity because it doesn't comply with our education views. They are very interested in FRONTER.»

In a systemic approach to change, all actors have a key role to play in running the system. One of the challenges to handling change in a complex system like that of education is granting a suitable place to feedback from actors in the field like teachers and ancillary workers. The introduction of FRONTER in The Hague offers an opportunity to study the strategies used to modify the original platform during use so that it better corresponds to users needs. Initially the Dutch based company Accession acted as intermediary in communication between teachers and the makers of FRONTER. The moderators from Digital Learning organised a network of teachers who met «a few times in the school year to discuss changes to FRONTER.» These comments were then discussed with Accession and passed on to FRONTER. Communication was not easy. One person said: «My preference would have been to have teachers talking directly to FRONTER.» Some concern was expressed however about the efficiency of such direct contact, as «teachers will focus on tiny details of the toolbox.» Whereas attention «should be more on the implementation of ICT in education» According to this person a framework is necessary to guarantee that the wider picture is the starting point. «You need a road map, not in terms of the number of schools participating but rather what you are going to do with the technology. The road map needs to be at a different level than that of the individual teacher.» The solution currently being implemented involves the creation of «an official reference group with representatives of teachers, Digital Learning and FRONTER (who) get together twice a year. They produce a road map of what is wanted and needed.» When asked about the responsiveness of FRONTER, one interviewee replied: «They respond to our wishes, but not always. I've been here for one and a half years and many things have changed... However, if (FRONTER) don't want to do it, they don't have to do it.»

Education and teaching

Education and change

There was a general consensus amongst interviewees that education needs to change. «What we want to achieve in the next years is that ICT is a means to transform education and make learning a different process than it is now. ICT can be a means that supports teachers in doing that.» However, concern was expressed about the capacity of the education system to change fast enough. One person said «...education is a very slow mover.» Another said «... education is changing far too slowly at the moment.» There was also concern that this slowness could result in the marginalisation of education. «Education is drifting away from other parts of society.» Education is seen as resisting change. «Education in the Netherlands is very conservative when it comes to changes like these.» One explanation put forward for this resistance is the excessive rhythm of changes. «There have been a great many changes in education in the last twenty years. Every two or three years the programmes change. Teachers are a little tired of all these changes. They want to know what they have to do and work on it in the same way for a few years. They want to make their curriculum better instead of always beginning new curricula.» Another explanation put forward concerned the capacity of teachers to understand the longer-term implications of change. «They do not grasp changes that will come about – not those of the next two years, but those of the next couple of decades. They are still very focused on the classical education system, especially in primary and secondary education. Sometimes they see it should become more differentiated, more tailor-made than it is. But it is very hard.» Pragmatism was put forward as the main reason for this short-term perspective. «Teachers are not interested in what could be in 20 or 30 years. They rightfully want to know what (technology) can do now.» Several interviewees stressed the need for a very cautious approach to the introduction of technology in education. «(Introducing) computers in education is a process that takes years, step by step.» The approach to change was also challenged by one interviewee. «You have to learn by doing.» Going even further, another interviewee stated: «There is very little place in primary and secondary education to focus on higher needs like self-actualisation.»

Barriers to teachers changing

One of the barriers to changing education, as perceived by some of the people interviewed, is the limited horizon of many teachers. «Most teachers never look outside education. They went to school, they went to teacher training and then they went into class. They don't have a broad idea of what is going on in society.» Teachers are seen as further isolated within the education system. «Education is a very lonely business.» As one person put it: «Every teacher has a kingdom of his own. He is the emperor of his class.» In this context, collaboration between teachers is not common. «Most teachers do not invite colleagues to discuss their education process and possible improvements. It is very hard to establish a framework in which that is done regularly.» Not all teachers work alone. One interviewee explains how he and colleagues mutually comment on their work. «There is a very friendly atmosphere.

That is important because a teacher who is corrected by a colleague always feels attacked. He doesn't like that. There is a question of trust.» This example underlines the need for trust as a pre-requisite for exchange and collaboration.

Lack of time is argued to be a major factor in the hesitation of teachers about taking up new technologies. «Teachers complain that they are very busy. The work pressure is very high. Especially in city centre schools with a lot of social and language problems. Time is needed.» It is interesting to note that time and a certain distance are seen as necessary to understanding the introduction of technologies. «There is no time to sit down, work it out and make a suggestion.»

The contexts in schools can vary enormously. «Every school is different. It depends on the capabilities of the teachers. There are teachers who never touch a computer. Others can do anything with a computer.» One interviewee describing his own personal experience introducing FRONTER in his school says «About five to six colleagues use FRONTER as a part of their education process. The others are interested. Some say it is much too much work. It is nice but they don't have the time for the preparation. Some say that it is not enough to give the extra value for the education process. Some say nothing and do nothing.» The question of the additional workload seems to be a critical factor. «Some teachers want to try some new things, but most of them only want things that make their job much easier. They don't want things that make it more difficult and take more time. In Holland teachers have a hard job. They work with a lot of students.» Making the use of computers a priority can require considerable courage. «As a teacher, you have to have the guts to do it. When you have so many problems in your classroom, it is very difficult. Teachers are aware of the need to change, but there are so many day-to-day problems, like children coming to school who haven't have any breakfast. These problems have to be solved as well.»

Given the changing social, economic and educational context, outright refusal to use a computer on the part of a teacher is no longer considered acceptable according to one of the interviewees. «As a teacher you can't say you don't want to work with a computer. Although that still happens.» However, lack of knowledge and training are also perceived as a major barrier. «A lot of teachers in primary schools have no idea about how they want to use computers and Internet in their classroom.» In the first year with FRONTER, mediators adopted a technological strategy but that didn't work well. In the second year, the strategy adopted was anchored in pedagogical questions rather than technology. «You have to start with an educational idea how you can improve your pupils' learning and (then) you look at what ICT can mean for you in that.»

Teacher training and change

Teacher training is about developing competences. Those required by the teachers are necessarily conditioned by those to be developed by the pupils. The latter may be defined in the curriculum. Work is currently underway in the Netherlands on a national level updating the curriculum in certain subject areas. Teachers do not always perceive this work as pertinent. «One of the problems is that those working on the curriculum are not from the classroom themselves. People working on the curriculum

haven't enough feeling for the classroom situation. It is an international problem: curricula are developed by people not working in classes. Teachers think they should develop the curriculum themselves.» As one interviewee said «Ideally you would make a new curriculum» but this is not seen as realistic as «You have to fit into the (existing) system.» There is no real consensus about the competences required of teachers with the introduction of technologies like FRONTER. For one interviewee, a specialist in teacher training, new competencies are not necessarily required. «We change the vision of education but keep the same competences ...The student-teachers have the same competencies as in the early days when we were more focussed on subjects.» One wonders what is meant by «competences» here as the person goes on to say «We try to use ICTs to facilitate the work, for example, collaborative working using an electronic portfolio.» That new competences are required becomes clear when it is a question of teachers supporting distance learning. «We proposed the development of a training course to get the competencies for an e-tutor. It applies to lecturers but also to teachers in secondary schools.» One major facet of teacher training from the perspective of this study is its role as an instrument for change. How, if at all, does it bring about change? Inevitability was often used as a powerful «sales» argument in initial efforts to promote the introduction of new technologies. That inevitability of technology appears somewhat less speculative now as uptake progresses in other sectors. Despite this fact, one of the interviewees considers that many teachers still do not take the prospect of change seriously, while others, on the contrary, see it as a threat. «We tried to convince teachers that IT is not something that will go away again, nor something that will replace the teacher.» In this drive to change, one of the lessons learnt from introducing FRONTER in The Hague could be summed up by misquoting Schumacher: «Small is beautiful». As one person put it «This is all very new and you have to start small.» The moderators at the forefront of introducing FRONTER were initially ambitious. «We started with a number of moderators whose role was to promote FRONTER and to help schools and teachers. That was very costly. The impact was not so big. Now we are less ambitious. Working through HCO and ABCHV, we are talking to our contacts in schools about FRONTER and the portal.» As far as teacher training goes there can be a considerable gap between training and what happens in schools. «(Teacher-trainers) are often far ahead of what (teachers) think or want, especially in primary education.» Training teachers to use FRONTER went very slowly. «Teachers have to see the advantages of FRONTER, otherwise they see it as extra work. When LMS are working fully they will help teachers. Administrative work will also be easier. You have to convince teachers.» Training has to be pertinent to the particular teaching context. «We focus on one of the issues (identified by teachers), to keep it small and to be able to succeed. They need success.»

Another, parallel lesson from The Hague experience has been the need to fit change into the current context rather than attempt to create an entirely new context. «What you are going to do has to fit in the normal organisation of the school. You can't change the organisation of the school from one moment to the next.» This may be somewhat disappointing for those who seek immediate radical change. It also raises

the question, mentioned above, of the possibility of an ever-growing gap between school and society if schools follow a different rhythm to the rest of society. However, several of the people interviewed were adamant that change is necessarily a slow process in education, as it has to start from the current reality of schools. «We talk to the people. We want to know what they want. We want to help develop material that (replaces) things they normally do in the class. And not make things that are in addition to the things they normally do.» Economy of effort for overloaded teachers is a necessity. Any change has to be a collaborative process based on a shared understanding of priorities. «Together with the school (the school advisors) try to make a plan of what the school wants, what their educational priorities are. Then they make it happen.»

Change cannot be forced. One interviewee stated: «If people don't want to change they won't.» She felt it was not her role to tell people to change. «If somebody should tell them, it is the school board or the school manager.» If there was resistance, she tried to make it explicit but she didn't necessarily seek to overcome it. «There can be very good reasons for (resistance).» The school manager also needs to be a part of discussions. «A school manager can have very good reasons not to be enthusiastic. There are schools were only two teachers use a computer and the rest are very reluctant. Then other developments have to take place first before working with a digital learning environment. It implies quite a change in the school organisation.» Whatever the choice of competences is, the final onus to learn and to put into practice lies with the teachers. «We tried to help (the teachers) but in the end they will have to do it themselves.»

One of the functions of teacher training is to translate theory into practice, however the transfer naturally lags behind the developments of research and is necessarily slow. «There are a lot of educational plans and learning theories that are good, but have to be translated to the classroom. There are new methods for particular parts of the curriculum that have these learning theories in them, so step by step it will change, but it takes a lot of time.» One approach adopted to this knowledge transfer is collaborative learning through projects: «Teachers who follow the (teacher training) course have to do projects. Also they are together in the same part of a learning portal. They can ask questions. They make appointments to work together. We try to get in-service training done on the job. Most of the time they work in the electronic learning environment.»

Content

Using the web for publishing learning materials is seen as an attractive solution. «Web-based content is far more flexible and cost effective.» The Internet is also an enormous source of material, but some people were hesitant about such content. «A lot of current material is available via the Internet but it is not very focussed.» The question was raised as to who should produce content for schools. One interviewee stated: «As far as content is concerned, it should be at a national and international level.»

The City of The Hague took the initiative to launch a call for online content. «Some projects came from HCO, some from teachers. They invested in those projects. In return the content was to be made available to all teachers in The Hague. Now all that content is on FRONTER.» In having teachers participate in content development, the question of quality standards invariably needs to be addressed. «What is good material and what should it bring to learning? That is the most important thing. A digital copy of classical education is no use.» Standards are required to guide content production and enable its assessment. «We want to have some standards (of content) that the material has to comply with. That doesn't exist at the moment.» The debate about quality standards for content raises wider issues. «If you talk about what good material is then you first have to talk about what good education is. We want to make a list of educational priorities and see how that could be translated into digital templates or material.»

Opposed to this participative approach involving teachers, there are those who favour the development of material exclusively by content professionals. «The development of content is going to be professionalized. It is going to be that good that no teacher will be able to produce content of that high quality. The teacher will be the selector of content according to students' needs. He will also create the real life environment for the social interaction.» They consider that teacher-made content is insufficient. «All products that have had teachers as developers have failed... Only content developed by professionals lasts. Teachers will become the users of readily available, very professional content.»

When talking of content, one invariably thinks of pedagogical content, but information about projects and practices is also important in handling innovation. FRONTER is integrated into a wider portal. «The education portal (HOP) is a product of Digital Learning to provide teachers in The Hague with information not only from (those running the project) or the City Council but also support from networks amongst schools.» Contrary to what one might imagine reading about the isolation of teachers, information is in demand. «There is a great demand for information. Not political information or management information but teachers want to know what other teachers do. That was why we gave schools this «window» to present themselves with new developments, material they have developed, and to get in contact with other schools.»

The role of the actors

A number of different actors are directly or indirectly involved in the FRONTER project: The national government, the City of The Hague, school boards, schools, pupils, parents and the industry. During this study, we have interviewed one person from most of these categories. It is interesting to look at their relative roles in and around the introduction of FRONTER in The Hague.

The national government
The role of the national government is relatively small in such a project. The Ministry

does play a role locally by setting an overarching framework, for example in favour of innovation in education. «The government are encouraging innovation in education and they are looking for projects.» But this interviewee was very critical in his appreciation of this government action. «On the other hand (the government) have a lot of problems with education: measuring children, language problems, teacher shortage, ...and as result they are trying to keep education in the old fashioned way otherwise they can't handle it.» The government fixes the curriculum although as mentioned elsewhere curriculum changes tend to be challenged by teachers. One interviewee pointed to the role of teacher training institutions as an intermediary between the government and teachers. «Our work is to translate things from the government and bring them to the teachers.» Funding is another role of the central government. «Money comes from the Ministry to local governments who then decide where to invest it. The City of The Hague, like other cities, has its own money.»

The City

The use of the money depends on local priorities and interests. «The Vice Mayor of The Hague, who has education in his portfolio, has the policy to get more ICT in education in The Hague because The Hague wants to be the number one city in the Netherlands for information technology. Money available for that policy allowed the City to influence education.» Money is a source of leverage for the city in an otherwise highly decentralised context. «The City of The Hague has influence when it spends money.» Schools in The Hague are run by school boards who have a great deal of autonomy. In this distributed context, any collective effort like the introduction of a common ICT platform requires tactful encouragement and coordination. «The only possibility is to talk to the boards. Separate boards do not have enough money to invest in ICTs. So when you get all those people together you can get something done like we did with Digital Learning and HOP (The Hague's education portal).»

The Boards

Management of schools in The Hague is a very decentralised process. Each school is run by a board. Some boards have a number of schools under their control and consequently benefit from certain economies of scale while other boards have just one. It is the Board that takes decisions about investments in ICTs. One interviewee pointed to difficulties of communication with Boards about what is actually happening in schools. «The board is not very informed about the details of what is going on with ICT in the classrooms.» One of jobs of those working on introducing FRONTER has been awareness-raising with boards. «There are a lot of things to do to get members of the boards to see that digital learning can give support to teachers. Not all board members see that. That takes a lot of time.» Two attitudes on the part of boards were pointed to. On the one hand there was prudence. «Teachers and members of boards prefer to wait and see. And if they have seen that it is good only then are they willing to introduce it into education.» However, if too many actors are prudent no wide-scale change can take place. As one interviewee put it: «This kind of development needs some people to take the lead.» On the other hand, boards defend their prerogative as sole masters of pedagogical orientation, especially when the

identity of the school is linked to a religion. «They want (Digital Learning) to facilitate the ICT work but not bother about the pedagogical approach of their teachers.» In this situation both local government and local agencies like HCO are confronted with a dilemma. They have no direct control over boards and schools yet they wish to get these actors to come together and to collaborate in a move to adopt ICTs in education despite all their differences and divergences. «There were considerable differences between boards and schools about the necessity of ICT in education. And about the tempo at which is should be introduced into schools.» What strategy can an overarching structure adopt to introduce change if the actors have a great deal of autonomy? «It wouldn't work if the local government told people what to do.» The strategy chosen could be called «gentle dialogue». «(The local authorities) have developed a way to get all parties involved in the process.» This dialogue is informal, non-hierarchical and time-consuming. «It is the cooperation between the partners that gets things done. All the school boards are involved, but there is no official arrangement. It is difficult to say who is responsible. It is just a form of cooperation… It is much more difficult. We have to talk to everybody and make sure they are not opposed to what we are doing.» In this dialogue, the question of the level of competences and the attitudes of the Boards play a key role. «Boards are waiting. Some boards have no policy of their own. Others who do have a policy could be interested in talking about such issues.»

Schools
The Dutch ministry fixes the overarching priorities for schools, whereas boards and schools decide on the ways and means to meet those priorities. The latter is done via a school plan. «All schools have plans that include the priorities fixed by the ministry. The difficulty is translating that in a workable situation in a classroom. It can be done, but you have to pick very small things.» When it comes to integrating ICTs in education, available competences are a key factor. «There is a great difference in the professional level of schools.» Levels of competences and approaches vary considerably within schools. «Some schools have an ICT coordinator who does things on his own and the rest of the teachers are 10 kilometres behind. In other schools there are ICT plans, but it depends on the management of the school and how the ICT coordinator communicates with the rest of the teachers.» One possible answer would be collaboration between schools. Unfortunately, as one interviewee points out: «Schools don't have much contact with each other.»

Pupils and parents
One might expect that because pupils are said to be more advanced than most teachers in the use of ICTs, then pupils would be a driving force to getting computers used in schools. This supposition may prove incorrect, if, as one interviewee pointed out, no parallel is drawn by pupils between home use of computers and their use in schools. «The use of a computer is normal (outside school). But the educational use of computers is different.» This division may be due to the perceived pertinence of use in school compared with that elsewhere. As one interviewee bluntly put it: «…how important is school for the average student?» Teachers are obliged to adopt strategies

to bring students to use computers in class. «I tell them that one of the (test) questions will be on FRONTER. That is to keep them busy with FRONTER. Then they have to write a paper three times a year. The only way they can hand it in is via FRONTER. I make a hand-in map that says when work has to be handed in. After the deadline, it is closed. They can't upload it any more. Corrections and commentaries are also put on FRONTER. I don't give the marks out in class. They have to go to FRONTER to see. It takes about a year to have pupils get the habit of looking regularly at FRONTER.» Parents may however be a driving force in getting schools to adopt ICTs. One person stated that «Parents are very concerned and they ask school management what they are doing about IT.»

The Digital Learning programme

The Hague's educational portal (HOP) and the FRONTER project both take place in the framework of Digital Learning programme. According to a number of interviewees, this situation raises both organisational and financial questions about the sustainability of the project. «Digital Learning (needs to be) an organisation whereas at the moment it is a programme. There is no steady situation. It has to be structured with a foundation and a board.» Amongst other things, the absence of a legal status meant that Digital Learning could not sign contracts. «The only party that was legally able to make a contract with FRONTER was the city of The Hague.» There are plans to change this situation in the near future so as to «...provide a suitable structure for HOP and FRONTER supported by all the education parties in The Hague.» Sources of funding for the project are not necessarily guaranteed on a long-term basis. «The money currently provided for HOP comes from the local government. But confronted with other choices there may be no more money. You can't go on with that uncertainty.» In addition, according to one interviewee, the initial aims of the Digital learning programme were over ambitious. «Digital Learning started too high and now we have to fill the gap by going back to what teachers want. And there's also the need to «pull» the teachers to a new way of learning.» As far as FRONTER was concerned, the means made available were not planned on a long-term basis. «During the pilot last year we had several people. They were on a temporary basis from their job as a teacher or whatever. In July the pilot period was finished. The HCO took over the supporting tasks and at the moment only one person supports schools in using FRONTER.»

A learning organisation?

In several scenarios envisaged for the future of education[21], school plays a central role either within the local community or in the field of ICTs and education as a place of learning and innovation. In these scenarios, the school is required to become a learning organisation. By «learning organisation» is meant an organisation in which all staff and pupils are deliberately and consciously engaged in learning and developing knowledge and new ways of working. To what extent is the school system a learning organisation? What knowledge strategies have staff developed to improve knowledge? Is tacit knowledge taken into account? To what extent are exchange and collaboration fostered as a major forcefor learning?

A willingness to learn

A central question when it comes to creating a learning organisation is the willingness of actors to learn. Talking of current attitudes to teacher development amongst teachers themselves, one interviewee stated: «(Teachers) have an «internal wish» to develop. Some teachers think things are fine: they have a job that is OK and they like the children. They want to provide good education for the children, but I don't know if the idea that they have to develop themselves is there as well, especially when it comes to older teachers who are retiring in a few years. There are teachers who think it is fine to go home at three o'clock. They work on automatic pilot. That might give a negative impression, (which would be misleading as) I see how hard people work in schools and how much they give to the children. But then you can't work in an organisation in that way. You have to develop. It is the same for teachers.»

Sharing experience and collaboration

Sharing experience can be a good way to develop knowledge across and between institutions. However, personal experience is often perceived as being of little use to others especially in an institution where formal knowledge is paramount. «People in the field don't recognise their experience (as valuable).» Getting teachers to network is a way of bringing them to share experience. «We are setting up groups for that. I have a group from FRONTER that has been there since I started working here. There is a culture in education that people keep things for themselves so (such a network) is quite a change in itself. It is coming. The wish of teachers to have a place on the public portal where they can see what other schools are doing and where they can present what they are doing was quite a revolution.» When groups add online networking to face-to-face meetings, writing becomes a major vehicle for exchange. «What we do now is to see how we can share experience and knowledge with others. We have written a booklet about the Digital Learning project saying what we have done and what we have learnt. If someone wants to start such a project (it tells them how to do it). We describe the process and how others can start other projects.» Having to write, however, can be a considerable barrier. «It is easier to talk about (experience) than to write it down and publish it on the portal.» When questioned about such difficulties with writing, one interviewee replied: «(Teachers) are afraid of (writing). They are in a role where they know what they have to teach. (They feel) they are not allowed to make mistakes.» This comment points more generally to the institutional culture, mentioned elsewhere, which is judgemental and in which risk-taking and innovation are not highly rated. This is also reflected in talk about inviting another teacher into your class and the idea of sharing material on an «open source» basis. «It takes a lot of guts to let someone else in your classroom and share things with others. Some exchange is possible based on personal trust. But an «open source» strategy without knowing who is using your material or criticising you, that (would be a problem).» One of the sources of the judgemental culture is the assessment of schools in terms of external exam results. «All the teachers are afraid of that national exam. They have to prepare their students for that exam.»
Those animating the FRONTER experience put considerable emphasis on sharing experience between teachers. «You can learn from each other. That is much better

than working on your own in your own school.» According to one person such sharing has a tangible impact on the quality of education. «When you talk about education with others, it becomes better.» A particularly powerful form of sharing experience comes with working together. «The first thing I want is for teachers to know what other teachers in The Hague are doing, so they can share the things they have learnt. I want them to work together on certain subjects.» As mentioned elsewhere, the relative isolation of teachers is not conducive to sharing experience. «It isn't part of the teacher culture in Holland. Teachers have their own classrooms. Children come in and they close the door and that is it. Nobody has to know what happens in that classroom. We want to change that. Let's see what you are doing in a class.»

... and tools for collaboration?

When asked if FRONTER or other online tools were used to enhance such collaboration and sharing of information, the answer was: «No. They meet face-to-face. They find that very important. I've got a lot of contact with teachers by email or through MSN if they have a small question. They do have each other's mail address and there is a room in FRONTER where they can find information about meetings etc. But it is still my initiative to organise those meetings, to make reports, to prepare the meeting agenda. I ask schools to make presentations of what they do with FRONTER. They are happy to do that, but they will never email me with a suggestion. Maybe that is a step too far for the moment.» Between representatives of institutions working on FRONTER, the situation is similar: They could use FRONTER, but don't. «They are not familiar with it... At this moment we use it as an archive. The agenda and the minutes are there. But we send them emails when we want them to talk in a meeting. They prefer emails to logging in.» The only actors, apart from pupils, that use FRONTER are staff from Accession. «We use FRONTER within the company as a knowledge sharing instrument. It is just a tool and has its limitations but it is still worthwhile.»

Research as a learning strategy

Research and it application are considered key forms of knowledge development. However research and researchers were rarely used in introducing FRONTER in The Hague. When asked why, one interviewee replied: «(FRONTER) is a unique project. Because of its uniqueness, people thought that was enough.» Some «market» research was carried out in the initial stages of the project. «The project spent money on research on what the educational sector wants from an educational portal. It was done by the consultants, CMG. It was too far from the teachers. It was a nice report that advised to build a portal but it wasn't really the wish of the educational people in schools.» In response to the divide between research and experience in the field, an expert in teacher training mentioned efforts to bridge the gap. «We start projects to take experience from the field into research.»

Future issues

Amongst the future issues mentioned by interviewees, pedagogical considerations came high on the list. Key words were «innovative learning», «informal learning», «adaptive, individual learning» and «sharing knowledge, not just individualised learning». This change is seen as a move from «teacher centred to learner centred» and a major issue is how computers and ICT could favour such a shift «so that teachers start to think about education and not about computers.» As echoed throughout the interviews there should be a shift in focus. «We have to focus on the needs of education, the place of education and the change of education in society and no longer focus on ICT.» There is also a call for more active participation of all the actors concerned. «Schools, teachers and boards need to see how important it is to have ICTs not just for learning but also for administration. They must be more active in the whole process. ICTs are not used enough in administration.» In these collaborative efforts, one essential question is «How do you close the gap between the vision (of high level decision makers) and the school situation?» Particular mention was made of the curriculum that is seen as too far from the considerations of teachers.

Conclusions and future issues

Shifting emphasis away from technology
There is a clear desire amongst interviewees to find a «more healthy» balance between technical considerations and pedagogical and organisational issues. They consider that technology is given too much importance, and that that importance gets in the way of dealing with other, more important issues, like pedagogy. Despite this fact, the study indicates that there may be a tendency to prefer the quick technical fix to the more lengthy and costly pedagogical solution.
Two apparently contradictory forces exert an influence on the place granted to technology. On the one hand, manufacturers and users seek to make the technology as unobtrusive and «natural» as possible. This can be seen in the case of FRONTER, where improvements based on teachers' experience with the platform are aimed at just such a «user-friendliness». At the same time industry players, service providers, early adopters and a good many politicians set out to make information technology omnipresent. The team working on introducing FRONTER are a small part of a much large impetus aimed at widespread use of ICTs in education. These two forces may be seen as two sides of the nature of any mature tool. First, its usefulness lies in the fact that we can use it without having to think about it too much. It is a natural extension of ourselves and is increasingly taken for granted. Secondly, its efficiency depends on the extent to which it is widely used. This evolution of ICTs as omnipresent, discrete tools has a number of repercussions. In the current introductory phase, many activities – FRONTER is an example – are defined in terms of the technology. As technology becomes unobtrusive, those activities will tend to loose much of their legitimacy and their identity. At the same time, as technology is increasingly taken for granted, it becomes much more difficult to get any distance from it so as to discuss ways and means of using it.

The platform and the relationship between its makers and its users

The experience with FRONTER illustrates the potential difficulties in finding a suitable interface between those making technology and those using it. After a somewhat unsatisfactory time spent going through a number of intermediaries, the solution chosen uses a reference group involving both «technologists and educationalists». The purpose of this group is to draw up a longer-term policy. It does not however necessarily satisfy the need for an effective channel about required changes in the software. One major question is to what extent the makers of the technology are able and willing to respond to demands of users and within which time frame. This is not just a budgetary question but also one of perceptions and attitudes on the part of the differing parties working together. Given these differences in perspective – anchored as they are in differing professional cultures and ways of working – how can all the actors be brought to work together on a common project around shared objectives?

Disruptive and no-disruptive change

For all its pragmatism, the step-by-step, slow march forwards advocated by interviewees in The Hague, raises a fundamental question. Theirs is an evolutionary approach to change, building patiently on what exists already. Taken in the current context of schools, it is no doubt a wise strategy, but in a larger, complex, fast-moving context, it has its limitations. When fundamental reorganisation is necessary the evolutionary strategy breaks down. History has shown that sometimes suitable solutions can only be found when there is a break with ways and practices that hitherto seemed self-evident. There seems to be little room for such a «disruptive» solution in the approaches adopted to innovation in The Hague. One might argue that you can't plan for disruption, but you can develop a more open and flexible culture that feels less threatened by change. One of the major ingredients of such a culture is the mutual trust mentioned by one of the interviewees. But why should one bother? Because of pressure from those who pay. As one of the interviewees pointed out, there is a growing risk that the pertinence of the education system could be severely diminished if the gap between schools and society is seen as too large. Increasing pressure is being put on institutionalised education concerning accountability. Politicians and society want return on investment. Satisfactory measurement of such return is extremely complex if not impossible because we are not dealing with a simple relationship between cause and effect. There has at least to be a widely shared impression that the role of schools is pertinent in our changing world.

Isolation and change

A number of interviewees mentioned the isolation of teachers and their unwillingness to change. Although this is an over-generalisation, it does point to an attitude that finds an echo in the functioning of the educational system as a whole. Continuity, stability and security are seen as prerequisites to learning. School offers a protected environment to learn in. This is partly a consequence of society's attitude to childhood, in which children are seen as needing to be protected from the adult world. The architecture of schools, the daily timetable of pupils' work, the carefully selected content in the curriculum and school manuals and the omnipresent assessment of pupils all point to a carefully controlled environment in which the unpredictable and the

«disruptive» have no place. It would seem that the organisation of schools and the learning that goes on in them (at least the learning that was planned to take place there rather than the learning the goes on «by accident») are intimately linked.

Another reason to change schools is that Western society is championing innovation as a powerful motor not just for economic growth but also for the wider good of society. The European Union, for example, has put innovation alongside sustainable development at the heart of its programmes. The advent and wide-scale uptake of ICTs has led to the metaphor of the «Information Society» or the «Knowledge Society» both driven by innovation and change. How then can the education system, as a major source of learning, justify not being involved in such an overarching movement? Or at least that, as an institution dedicated to learning, it defines its role in a society that proclaims learning as its greatest asset. And furthermore, how can this vision of society and education be communicated to teachers and other staff such that it becomes a force for constructive change?

Content, quality and trust

Those who argue in favour of content made on a large scale by highly qualified professional content-makers need to address a number of potential problems. Theirs is a relatively centralised publication model. It necessarily favours more generalised, formalised knowledge and leaves little place for local or personal experience and know-how. It is quite the opposite of a distributed system like the Internet. It further favours the perception that knowledge is made elsewhere. It could give the impression that tacit-knowledge is of little importance and could even be counter productive in attempts to encourage self-driven, lifelong learning largely based on informal processes and learner empowerment. Seeing the difficulties encountered in customising FRONTER for the Dutch context, one wonders to what extent that such content «made elsewhere» could satisfactorily correspond to local needs and cultures. On the other hand, those who advocate content made and re-made by teachers need to address the question of standards of quality and, going one step further, how to create a suitable «corporate culture» based on mutual trust and a clear understanding of aims in which teachers welcome comments and constructive criticism about the material they have made and the way they suggest using it.

Sustainable structure and the relationship between the actors

The situation in The Hague could be described as the «Federal Dilemma»: how does a central organisation work with actors who are very much attached to their autonomy so as to achieve a goal fixed by the central organisation? This involves finding a suitable form of relationship that is workable, that does not constrain participants but which gets things done. In these circumstances, money can be a great persuader, but if limited funds are available other means need to be found. The form chosen in The Hague is informal and non-hierarchical. It is also extremely time-consuming and quite inappropriate if rapid, complex decisions need to be taken. A number of factors come into play in building a suitable solution. One is the «psychological aspect» involving such criteria as mutual trust and willingness to learn and to change. Linked to this is the «organisational aspect» that concerns the way nisations communicate with each other but also the potential conflicts between

their vested interests. There are also «cultural aspects» related to professional, linguistic or religious identity and ways of working. The way the exchange and collaboration is structured is also important. How do you set up and maintain a learning organisation across a network of organisations? Such networking requires a certain permeability of participating organisations. If they have strongly defined identities and boundaries and if these are seen as under threat because of a shortage of funding or because of cultural or religious threats, collaboration can become more difficult. Whatever the form chosen, such collaboration has to be sustainable at least for the time needed to achieve the goals fixed. The introduction of FRONTER in The Hague lacks that sustainability.

A learning organisation?

In the series of interviews carried out in Neuchâtel Switzerland in the context of the ERNIST organisational change study, it was striking how schools were seen as a place of learning for pupils but not necessarily as a place of learning for staff. Depending on how you consider education, this may or may not be shocking.

If learning means assimilating knowledge on the part of learners, then teaching involves dispensing appropriate information and testing that it has been acquired. In that sort of teaching, the teacher needs to be up-to-date in his or her subject area but doesn't necessarily need to be concerned with changing processes and ways and means of teaching and learning. In such a system the professional identity of the teacher is linked to the subject taught: he's a physics teacher, she's a biology teacher. In this vision of school, knowledge is seen as external, like an object taken down off the shelf that can be freely manipulated without a necessary personal investment on the part of the person «learning». It is picked up by one person (the teacher) and passed on to another (the pupil). This externalisation of knowledge can have a considerable impact on the perceived pertinence on the part of students of what is being learnt. A resulting lack of involvement in learning could be the result. It can also have an impact on how pupils understand the creation of knowledge and their role in that. In this externalised model, consumption of pre-packed knowledge is likely to be the role of most, now and in the future. Such a system places extremely little importance on pupils' own knowledge and experience and as such runs counter to growing importance given to tacit knowledge especially in so-called non-formal learning. The rise of the Internet represents a considerable threat to this type of teaching because the Net makes pertinent information available in a multitude of forms that are both seductive and informative and, what's more, are available whereever and whenever one wants.

If learning is seen as a more organic process in which knowledge is developed by the person herself or himself in communication with others, then it is no longer the delivery of knowledge that is paramount in education. It is a question of understanding and facilitating communication and learning processes. The shift from being an expert in a subject area like maths or French to being aware of communication and learning processes requires a different sort of personal engagement. It also requires a different framework in which it can flourish. Just as you cannot be a psychoanalyst without having done an analysis yourself, so you cannot help others learn if learning is not at the centre of your own experience. The introduction of such a form of learning is behind much of the efforts of the people in The Hague involved in the introduction of FRONTER.

TSW Pathfinder (UK)

Becta provided contacts and logistical support for the Transforming the School Workforce (TSW) Pathfinder interviews. Thanks go to Philippa Lee, Head of Institutional Frameworks at Becta for her help.

Eleven people were interviewed.
- *Jon Leyston of the Remodelling Project Central team at the DfES. He joined the TSW Pathfinder project after it had started.*
- *John Taylor working in Becta's Training and Support area, who represented the «ICT in Schools» Division of the DfES in Pathfinder and coordinated Becta input and support to TSW Pathfinder on ICT and technical issues.*
- *Prof. Hywel Thomas, Dr Ian Selwood and Dr Rachel Pilkington from the School of Education at The University of Birmingham, who were members of the team responsible for the evaluation of the TSW Pathfinder project.*
- *H.S. Hayer, Head, David Nutton, the newly appointed Network Manager and Noël McKenzie, Head of ICT from Radclyffe School (a TSW Pathfinder school).*
- *Deryck Noakes, Head, Christine Loach, School Bursar and the ICT coordinator, Gareth Davis from Bramford Primary School (a TSW Pathfinder school).*

5. Exploring paths to remodel the school work force

Setting the scene

In November 2001, Estelle Morris, then Secretary of State for Education and Skills, published a pamphlet entitled «Professionalism and Trust»[22] setting out her vision of further ways to improve standards in schools. She stressed the need to tackle teacher work overload and the difficulty retaining teachers. These concerns had been underlined earlier that year by an independent report to the DfES from PriceWaterhouseCoopers, entitled «Teacher Workload Study» [23]. The School Teachers Review Body also prepared a report[24] on the same subject. Estelle Morris proposed to take into consideration not just the role of teachers but also that of other staff within schools in a drive to remodel schools. These considerations were part of a larger scheme to reform public service outlined in a White Paper also published in 2001 called «Schools: Achieving Success»[25]. That reform centred on setting pupils first and enabling every school to succeed. It included raising the quality and status of the teaching profession. Leadership, which was also seen as a key factor, was promoted by the newly created National College for School Leadership[26]. The pamphlet also proposed increased devolution of responsibility to schools with a view to freeing up energies to enable improvement and innovation.
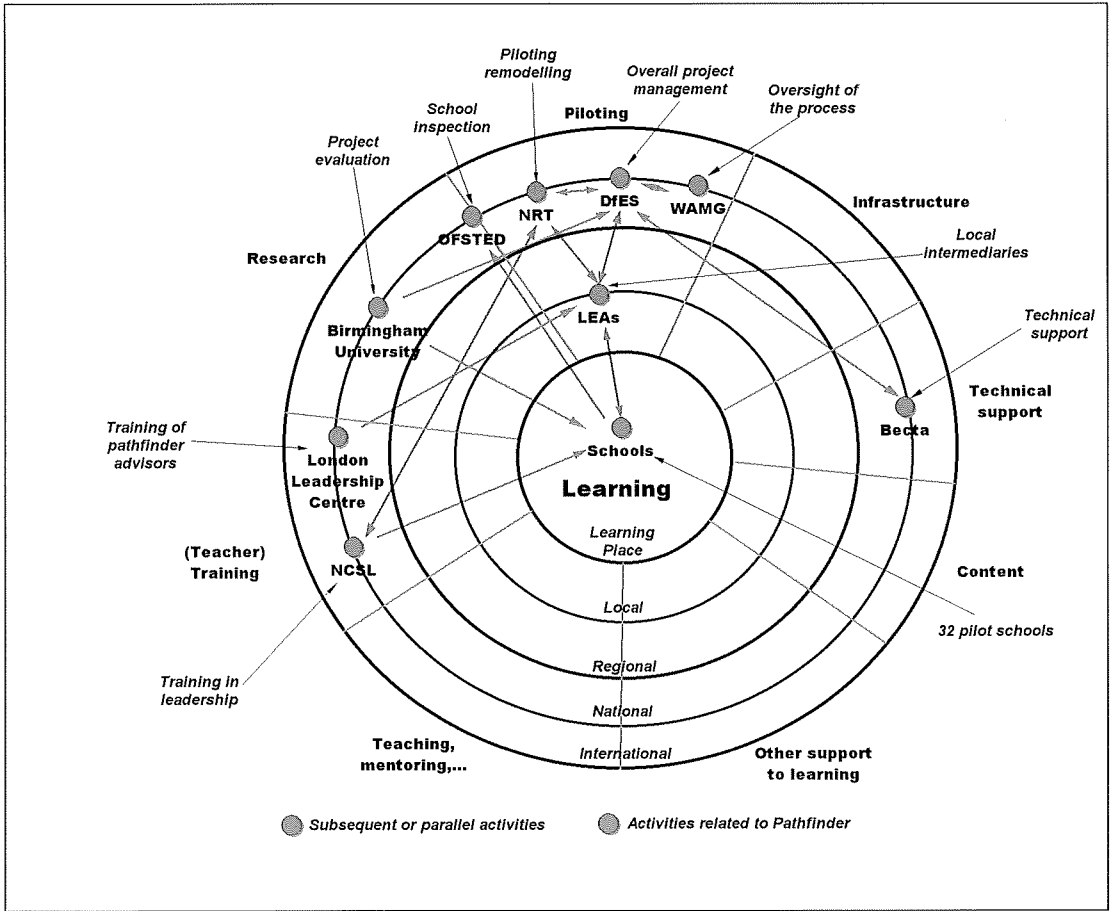
It was in this context that the DfES launched the TSW Pathfinder project running from April 2002 to August 2003 with a cross section of thirty-two primary and secondary schools[27]. The DfES provided a maximum of four million pounds to fund the project. The present report takes a closer look at the TSW Pathfinder project.

While the Pathfinder project was taking place, negotiations were under way between the government, unions and employers about reforming the school work-force. This led to a national agreement[28] signed on 15 January 2003 designed to help every school across the country raise standards and tackle workload issues. Note that the largest teacher union -the National Union of Teachers – was the only union that refused to sign the agreement. The eleven Signatories of the National Agreement created a partnership – The Workforce Agreement Monitoring Group (WAMG)[29] to monitor progress on a seven-point work-plan:

- Progressive reductions in teachers' overall hours
- Changes to teachers' contracts
- A concerted attack on unnecessary paperwork and bureaucracy
- Reform of support staff roles to help teachers and support pupils
- The recruitment of new managers, including business and personnel managers
- Additional resources and national «change management» programmes
- Monitoring of progress on delivery

Part of this process was the identification of twenty-five administrative tasks no longer to be carried out by qualified teachers (see complete list at the end of this document) and the related need to modify the role of support staff to help teachers. In 2002, a consultation document was published by the DfES entitled «Developing the role of school support staff»[30].

Immediately after the conclusion of the TSW Pathfinder project, the DfES began the roll out of workforce remodelling in schools, capitalising on experience gained during the Pathfinder project. According to the National Remodelling Team[31] – established by the DfES, within the National College for School Leadership to promote and progress the Government's school workforce remodelling agenda – «remodelling is designed to enhance the status and work/life balance of all who work in our schools. It enables teachers to focus more effectively on their teaching and provides every pupil with a chance to achieve greater success.»

The ideas behind TSW Pathfinder

In the interviews about TSW Pathfinder, interviewees highlighted different aspects of the project reflecting their own institutional concerns and perspectives. For Jon Leyston of the DfES, the aim of Pathfinder was to remodel the school workforce as part of a drive to tackle excessive teacher workload and to give teachers tools to further improve delivery of education. The project was meant to be exploratory, aimed at giving everybody involved (both policy makers and those in schools) an idea of what would work in terms of remodelling. He saw remodelling the workforce as freeing teachers from tasks they didn't need to do so as to concentrate on the

educative process. In the past British schools had relied on teachers to do a range of things that could easily have been done by somebody else. He saw ICT as a component of the remodelling process because it alleviates administrative processes and provides tools to be used in education. Schools drove the Pathfinder process with the help of additional funding. The DfES contributed a change management process, appointing a management consultant firm specialised in change[32] to run the change management process and to select external advisors for schools. The extent to which schools used those advisors varied considerably, depending partly on the stage at which schools were at in the change process. Some were quite advanced.

According to John Taylor of Becta, two major issues were at stake in the short-term Pathfinder project. Firstly, there is the diminishing number of qualified teachers in England. In ten to fifteen years, it will no longer be possible to support classes, timetables and the curriculum to the standard of today. A fundamental change in the structure of schools will be required. The other issue is the low professional self-esteem of teachers and the increasing number of teachers leaving the profession. Recent studies have shown that teacher workload is between 50 and 55 hours/week during term-time. One of the aims of Pathfinder was to reduce teachers' working hours. Questioned about the pedagogical aims of Pathfinder, John Taylor replied that raising standards (in terms of results such as SATs[33]) was an underlying «mantra» but the main focus was on relieving the administrative burden.

According to Prof Thomas, the objective of Pathfinder was to change the working practices of teachers and to change the boundaries between teachers and other staff working in schools. He described the various strands present in the project at the outset. There was consultancy support to schools to provide advice on managing change. There was training for head teachers in managing change. There was also funding available, in particular to train bursars, to provide a minimum level of ICT in all schools and to employ classroom assistants. In addition the DfES gave money to schools for capital projects such as building an additional classroom or an extension. All of those strands were to be used to reduce teachers' working hours, to get teachers to focus more on teaching and hopefully to improve their job satisfaction. However, as the schools taking part in Pathfinder were extremely different and presented quite varied projects, emphasis was shifted from imposing these strands to allowing much greater freedom to schools to decide what changes they needed to implement to change working-practices in their school.

Empowering schools

In the two case studies on Pathfinder schools (Radclyffe and Bramford) in this report, it is clear that those interviewed considered Pathfinder to have been an important empowerment process. The word empowerment here means giving schools a greater say and freedom over how they organise themselves (including, to a certain extent, how they «interpret» the curriculum) and how they spend their money, but also their being allowed to take risks and innovate. This feeling of being empowered on the part of schools has to be set in a wider perspective. According to the University of Birmingham team, the DfES spent a whole generation taking more and more control over schools. Now the DfES is trying to give back some freedom to schools. The DfES

have been used to an entirely different culture. So have schools. The change is easy for neither of them.

When asked how this school empowerment process had affected their team at the DfES, Jon Leyston replied that they had fully taken it on board. He was less sure, however, that such an attitude was shared across the rest of the DfES. In a system that is heavily driven by performance, the role of evaluation both of pupils and schools is extremely important. Changes also need to be validated and adopted by school inspectors. Asked about school empowerment in relationship to OFSTED (the Office for Standards in Education)[34], Jon Leyston said his team had worked hard to involve OFSTED. He hinted that this was not always easy locally as there was a risk that some of the remodelling changes be considered reductions in standards if not seen in a wider context. He gave the example of cover supervisors who fill in when a teacher is away for short periods. Cover supervision is not about teaching, he explained. It is supervising a class that is getting on with preset work. This may seem to reduce quality because cover supervisors – or learning managers as they are called at Radclyffe – are not qualified teachers. However, if you were to get a fully qualified teacher to cover for the absent teacher, the teacher would probably do little more than supervision, especially if it is someone from outside the school. Similar arguments in favour of cover by non-teaching staff were given both by Radclyffe and Bramford.

Whole school approach

One of the main aspects of Pathfinder according to John Taylor was encouraging schools to consider the workforce as a whole rather than seeing teaching and non-teaching staff as separate entities. Traditionally these two groups are considered as quite separate. The whole school approach was encouraged by the fact that each school involved had to have a change team drawn from across the whole workforce, even including governors and parents in some cases. The team's job was to develop a change process for the school. The National School Remodelling Team has taken up that aspect of Pathfinder in their national roll out of school remodelling.

The success of the «whole school» approach depended very much on the attitude of heads and the way schools were being run prior to the Pathfinder project. There was a great diversity amongst schools taking part in Pathfinder as there was in their approaches to the project. The schools were chosen in various ways. Some nominated themselves. Others were nominated by Local Education Authorities (LEAs) and some were nominated by Trade Unions. The DfES aimed to get a wide selection of different types of schools, coming from different areas of the country with only one school from any one LEA. There were twelve primary schools, twelve secondary schools and four special schools. The four remaining schools were in one LEA and were selected to get information about small schools working closely together. The DfES was also interested to know how those schools less well placed to take part in Pathfinder would fare.

According to Jon Leyston, however, the «whole school approach» was a «side effect» of Pathfinder. The main thrust of the project being to reduce workload and increase teachers' job satisfaction rather than to change school management.

Remodelling the workforce

Although the primary thrust of Pathfinder was to improve working conditions for teachers, one of the striking effects of trying to do so has been the up-skilling of support staff. This is particularly well illustrated in the studies of both Bramford Primary School and Radclyffe School. Jon Leyston of the DfES saw a parallel between attempts to build up the role of teaching assistants and the way the health service in the UK is building up the roll of the nurse. Slightly more money is being put into school budgets to employ more support staff or non-qualified teaching staff to take over administrative work and supervise whole classes. This, however, has raised issues as to whether non-qualified teaching staff should take a class.

Rewards for up-skilled non-teaching staff have not been monetary, but rather taken the form of increased job satisfaction and personal enhancement. As for teachers, however, a number of the «perks» attached to improving their job used to be in non-teaching responsibilities like being year manager or responsibility for examinations, for which they were paid «management points». As these incentives are being removed by the remodelling process, other ways are needed to reward teachers. For those who want to move forward but who do not want to become Deputy Heads or Head Teachers, there is the «Advanced Skills Teachers» (AST) programme[35]. The most distinctive aspect of these teachers' work is that they spend a day a week supporting other teachers in developing their skills and experience through sharing of best ideas and approaches.

One impact on teachers of transferring tasks to support staff is that it necessarily changes teachers' ways of working, as they have to foresee tasks and coordinate their completion by others. However John Taylor pointed out that such coordination is already part of teachers' activities as teaching assistants have been a feature in many English schools for at least eight years.

Although there was quite a lot of talk about reducing the time spent in lesson planning and preparation, that discussion was not pursued in the terms of ownership of the process. John Taylor sees the way forward where teachers start from a centrally dictated plan from QCA or the National Curriculum and then tweak it to suit their own needs and specific local circumstances, possibly using content from other colleagues or purchased in from commercial providers. That would reduce teacher workload as long as teachers feel comfortable and have some ownership of the content.

As far as the training was concerned, one challenge of a nation-wide project like the TSW Pathfinder is how to conciliate a national initiative with local particularities. This was done by using local authorities as a distributed network for training. In each local authority there was a «champion» who was trained by the London-based workforce remodelling team in change management. That person then worked closely with Pathfinder schools and early adopter schools.

Exchange between schools and best practices

One of the major vectors of innovation and the development of best practice is networking. When asked whether Pathfinder offered space for exchange and collaboration between schools, John Taylor spoke of some reluctance on the part of schools. For example, at the change-management events organised by Pathfinder for

head teachers and other staff, time was allocated to talk about difficulties experienced or special expertise developed, but there was considerable reluctance to do so. By the end of the project, there was increased sharing of expertise that tended to be more informal in nature. Formal exchange using a website were not perceived as necessary therefore were ultimately unsuccessful. Schools didn't necessarily see the sharing of best practice with other schools as part of their role. See the comments of the Head of Radclyffe School below about the very limited extent to which he allowed teachers to exchange with other schools. The attitude of Bramford Primary was more open to exchange, although it tended to be limited to top staff.

Prof Thomas said little emphasis was put on exchange between schools in Pathfinder. Training activities were mainly limited to heads and more senior staff. Little learning was going on between the schools on the project according to him. When questioned about a possible contradiction between talking of spreading best practices but not encouraging networking, he replied that you can encourage schools to experiment and take risks and learn from that. The actual spreading of best practices occurs later with the roll out strategy.

The London Leadership Centre – who provided support to the Pathfinder project and who are now linked to the National College for School Leadership – have been given the responsibility of rolling out the good practice from Pathfinder schools. To do so they have seconded a number of heads from Pathfinder schools to assist in that. Dr Pilkington said that heads valued the possibility to talk to other heads but it didn't necessarily impact on what they were doing in their own school. They had a clear idea of what their school needed and they were not going to let themselves be distracted from that. It was suggested that this lack of networking may partly have been due to the shortness of the project making it difficult to take up new ideas from others and incorporate them in their action plan.

Case studies were the DfES's main vector for collecting and making «best practices» available. These were then used in the subsequent remodelling roll out. There, the Remodelling Team coordinate the process of delivering advice to schools. Their job is akin to that of the London Leadership Centre for Pathfinder. The advisors come from within LEAs and are trained by the Remodelling team. They also carry out and publish case studies and «good ideas» for schools on their website[36]. Schools provide this material, but there is no compelling reason for them to continue doing so once the funding has stopped.

The role of ICT
As far as ICT in TSW Pathfinder was concerned, the initial idea, according to John Taylor, was that there needed to be a threshold level of ICT access, training, support and use if remodelling was to be effective. This concept was abandoned before the project got under way. That decision was due to a change in philosophy: schools were to have more control over the changes they were undertaking. The DfES didn't want to impose externally-driven changes on schools. Rather they preferred to let schools form their own change management team and make a bid for the funding they needed. This change meant that funding both from the «ICT in Schools» Division in the DfES and the School Workforce Unit was amalgamated. It led to varying levels of

ICT in schools although almost all teachers were provided with a laptop. Providing laptops was a very successful and popular move.

According to Prof. Thomas, whilst there was ICT threshold, judging from the results of their evaluation work, there was a huge leap in access to computers that can only be explained by the provision of equipment using the project money. Dr Pilkington mentioned the difficulty of training teachers in ICT use. It was not necessarily part of the project. One of the findings of their evaluation was that there was a considerable gap between improvement of hardware and the capacity of people to use it.

John Taylor pointed out that those who are knowledgeable no longer hold the view that the use of ICT alone will change ways of working. ICT can increase workload initially. Providing teachers with laptops was a morale booster and a status enhancer but didn't necessarily reduce their workload straight away. As their skills developed, teachers were able to start sharing materials and resources in a way they hadn't before. For those who had a whiteboard in their classroom, the laptop became indispensable to their teaching. This illustrated how an «administrative» change could lead on to considerable pedagogical changes.

Schools in England are moving away from the rigid division between an administrative network and a «curriculum» network towards a «whole school access» with a view to accessing appropriate data from any workstation in the school. Earlier concerns with security of the administrative network now have satisfactory software solutions.

Sustainability and funding

One of the difficulties of basing long-term action on short-term project results is the question of sustainability. Will schools be able to pursue the changes undertaken once special funding has ceased? According to Jon Leyston, the DfES hoped that schools would be performing so much better thanks to Pathfinder that they would be able to sustain the changes with the general up-rating of funding planned for 2003. In reality, various pressures on school budgets led to considerably less additional funding being available. What's more, the funding in 2003 was somewhat erratic compared to funding in earlier years.

John Taylor felt that there was an ethos in UK schooling that without additional funding nothing new could be done. The research team disagreed, pointing to cases where money was not required but rather the will and the advice.

Teachers did express considerable concern about sustainability when asked to look to the future in The University of Birmingham's evaluation questionnaire. Optimistic heads saw the changes they were initiating as being long-term strategies but they were concerned about how they could continue to finance the extra teaching assistants they had taken on. Dr Selwood thought it would be interesting to go back and explore what had been done since the funding ended.

Jon Leyston admitted that the DfES hadn't had any contact with the Pathfinder schools since the project finished so they didn't know how schools managed the sustainability. The DfES had planned to do follow-up surveys after a number of years, he said. However no such follow-up evaluation has been organised as yet. The team from the University of Birmingham noted that the DfES had gone ahead with the roll out of remodelling even before the evaluation report of the short term evaluation had been written.

According to the Minister of State for School Standards, David Miliband, sustainability in education over the next fifteen years will depend on workforce reform so as to deliver the capacity for performance improvements. Amongst such improvements is the move towards differentiated learning, which is personalised for the individual[37]. Jon Leyston insisted that this didn't mean that the individual is isolated in the learning process, but rather that the system can handle the specific needs of individuals so as not to loose anybody.

Evaluation

The School of Education at The University of Birmingham was asked to bid for evaluation of the project. The aim of the evaluation was to measure the extent to which the goals of the project were met: reducing teachers' working hours; getting teachers focused more on teaching; improving teachers' job satisfaction. They were also able to design the evaluation such as to provide an analysis of the changes that occurred. They did a baseline survey before the project began in April 2002 and a second survey in May 2003. They also did some case study work, but most data collection ended in July 2003. The result of that work has been published by the DfES as a research brief, and a fuller report [38].

The report analysed both teacher and school level responses. Amongst the key findings was the fact teachers across all types of schools reported a reduction in hours. However, there was no systematic relationship between job satisfaction and the hours worked. Access to ICT had improved although there was no consistent relationship between increased ICT access and the total number of hours worked. There was however a direct relationship between greater access to ICT for teachers at home and the use of ICT in working directly with pupils. On a school level, there was a great diversity in changes reported in working hours. Leadership was a key factor in both special schools and primary schools. The evaluation found a systematic relationship between reductions in hours worked and a positive view on the part of teachers about the quality of leadership, decision-making and change management in their schools. What's more, across all types of schools, there was a consistent relationship between good quality ICT training and support and reduction in hours. As mentioned elsewhere here, concern was expressed about the sustainability of the changes they had introduced. One potential risk of the remodelling process was a possible reduction in educational standards. The evaluation found no evidence that the project had had any short-term impact on educational standards, and the teachers interviewed were confident that the changes could lead to longer-term improvements. Examples were given of the cost effectiveness of some initiatives. However, schools found it hard to produce quantifiable evidence of the outcomes of their projects. When challenged about the lack of evaluation of the impact of the project on non-teaching staff, Jon Leyston pointed out that the DfES set the focus on teachers because the workload of teachers' was spiralling upward. The team from the University of Birmingham pointed out that the non-teaching staff had been involved in the evaluation from the start, and even though they had not been included in the published evaluation, they had been included in interim reports to the DfES and in the extensive reports sent to each school.

When questioned about the evaluation of the longer-term impacts of the project, Dr Selwood agreed that the use of ICT could be expected to have a longer-term impact. He was surprised to see that teachers said that ICT use had already reduced workload, even on such a short-term basis. Dr Pilkington mentioned that schools had implemented ICT for administration processes and that had caused a beneficial shift in the balance of work. The use of ICT in teaching has yet to take off, according to her. When it does, she expects teachers to do more and to do it differently. Case studies pointed to such an evolution. Work hours were not actually being reduced but used to do different things.

Handing over ownership of the process to schools made the evaluation more difficult because the researchers had to compare schools whose situations and approaches were very different. They dealt with the difference by providing each school with a separate report specifically about their activities in addition to the overall report presented to the DfES. Although schools did different things, certain trends were consistent across all schools. For example, the evaluation results point to a clear correlation in primary schools between the reduction in hours worked and certain aspects of the organisational planning and leadership of the school.

Schools found the initial baseline report very useful as it constituted an audit of their position. Note that the reports specifically written for schools are different from research papers written about the project using a quite different language. The research team said they thought it was not feasible to write papers that simultaneously address both the research and the practitioner audience.

Points for consideration

How good practice is developed and shared

Developing and sharing good practice was an essential aspect of TSW Pathfinder. The subsequent countrywide workforce remodelling roll out was purportedly based on that good practice. Some exchange of experience took place in face-to-face meetings but such exchange is necessarily limited as it cannot scale-up. The main method used to collect good practice was case studies. That is to say external experts gathered descriptions of the experience of staff and then structured and reformulated that experience before posting it for others to read. Such a process officially takes the formulation and evaluation of good practice out of the hands of the actors themselves. It bars them from constructing their own knowledge about processes related to good practice. What practice is good? Why is it good? How can it best be formulated? Is it understandable and useful to others? Good practice, from that perspective, is something made by others and then consumed rather than constructed by the actors themselves. Such a way of working creates a number of problems, in particular the transfer of knowledge and staff motivation to adopt good practices.

The case study may not always be the appropriate form for exchange of good practice. As staff in Radclyffe school pointed out, practitioners often need focussed information on specific topics. Here case studies are not appropriate.

It may well be that there is no suitable culture in schools for developing and sharing good practice. Put in other words, schools as institutions may still be more about teaching than learning. There wasn't a culture for change management either. But the project efficiently set out to instil that culture in participating schools. There was a political will and a deliberate effort to empower schools to take control of their own change process. One might have done something similar about developing good practice in which staff were empowered to develop and share good practice themselves rather than having it done for them by external experts.

Tentative efforts to encourage exchange between participating head teachers during meetings and via the Web were unsuccessful. If such exchange did take place it remained informal and outside the project structures. The perceived role of schools in the larger (educational) community may have something to do with this lack of exchange. Developing and sharing knowledge and experience between schools is not seen as part of their role. They are assessed above all on their ability to produce good test and exam results. The open competition between schools – at secondary level – may well not be conducive to sharing experience.

A sustainable approach to education

From the wider perspective of sustainability in the field of education, knowledge and know-how on the part of all educational staff is a valuable but increasingly scarce resource. TSW Pathfinder partly addressed this question of sustainability in wishing to improve and retain such resources as far as teachers were concerned. As an unexpected fall-out of the process, it also addressed the question of developing knowledge and ability on the part of non-teaching staff. It did so, however, within the limits of the time frame of the project and did not explicitly raise the question of how new staff would be retained beyond the project end.

The TSW Pathfinder raises serious questions about the sustainability of educational change. The project could have offered an excellent opportunity to explore strategies for sustaining institutional change. Such a process would however have taken time that the authorities apparently didn't have as they began the full-scale roll out of workforce remodelling before the evaluation of the Pathfinder project was available and without evaluating if the changes were sustainable. It is surprising that the DfES launched a full-scale roll out without checking to see how schools participating in Pathfinder fared in the very critical period after the end of the project.

The starting point of TSW Pathfinder was teacher workload and satisfaction, so it is understandable that these preoccupations were at the centre of the evaluation process. However various circumstances caused the project to change emphasis. It became more experimental, and, as several interviewees mentioned, empowered schools to explore new possibilities. The shift placed increased emphasis on non-teaching staff and often led to the adoption of a whole school approach.

Another aspect of the sustainability question is that of leadership. Michael Fullan of the University of Toronto wrote an excellent article[39] about the subject entitled «The Role of Leadership in the Promotion of Knowledge Management in Schools» for an OECD conference in 2002. For a system to be sustainable it needs to develop a large base of actors with leadership skills. This is graphically illustrated in the case of

Bramford where the leading figure in change is about to leave. The approach adopted in TSW Pathfinder on the one hand involved more people in the change management process by opening the change management team to a wider category of actors. However, the training process was restricted to head teachers and senior staff, who then had to pass on knowledge if they deemed appropriate. In a larger context, leadership has been singled out as a key factor in UK schools through the creation of the National College for School Leadership (NCSL).

The 32 TSW Pathfinder Schools

Abbey Hill School	Stockton-on-Tees
Albany School	Enfield
Bishops Castle Primary School	Shropshire
Bovingdon Primary School	Hertfordshire
Bramford Primary School	Dudley
Brunswick House Primary School	Kent
Burlington Danes CofE School	Hammersmith and Fulham
Campion Catholic High School	Liverpool
Cirencester Deer Park School	Gloucestershire
Compton All Saints CofE Primary School	Hampshire
Corsham Primary School	Wiltshire
David Lister School	Kingston upon Hull
Dunraven School	Lambeth
Etone Community School	Warwickshire
Forest Hall Primary School	North Tyneside
Grinling Gibbons Primary School	Lewisham
Hope CofE Primary School	Shropshire
Horton Lodge School	Staffordshire
Hoylandswaine Primary School	Barnsley
Icknield College	Oxfordshire
Langley Junior School	Plymouth
Lydbury North CofE Primary School	Shropshire
Marlborough Road Primary School	Salford
Montagu School	Northamptonshire
Newcastle CofE Primary School	Shropshire
Newton Farm Nursery, First and Middle School	Harrow
Philip Morant School and College	Essex
Phoenix School	Tower Hamlets
Prince Albert Junior and Infant School	Birmingham
St Anthony's School	West Sussex
The Radclyffe School	Oldham
The Winston Churchill School	Surrey

The 25 tasks no longer to be done by teachers

The following common tasks according to the DfES need not routinely be carried out by teachers and should, as soon as practicable, be transferred to support staff or ICT:

- Collecting money
- Chasing absences
- Bulk photocopying
- Copy typing
- Producing standard letters
- Producing class lists
- Record keeping and filing
- Classroom display
- Analysing attendance figures
- Processing exam results
- Collating pupil reports
- Administering work experience
- Administering examinations
- Invigilating examinations
- Administering teacher cover
- ICT trouble shooting and minor repairs
- Commissioning new ICT equipment
- Ordering supplies and equipment
- Stocktaking
- Cataloguing, preparing, issuing and maintaining equipment and materials
- Taking minutes of meetings
- Co-ordinating and submitting bids
- Seeking and giving personnel advice
- Managing pupil data
- Inputting pupil data

Two «portraits» from PATHFINDER

Schools were relatively free in how they used the money from Workforce Pathfinder and this resulted in different approaches. Some schools concentrated on teaching and others concentrated on non-teaching staff and administration. The descriptions below of Radclyffe and Bramford that follow might give the impression that administrative aspects were more important but this is only part of the picture as in other schools much more emphasis was put on using ICT in teaching, particularly electronic white boards.

6. The Radclyffe School – a quest for excellence

Chadderton

Chadderton lies on the outskirts of Oldham, north of the city of Manchester. A town of some 33,000 inhabitants, Chadderton is in the foothills of the Pennines on the edge of the former Lancashire coalfield. It was once a thriving centre for the cotton industry. Its first cotton mill dates back to 1776. Over sixty cotton mills were built throughout the town over the centuries. In the mid-thirties, Chadderton was one of the largest urban districts in England with a population of over thirty-two thousand. With the decline of the cotton industry in Britain, the last of the Chadderton cotton mills ceased its activities in 2000. Fifteen of the town's mills are still standing today: impressive, massive buildings towering over the houses around them[40]. It is this context, that you find the Radclyffe School[41], one of three secondary schools in Chadderton. The name of Radcliffe has been part of Chadderton's history since the early 1400's when Elisabeth and Robert Radcliffe built the first Foxdenton Hall there.

The Radclyffe School

Part of the Radclyffe School, a former grammar school, lies by a main road in a residential area of Chadderton and houses the lower school (years 7 – 9). It was there that we met H.S. Hayer, the Head teacher, David Nutton, the newly appointed Network Manager and Noël McKenzie, the Head of ICT. The higher school (years 10 – 11) is about a mile away in the centre of Chadderton. Radclyffe is a ten-form entry school for boys and girls that has been designated a specialist technology college by

the government. It has 1,350 students and over 150 staff. As you enter Radclyffe, the school's mission statement is omnipresent: «Working together for excellence». The discussions we had about participation in the TSW Pathfinder project were set against the back drop of that call to excellence.

The TSW Pathfinder

According to Mr Hayer the workforce pathfinder project is about freeing teachers to teach through innovative ways of working using ICT and/or support staff. It is also about «making teaching an attractive profession» by making the lot of the teacher manageable and focussing on developing youngsters fit for the 21st century. «The whole future of the teaching profession in this country is dependantdependent on the success of this pathfinder.» There are areas in the UK where there is a shortage of teachers and in the future the situation is going to get worse as many teachers will be retiring in the next ten years. The Head of Radclyffe sees the work done in Pathfinder as an ongoing process that will not end when funding terminates.

The challenge of raising standards

The Head of Radclyffe defines standards as follows: «Standards are about personal excellence for the youngster.» According to him, this excellence is conceived in terms of academic performance but also as achieving the «rounded person», that is to say someone who can play an active role in society. At Radclyffe youngsters are benchmarked. Minimum and high expectation levels are fixed. When asked about how the move to the «rounded person» was assessed, the Head spoke of participation in extracurricular activities or in the school council. He spoke of the extent to which responsibility was taken on as well as the type of behaviour. Attendance is also a key indicator. A lot of effort is put into trying to improve attendance figures by modifying courses to make the school an attractive place to be in. Attendance rates have risen from a steady 88% to over 90%.

Excellence with teachers?

The mission statement of Radclyffe is «working together for excellence». No one person can assure that excellence. There is a strong emphasis on teamwork. «Staff are our main resource. Without top quality staff you never move standards up.» In the appointment process for new teachers, they are observed in the school environment. Candidates are required to teach a class for some twenty minutes and then the Head teacher gets feedback from the class about how they found the teacher. «Pupils give a great deal of constructive feedback.» They even have the youngsters interview the candidates or vice versa. «You can't get excellence from the youngsters if you don't emphasis excellence from the staff.»

The philosophy behind excellence?

«At the heart of education is the youngster... and how you are going to get the best possible result for that youngster.» The Head refuses the idea of adopting any particular way of teaching. The choice depends on the circumstances. «If a child doesn't learn the way I teach, then I must teach the way he or she learns.» For him it

is not about ideologies or structures but rather what works and what is best for the youngsters at a particular time and place.

He pleads in favour of being open to change, but not necessarily all forms of change. The critical yardstick is the positive impact on the youngsters. And if change measures up to that then the school is prepared to go forward, even when it implies difficulties for the school and its management.

Change in roles

Challenging traditional assumptions and redistributing tasks were central parts of Path Finder. The aim was to shift the administrative workload from teachers to free them up to prepare high-quality lessons. Such redistribution was incorporated in Radclyffe's change plan. Let's give some examples. The job of the year manager – who is responsible for all the children in one year – is traditionally done by a teacher. Radclyffe chose to challenge that tradition (partly because of difficulties caused by having a school on two separate sites) and to shift the role from a teacher to a non-teacher. The year manager, who works on a fulltime basis, helps in contacts with pupils and parents as well as carrying out certain administrative tasks. This has been very successful and Radclyffe has gone from two to five year-managers over an eighteen-month period. Another example was the employment of a network manager who has taken over much of the work formerly carried out by a teacher. There is also the employment of six learning managers who work on a permanent basis in the school replacing external supply teachers and removing the need for cover by other teachers. They oversee work done by students set by the teacher who is not able to be present. They also carry out administrative work and prepare material that can be used for lessons. As the Head put it, the quality of work is higher from the Learning Managers overseeing classes as they have a vested interest in the school compared with the supply teachers who sporadically come in from the outside just to earn some money.

Transition

The transition process is not always easy. For the teacher who relinquishes some of his or her tasks there can be mixed feelings. On the one hand, there is relief as workload and stress decrease, but there is also a certain loss of identity. Although the Head of ICT, Noël McKenzie, pushed strongly to have a Network Manager, he spoke of the «sadness» of handing over five years' of pioneer work to someone else. People continue to address him about the school network although he is no longer responsible for networking. To replace his earlier role, he now works on ICTs related to the curriculum. David Nutton, the new Networking Manager, came from IT companies supplying education. Those arriving from outside the world of schools have to adjust to the school culture, especially those coming from the private sector. As a former entrepreneur, adjusting to the school environment was somewhat difficult for David, partly because the increased awareness of the school context and the needs of its actors set additional constraints on getting the work done. Having decided who would do what, Noël and David drew up a timetable for the transition period. Help in this transition process was mainly in the form of explanations about specific aspects of the school and its workings provided by Noël.

More generally, the transition is made easier partly by the selection process in which people are chosen, amongst other things, on their ability to handle the school context. Finding the Year Managers with the right profile was quite a challenge because the job required not only a certain academic level but also someone with strong interpersonal skills. The selection process was extremely rigorous. Successful candidates were coached by assistant Heads in the early stages and responsibility was progressively shifted to them.

Definition of roles

All those working in the school have a detailed job description, making identifying task to be transferred from qualified teachers to others somewhat easier. However, the transfer of work is still a delicate question. One of the reasons for this is the possible perceived threat to the professional «identity» of the people involved, particularly teachers, and the perceived impact on the teaching itself. Talking about the introduction of Year Managers and Learning Managers, the Head of the school said there is no wish to move to a system where teachers are just «instructors». Teaching is also about human relations, he says. Every teacher also has a role of pastoral care. At the same time he doesn't want to have the valuable skills of teachers wasted on dealing with «silly» incidents. Year managers are there to do what teachers don't have time for.

Opposition

These changes have provoked some opposition, particularly from one trade union. One of the reasons for this is the fear that the changes will do away with some promotion possibilities for teachers. In fact, such roles as year manager were partly created as a means to retain the best teachers by rewarding them. Unfortunately the result is that teachers are taken out of the classroom, increasing their «non-contact» time to do pastoral work. The strategy of the Radclyffe Head has been to provide qualified teachers with promotion opportunities directly related to teaching and learning.

Leadership

The school Head played a key role in Radclyffe. He championed the changes and communicated a very clear vision of the direction to be followed and intervened to give specific task to the actors involved. At the same time, he led an open, consultative process involving not only staff but also pupils. In getting pupils involved he was clear with them about the extent of their participation that they understand that they were not the sole actors involved and that other factors needed to be taken into consideration. The School Head also acts as a figurehead in making the school's experience more widely known.

The role of ICTs

One of the strands of Pathfinder is the innovative use of ICTs to reduce teacher workload. As part of the project, all teachers have been given laptops and Radclyffe has been fitted with a wireless LAN. One reason for this is to improve exchange of

information about lesson plans and resources using a shared network. In this move, the younger members of staff have often been the stimulus for change. Another target is to use email for communication between the school management and teachers. In addition, attendance is noted directly on the laptops that are also used to make on-the-spot notes about bad (or good) behaviour of students and these records are then available to all teachers. Classrooms have overhead video projectors and white boards. For a number of teachers these have become indispensable to the point where a technical failure is seen to jeopardise a lesson. Some online teaching material has been bought for use in lessons but no material is made by the teachers themselves. It is interesting to see this approach to administration via mobile computing and it will be interesting to see what impact it will have on pedagogical questions.

According to Network Manager and the teacher who is Head of ICTs, ICTs are not a central issue in Pathfinder. The project could have been done without them. At the same time, they insist that ICTs were a considerable incentive for teachers to take part in the project because each of them received a portable computer. What's more the wireless network gives teachers direct access to material that they never had before.

Organising exchange and collaboration

Within the school, exchange and collaboration is done at regular meetings as well as sporadic liaising on specific issues, for example between teachers and year managers. There is also inter-school exchange on a subject basis using online facilities provided by the Specialist Schools Trust. The LEA advisor also organises network meetings with small groups where specific issues are discussed. Online discussions depend on the goodwill of individual teachers as there is no funding available for it. From the Head's perspective, that would take teachers away from their work.

Diffusion of best practices

In Radclyffe, the Head and Deputy Head present the Pathfinder experience in meetings of other heads and school organisations. The Head considers the best way for them to encourage change is to talk about their journey and leave others to pick what is of interest to them from that experience. The result of these presentations is that the school is quite well known. In fact the Head works as an intermediary in discussions with Heads from other schools, putting staff from one school in contact with those from another when problems arise. The schools gets visits and phone requests for information and this can be very time consuming. Very little exchange takes place by email except possibly as a follow-up to a meeting or telephone conversation. There have been a couple of peer exchanges with other schools within the specialist schools network which involved writing case studies. But there has been no other material published about the experience they have had. The teacher and Network Manager felt that having to write down experience would be too time-consuming. They have many other calls on their time that take priority. Having to write about their experience was seen as a «backward step», because it would mean giving themselves another task to do. Sharing experience in the form of a written «report» they felt would be inappropriate, as people want specific replies to focussed

questions. The School Head was categorical: it is not the role of staff to get involved in extensive exchange of good practice with people from other schools. His position is quite legitimate seen from the perspective of the school he runs. No time is allocated for such activities. It is not part of the school's role unless specific funding is made available for that. On a wider scale, given this situation, one wonders how the DfES imagines that best practices are going to be exchanged?

Evaluation

In addition to the external evaluation done by University of Birmingham, the Radclyffe change team discuss issues and provide feedback about how things are going. In addition, there are half-yearly meetings with union representatives. They also talk to the students who were involved in the appointment of new Learning Managers.

7. Bramford Primary School – investing in people

Dudley at the heart of the «Black County»

Bramford Primary School is part of the Dudley Local Education Authority (LEA). Situated not far from Birmingham, it is at the heart of what was once called the Black Country named after the notorious smog that was an unfortunate by-product of the region's industrial revolution. Main industries were glass, iron working and mining. As traditional industries declined in the 20th century, industrial activities became more diverse. Plastics, electronics and chemicals were added to metalworking and the glass industry. In addition service industries grew in importance, including tourism and the retail business. One of the striking vestiges of an earlier age are the picturesque canals that criss-cross the area, offering interesting possibilities for tourism.

Bramford Primary

Bramford Primary School, situated not far from the Tipton main road, was built in the middle of an urban residential area. Bramford is a mixed infants and junior school. It has continually grown over the last twenty years. With over 400 pupils, the school is above average in size and suffers from the lack of outside space available. This situation will be greatly improved by the planned construction of a new school. As far as ICT goes, according to the league tables of connected schools, the Dudley LEA is well placed in the primary school league – 12th out of 129 LEAs – with 67% of primary schools having their own websites.

Investing in people

The central leitmotif in Bramford Primary School is undoubtedly «investing in people». This policy is championed by Deryck Noakes, Head of Bramford and is particularly well illustrated by the step-by-step promotion of the former school secretary to School Bursar, Christine Loach (see below). The Head of Bramford insists that you have to empower staff to have them give their best, with the word «staff» encompassing all those working for the school. He considers you need to keep a reserve in the wings for every post in school based on a logic of «growing your own people». They started with line managers and key posts in the office and then extended it to the caretaker, the cleaning staff, the dinner staff and to nursery nurses. For the last nine years, the school has received the «Investors in People» label that is awarded to organisations on the basis of meeting benchmarking standards in professional development and training throughout the whole organisation.

Teaching as a vocation?

For many of those entering teaching now it is no longer a vocation, but rather a way of earning a salary for a period of time. There are however few such people at Bramford. At the same time, changes are inevitable. There may be no tangible reward for undergoing those changes in terms of added pay, but there is the possibility of improved conditions and the possibility of working with others. This raises the

question of training those conservative teachers who have been blocking the change process. They were frightened according to Deryck Noakes. A lot has been done to encourage people to change, but now compliance is expected of them. The Head has made it clear to the teaching staff that attaining the performance expected by the school on the part of teachers is a necessary criterion for additional pay incentives (called threshold payments).

Putting power and entrepreneurial skills back into schools

According to Deryck Noakes, the level of expertise in schools has considerably increased over the passed years but, as can be seen in the Standard Assessment tests (SATs), particularly for year six, it has reached a plateau. «You then need to put the power and the entrepreneurial skills back into schools to take things on a stage further.» he says. Such a change goes hand in hand with planned changes in school inspection, where visits will be carried out at very short notice, requiring schools to have immediate access to data about their school and its performance. Having that process under control implies that you can concentrate on learning. The Pathfinder project has given them confidence because they were allowed to take risks. Confidence also came from being part of a group of thirty-two schools and working with those schools on learning how to manage change.

Part of Deryck Noakes strategy for keeping abreast of developments consisted of being part of the appropriate commissions and being active in unions. That allowed him to know in advance which way education was developing. On the basis of that knowledge the school sought to make provisions for changes. The Head gives the example of the introduction of the national literacy and numeracy strategy. Rather than take just the literacy and the numeracy coordinators to the training, the Head took the whole of the senior management team. That was a powerful way of up-skilling the senior management. In this process, Dudley LEA has had a distinct advantage because it is quite small and everybody is able to get to know everybody else.

Education leads change management in the UK

Education is the lead sector in the UK for change management. Deryck Noakes is exited about the prospects this situation provides. «If you then extend that work by bringing in social services and health to look at a holistic way of dealing with children, a completely different concept of schools, social services and health care is required.» A decade ago there was a vision of the school as a one-stop shop where children are educated but also where parents can access libraries, and get help with housing and social services. At the time Dudley was not a sufficiently deprived area to attract funding to make such changes. In the future, however, as Bramford is getting a new school building and because of the long-standing track record in working with the local community they will naturally play that role. This corresponds well with changes about to happen on a national level so, thanks to the momentum from the Pathfinder process, they will continue to be at the forefront of developments in the country. In so doing they can be fully entrepreneurial, marketing and sharing their skills with others. It is part of empowering the neighbourhood. They are one of the largest
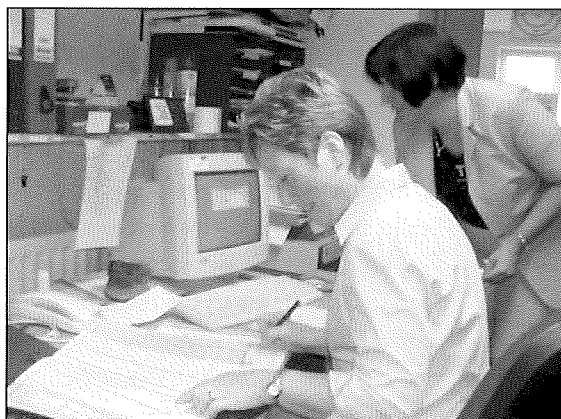
employers in the neighbourhood and in that role they are transforming mothers with the appropriate training into classroom assistants first on a voluntary basis and then finding them the employment and then moving them on to other employment.

Sustainability ...

Challengedabout the ability to sustain development after the end of such short-term projects like Pathfinder, the Head said they had been particularly careful how they spent the resources provided. Much of the Pathfinder money was spent on staffing so as to «top-up» salaries and capitalise on existing in-house potential. The only additional posts created were sports coaches. Those will be discontinued at the end of the year. The Head suggests looking at teaching assistants from a broader perspective. People can be employed for their specific skills, in sport or nursing, for example, rather than necessarily seeking those with educational qualifications.

... and leadership

Another aspect of sustainability is leadership. Much depends on the attitude of the head teacher. For Deryck Noakes, the system has tended to breed a race of head teachers who were only able to work within the framework of the national curriculum. They lack the necessary entrepreneurial attitude. However, deputy heads are now being trained in changed management to prepare them for headship and schools themselves are going through the change process. So what will happen when he retires in the very near future? If he has concerns that «the future Head might sweep away all the good things he has done», he is comforted by the fact that the national agenda is also moving in the direction he has been advocating. He's been progressively preparing the way for his retirement by changing the internal organisation so as to make the transition as smooth as possible. Changes have been made in the school day, but this will only be complete when the new building is available as it will provide the additional outside areas necessary. He also wants to complete the move to a more thematic approach to the curriculum. At his retirement, he sees a transition period in which he hopes to conti-nue working on sharing the work they are doing with other establishments.

The example of the school Bursar

Mrs Chris Loach, the School Bursar, began working in the school as a secretary. As the school and its management changed, she became personal assistant to the School Head and then School Bursar. She has been a member of the senior management team for four years and with the beginning of the Pathfinder project she became a member of the Leadership team. She attributes this exceptional situation to the forward thinking of the Head. She says that the school has been «market leader»

in secretarial/administration changes for the Dudley area. When the changes were made to her job description over ten years ago, that model was then used by other schools in the area to promote their secretaries. At that time, she also did training of secretarial staff in neighbouring schools. Nowadays, she carries out in-house training for the school's support staff. There is no official training programme for administration procedures.

The transition

When the Bursar became a member of the senior management team, it was done officially through the school governors. However some of the staff were surprised at her being thus appointed because membership of that team had previously been reserved to qualified teachers. She felt she had to prove her worth. As they began to see the benefits of having a member of the administrative staff on the senior management team, her position was more readily accepted.

Responsibility

The Bursar is doing a certificate in school business management. Of the 25 participants on the course from around the country, only three are part of the senior management team in their school. Being part of the senior team depends completely on the attitude of the Head teacher. She mentioned that not everyone necessarily had the required skills or wanted that responsibility. From her perspective, it is best to have someone on the senior management team who knows about administration, the budget and the financial side of the school especially when it comes to school improvement planning and development.

The financial aspects

The move to partly delegate budgetary responsibility for schools has seen the available budget rise from £10,000 in 1987 to over £1 million in 2003. With schools having an increasing say in spending, especially in relation to plans for school improvement, the relationship between the Bursar, as responsible for finances, and the teaching staff has necessarily changed. Work has been done on training staff through the senior management team. Chris Loach talks of how teachers have come to think in terms of the resources they need for activities and consult the Bursar about the subject. She says that teachers don't necessarily feel constrained by budgetary questions – in fact the Head encourages them if they have groundbreaking ideas – but they don't always perceive the wider implications of a particular proposal. To a certain extent she considers there is a better understanding of budgetary implications and a longer-term vision on the part of teachers.

Sustainability

The Pathfinder project was funded for a two-year period. To be able to sustain the process, it has been necessary to find ways to change the management of the school within existing resources. This involves looking at posts and questioning whether they can be used differently. For example, in shifting the 24 tasks identified by the DfES as needing to be taken from teachers, they had to look at existing administrative

staff and teaching assistants. That meant redesigning and redefining the job description to address their workload issues as well. Building on experience they had had with up-skilling herself, they transferred the process to others. For example, the receptionist began a reprographic service for the whole school. The part-time clerical officer now also works as an ICT technician. Those changes didn't cost any additional money. Challenged about this way of upgrading people's work without increasing their wages she said that that was what generally happened in education. She spoke of the goodwill associated with working in education. Being able to confidently carry out such new tasks can come as quite a pleasurable surprise to people. Self-development is seen by many as a reward in itself that could compensate for the lack of increased wages. It is one of the tasks of the management team to ensure that such shifts in tasks are really seen as improvements. There is of course the risk that these increased qualifications lead to people moving on to better paid jobs elsewhere. According to her, the Head actively encourages those who wish to move on to a better job, even if it is elsewhere.

Appraisal

The school has an appraisal system both for administrative and teaching staff. For the latter it is pay-related through the threshold scheme, but not for administrative staff. Appraisal means being able to identify individual people's training needs and aspirations. Before any vacancies are advertised externally they are made known internally and as such offer alternate promotion opportunities. The general policy is to promote from within the ranks wherever possible thus using people they have trained themselves and developing them further.

Empowerment

With the Pathfinder project, the school has been given the autonomy needed to change people's roles. That was not widespread before, but now, providing that job descriptions are checked with local authorities and trade unions and the processes followed correctly, the governing body has a great deal of freedom. This has led to considerable diversity of workforce solutions in primary schools across Dudley. As such, Pathfinder has been an empowerment process for schools. According to the Bursar, it has allowed them to learn how to manage change. Anything new that comes along they look at in a different light. It has made them more aware of change processes. There was, however a reticence to change as people were afraid that OFSTED, the inspecting body, would not like it. There is a sort of «regimented fear», as she put it, because traditionally the LEA set guidelines and OFSTED said how things were to be done. Being part of Pathfinder has encouraged teachers to be «brave» and to take risks.

Sharing experience

Having taken the risk and been successful, the school has become something of a model. The Head has been out to speak to groups of head teachers around the country, talking about the remodelling process and sharing what they have learnt. There is a case study[42] about Bramford Primary on the remodelling website. A lot of

people have come to visit Bramford and school staff have attended conferences. There have been a series of meetings between Pathfinder schools attended by the Head and a member of the change committee. Five people from Bramford have attended one meeting or another. The meeting agenda was designed to have a school describe what it has done. It was a good occasion to borrow other people's ideas. Schools were very willing to share their documentation with others. There is also a network between Heads in Dudley and that has also been a channel to exchange experience on remodelling the workforce.

Ideas are exchanged between bursars taking part in the certificate of school business management through a website of the National College of School Leadership[43] called «Talk2Learn». There is an area called «Bursars' counter» in which you can ask for advice about a particular issue. Other participants then respond individually by e-mail. Responses are quite quick and there can be as many as five replies. There is however no online area in which such knowledge can accumulate and be reused.

Assessment and return on investment

One of the requirements of the Pathfinder project was to provide reports through the school's advisor. The advisors were part of the Pathfinder structure appointed by the national remodelling team. That person checked they were doing what was required of them. Throughout the project, the change committee has continued to meet regularly, reviewing what could be done. The process has been built into the longer-term school improvement plan and as such is evaluated every year. This will guarantee the continuation of work done in Pathfinder.

Involvement of parents

Parents were informed by letter of the project and the changes to be made. The parents were also asked to fill out a questionnaire and a second questionnaire is to be sent out in the near future. The strategy of the Head is to «test the water» with parents to find out their feelings and address any concerns they might have. There is a very strong community spirit in the school as there is in the area around the school with associations and other organisations.

Leadership and beyond

There were some very difficult moments in the process, with strong resistance from a limited number of teachers who finally left. The role of the Head of school and the Change Committee has been very important in this process. With Derek Noakes retiring in the near future some concern was expressed about how the project would move forward after he has left. For Chris Loach, the future lies in promoting people, if money can be found, and creating a new structure with higher-order teaching assistants. She says: «This is the way forward. It has been needed for a long time. I don't believe in teachers doing administration. As for me, I wouldn't want to teach a class. I couldn't.»

ICT coordinator

One of the roles of the ICT coordinator, Gareth Davis, is to look at what is taught about ICT and ensure that there is a progression in that teaching and that there are no overlaps. Each ICT teacher writes down what he or she does in the term. He maps out areas that teachers are not covering due to lack of training. He has gone on courses and then passed on that knowledge to the relevant teachers. When asked about the curriculum, he mentioned that many teachers feel obliged to follow the guidelines set out by the government. He and his colleagues, however, prefer to see if the proposed work fits the particular class context and if necessary they adapt things.

He spends 85% of his time on teaching a fourth year class and the other 15% is taken up by work as ICT coordinator. Thanks to Pathfinder he has more time to look over programmes he has learnt about on training courses. Before he used to phone in problems to the technical support, but now much of that has been taken over by the office.

Changes with Pathfinder

He says that Pathfinder has made them more aware of issues they hadn't paid attention to before. For example, having sports coaches has freed them up to focus on questions like ICT. There was concern that sports coaches would not teach the same Physical Education (PE) as teachers. At the same time, the children get a higher standard of PE teaching as the people are specialists.

He casts doubts on whether the laptops given to teachers during Pathfinder where necessarily being used by teachers as some have only just started using word processing software to prepare lessons. They do have a shared area on the network, but this is not necessarily used by teachers as they are not so familiar with placing things in files and moving them around. There is some sharing of material within the same year group.

In one respect Pathfinder doesn't save teachers work in that they have to be «ahead of themselves» and organise their work in advance so as to be able to ask the office to do the necessary things like photocopying. That planning means more work for teachers. What's more, working with younger classes means there is an on-going need to revise plans if work hasn't been properly absorbed. That can cause problems with longer-term planning.

eFIT

The interviews in Austria about eFIT were organised and carried out by Dr Margit Hofer.

Five people were interviewed:
- *Michael Lückl, Bundesministerium für Bildung, Wissenschaft und Kultur*
- *Herbert Hug, HTL Dornbirn*
- *Wilfrid Pleger, TIPS (Tiroler Bildungsservice)*
- *Hartmut Haefele, IDEe – Häfele KEG*
- *Georg Pleger, Plone*

8. From centralism to greater autonomy

Introduction

'eFit'[44] was an initiative of the Austrian Ministry of Education and Culture. Split into several project segments, it aimed to improve work by the implementation of multimedia tools. Within this initiative, which was launched by the minister, one part was dedicated to e-Learning.

The implementation of the theoretical concept in practice was important for the ministry. Different key actors were involved: universities, schools, regional educational portals, technicians, designers and vendors. Of particular interest was the relationship between those key actors, the implementation of innovation, its success factors but also the resistance and barriers.

In interviewing the stake-holders, it was not only the facts and figures that were important, but also the relationship between actors, barriers, success factors and future visions.

What is 'eFit – the portal to Learning' ?

The eFit Austria initiative provides a new access to teaching, learning, research, and culture in Austria that is in line with the requirements of the knowledge society. eFit Austria aims to enable everyone to use the new information and communication technologies in an optimum and responsible manner.

The objectives of the eFit portal focus on several issues:

- Schools and further training institutes in Austria, in line with European standards, provide highest quality and effectiveness and, in international comparisons, are used as a reference for assessing the quality and quantity of schools and further training institutions.
- Basic and further training systems are easily accessible for everyone and all citizens independently of their age can make use of the possibility of lifelong learning.
- In Austria schools and further training institutions are open to all people and are mutually compatible so that it is possible for all citizens to switch institutions and benefit from a diverse education.
- Education and further education allow individuals to make full use of their skills and live a full life in the knowledge society.
- Education and further education contribute to strengthening democracy, reduce inequalities between people and groups and boost the cultural variety.
- Education and further education provide an important contribution to the development of the economy through educational offers oriented by the technological and economic evolution.

The e-Learning portal represents the central access to education, science and culture-relevant information and offers a number of IT services for interested users.

The overarching aim of eFit was to create a common e-Learning portal for all of

Austria. The project combined several tasks. In order to establish a theoretical concept, an in-depth study on the topic was necessary, involving Austrian researchers and the existing international network. A second step was the identification of existing material and levels of equipment of the regional portals. Since the conditions differ from region to region, a wide range of material, both in terms of quality and level, was identified.

As a result, the concept had to take into account the fact that already existing material and portals should not be done away with and centralised in Vienna. Such a centralised concept would not have been accepted, as local portals have been in use by teachers for several years and (in some cases) are very successful. Therefore the goal was to integrate the regional servers in the overall portal and enrich them, rather than exclude or do away with them. The aim was to provide an additional, but not obligatory, offer.

This strategy has to be seen in the light of the educational system in Austria. Power of decision making in education is shared between the central government and the regions, although the system is mainly centralised.

The Ministry – University – Schools connection

Given the complexity and the requirements of the educational portal, the ministry undertook research to reach the right conclusions for the portal. The researchers evaluated 145 platforms over approximately two years. Formerly, the ministry funded universities, resulting in a close relationship between the two. The new law concerning universities has changed this situation, giving them greater autonomy and requiring them to raise some of their funding themselves. As a result the ministry has less control over them and it is unsure what form future co-operation – if there is any – will take. Certainly this new law will make any co-operation between schools and universities more difficult, if not impossible. The number of contact people (if ever there were any) will be reduced, so schools will find it hard to ensure co-operation or even get advice from different university institutes. It was assumed that this issue was not pertinent as direct connections between schools and universities were rare. Contact was generally limited to projects launched by universities seeking schools as test beds for research. One might conclude from this that teachers in Austria are isolated from research and that questions and issues from teachers will not be dealt with by research.

Rather than ask end-users about their requirements for the platform, an expert group, consisting of representatives of the regional portals, was consulted. This working group not only confirmed the necessary steps to be taken, but also presented the results of the research done (platform, standardisation, LMS, CMS,...).This interaction between consultancy and feed back from regional portals and other members, user-groups and research was certainly beneficial not only to the ministry for the portal, but also to all participants.

Strong synergy was found between information flow and finding partners. The development of new concepts and strategies are not necessarily so influenced by paper or ICT as one would assume, but mainly by face-to-face meetings. Being present at key conferences and meetings enables people to identify common issues and solve problems. There was a consensus amongst most of the interviewees who

saw meetings not only as a good place to enrich their knowledge, but also a place to identify strategies and find partners for co-operation.

Key success factors

Time and amount
Time was clearly seen as a main success factor: the more time required for setting up the eFit portal by the ministry, the more difficult the implementation/ integration in the main portal would have been since several local platforms were continuously being developed.
It has been argued that the right demands on users' time in the implementation of such a portal occurs when it is interesting and needed by users but does not overstrain them.

Small steps
Also the 'amount' of innovation needs to be taken into consideration. Successful innovation and change does not necessarily mean a radical process in one single moment. One interviewee stated that he very often sees the process of change start slowly, spread to several colleagues and then speed up as the progress of innovation moves forward. This implies that innovation requires patience, especially in the educational sector.

Resources
Implementation of innovation requires effort, so having the necessary resources (funding, personnel and infrastructure – technology and rooms) is one of the main criteria for the successful implementation of innovation. Ministries endeavour to ease this situation by offering schools free licences for software and cheap ICT equipment. However, due to accelerating technical developments and geographical conditions, it is difficult to get all schools connected with up-to-date equipment.
Whatever kind of innovation is taking place, it always requires time. Most teachers take or would like to take a participative approach but are limited by time constraints. As a result, they would like to receive official acknowledgement for their effort. For many teachers, it is a way of upgrading their C.Vs. Others would prefer additional payment. Opposed to this approach are those teachers who resist the implementation of multimedia. Amongst the reasons given for this opposition, the most prevalent were psychological considerations (fear of loosing control, ...).

Motivation and strategy (adapted to possible motivation)
A number of interviewees mentioned motivation as a key factor for change and successful implementation. This is twofold. On the one hand, there is a need to provide offers that are adapted to the target group and considered worthwhile by users. This requires projects to be based on a very good concept. On the other hand, innovative people are needed, who are not afraid to try new things to improve the working/learning in their organisation. These pioneers would champion the new ideas in the organization and be able to convince colleagues.

Colleagues are also best at explaining and demonstrating the reasons and benefits of innovation to fellow colleagues. In such peer exchange, the connection to real life situations is more easily made and answers provide for such questions as «Why should I change, if my old system works?».

The way innovative ideas are presented and the approach adopted should also be considered as indicators of a successful strategy. Innovation is more easily accepted if curiosity is awakened, rather than creating a feeling of obligation. This is particularly pertinent, as teachers tend to react to pressure (from the ministry) by adopting a defensive stance.

Practice and on-the-job support

It is also colleagues who are best at showing how to put innovative ideas into practice. Taking the risk of changing is very much fostered by access to and demonstration of good practical examples. As one person put it: «Working colleagues are not only the best proof that it works, but are also the best ones to demonstrate how it works». In addition, colleagues not only deliver the initial impulse for change, but can also ensure continued internal support if needed.

The organisation of one interviewee set up a small network of 'colleague-consultants' that provides support for others if needed. One person considered that an «anarchist» support structure makes it easier to find input and get help from many sides – whereas a structured one does not: «In principle there is nobody responsible, but there are many who are glad to help».

A third role was also identified in peer processes: many colleagues, who are more advanced in using multimedia, automatically put pressure on others who are lagging behind. This pressure is increasing, depending on the size of the innovative group, and forces others to join in. Certainly it is not the most comfortable position for non-innovative people, but it can possibly help drive the process of innovation. To ease this uncomfortable situation, many internal training sessions are offered so as to also provide structured support.

Barriers

Different perceptions

One of the main barriers to innovation in organisations/schools is the differing perceptions of different categories of actors (school, ministry, university, technicians, designers, etc.). A major success from one perspective may sometimes be judged a failure from another point of view (i.e. ECDL, in-house production of platforms, etc). Such a situation suggests two possible conclusions:

- There is a need to develop differing indicators, values and frames of reference depending on the actors involved
- There is too little insight and knowledge of the perspective of other key players in terms of organisation itself, tasks, values, needs, decision taking and as a result cooperation is difficult, if not impossible. Given that innovative work is mostly interdisciplinary, actors need to be made aware of such a barrier

Different ways and focus of working

When talking about the different «vocabularies» of key players, it is more a question of different focus and varying ways of working. Working in interdisciplinary groups challenges all participants as each player necessarily approaches the issue or problem from their own specific focus. Many key players find it difficult to suspend their own focus and shift to the perspective of others. This ability is essential for the success of innovative co-operation between universities, schools, ministries, technicians, content provider, designer, etc.

Schools tend to look at the practical implementation and its results with the individual teacher probably being the only unique expert in his/her school. It is possible that schools refuse innovative concepts – proven to be very successful in other areas – because they act on a different level (i.e. wiki web or open source).

Researchers on the other hand are involved in theory and not only do they have a more complex approach to work, but they are also part of very complex administrative structure in which decision-making can involve a considerable number of people. In addition, there is more open competition amongst them. This influences ways of working and favours individual solutions rather than acting as a group.

The implementation of change and a common approach in universities seems to meet more resistance than in schools. Consequently change and innovation strategies need to be adapted to the target group and its particularities. At the same time, there is a need to cultivate flexible innovators who are also able to think in a different context than their own.

Unclear situation and consequences

Unclear situations and the possible consequences alienate teachers. Open source and the sharing of resources/learning material, for example, are difficult for teachers not only because of financial or personal reasons, but also because of the unclear situation of copyright and the possible legal consequences. These hinder many of them from publishing material. They lack the necessary information about what is legal and what is not. Transparency of information is essential, but this is currently not provided by a trusted source in Austria.

Centralism and framework

Directly related to the Austrian structure and its system is the issue of centralism. Various actions are initiated in the east, in Vienna, putting the western part of Austria at a disadvantage, since most of the meetings and workshops are held in Vienna. Some interviewees suspected that a certain resistance to recommendations from the ministry is not only founded in the different levels of power but also due to the geographical distance.

There was a general consensus amongst interviewees that innovation only moves forward slowly in schools. The main reason for this slowness is that the framework does not facilitate the change: schools are too tightly bound to a curriculum in which e-Learning is not included. What's more, ICT is considered a burden rather than a tool for enriching the organisation or teaching. This situation has been aggravated by new reforms in the Austrian school system with the shortening of hours in several

subjects. An additional barrier to e-Learning is that it does not economise time but requires even more effort.

Interesting in this respect is the argument of some interviewees, that motivation is there, but the framework does not allow the introduction of change in their environment. Enthusiastic young teachers from university want to put theoretical knowledge into practice, but are hindered by the organisation of school. Ministries are launching great concepts, but are not able to bring them to life. Practice lags behind theory and this de-motivates innovators.

On the other hand, there seems to be strong resistance to implement e-Learning in schools from non-motivated teachers. They consider the effort is too great. There is also a fear of loosing control and other personal issues are suspected to be the reason for slow (or no) change.

These two positions taken together point to a need for change, both on the part of the ministry as well as in teachers' attitude. Such changes need to involve all the key players within a school (head, teachers, parents), but also require reforms of the school law to give the necessary freedom and flexibility for decisions to individual teachers.

Interviewees were consistently of the opinion that this change will be very slow, since it is not just a single process in one organisation. They also suspected that forces from outside will have to provide the impulsion to move the process forward (i.e. economic, international comparison like the Pisa study,...) and several generations will go by before this future vision is integrated into school life.

Future issues

Sustainability

One main issue for e-Learning and change is the provision of content. The implementation of multimedia in schools requires not only tools, but also examples of how to use those tools. Content is needed, some of which should come from the teachers themselves. Yet teachers are hesitant to offer their content. There are several reasons for this. Many teachers are not certain about the quality of their learning resource and fear criticism. Copyright issues need to be clarified and communicated to teachers. Teachers are not the only actors involved in content provision, professional vendors can make content interactive. This requires sustainable partnerships and co-operation between teachers and vendors. The ministry is fostering such co-operation in the framework of projects.

Analysing the interviews, one comes to the conclusion that in order to allow innovation in a broad sense, prior changes are needed in several areas. For example, the ministry needs to adapt the school framework, including such aspects as more flexibility within the curricula and in the organisation of schools.

At the same time, it would also imply a change in teachers' attitudes. A more independent, self-responsible and self-controlling position might cause serious excessive demands on teachers and, as such, constitute a risk for the school.

Estimates from interviewees state that the eFit initiative would have to be maintained

for at least five years to show the first effects. Such a time span, given that the Austrian government is re-elected every five years, could cause problems as funds for innovative concepts and actions might no longer be provided by the new representatives of parties.

Practice has shown that initiatives also depend very much on individuals who champion the innovation/implementation process. With the change of the government, these people are likely to be replaced by others. Thus funds as well as innovators might not last long enough to demonstrate the success of the initiative.

New concepts

One of the emerging issues within education and ICT in Austria is certainly the exchange of content and the sharing of resources and material. Several interviewees feared that the government would not be able to refund teachers, whereas the ministry launched an initiative that set out to do exactly that.

Given the enormous amount of knowledge and the resulting complexity in combination with pedagogy, some interviewees suggested supporting new innovative concepts of retribution (i.e. a new exchange currency for educational material, which allows people to 'sell' and 'buy' material) rather than paying teachers cash for material they create. One of the most important issues in the future will be the acknowledgement and implementation of new innovative concepts, which might ease the process of exchange and/or the whole educational system.

Change of paradigm

Given the extent of the knowledge society, cutting across boundaries and frontiers, the national perspective and the related short lifetime of a government are hardly appropriate in handling the possibly unexpected consequences of the direct contact with other countries. At the same time, the change of paradigm mentioned above needs to encounter the different knowledge society structures in other countries in order to reach its full potential. In many areas the structure of organisations are inappropriate to handle new issues. Change itself not only creates difficulties because of its complexity but also because it needs to run parallel in several areas at several levels. The current centralised control system is no longer appropriate in a situation where learners and teachers are being granted ever more autonomy.

The new knowledge society has to be built on networking and the sharing of information that is not restricted to a country or to Europe but has to be seen in a global context. This necessarily creates uncertainty, if not fear of loosing control. To work within an international context also requires many more abilities, like language, flexibility, new responsibilities, etc. which might create a feeling of excessive demand.

Change of role

This change of paradigm can already be seen in the new role of teachers: the classical role of teachers as brokers of knowledge has been/or will be replaced by new innovative learning models like cognitive learning with the support of the ICT. Teachers will have to motivate, facilitate, support and develop co-operation with the surrounding environment (community, companies, ...). This vision of changing roles

produces fear so the process needs to be approached carefully. As one person said: «The main barrier to change is in the people's heads. They need to be overcome first».

Master plan

Looking at this change, which has slowly got under way, the need for a 'master plan' becomes an emerging imperative. Such a plan, giving directions and guidelines, but discarding the concept of central control, would ease the process and help to scale down fears and uncertainties. However, looking at the structure of key players in the field of education and ICT, it is difficult to imagine who would be able to design such an innovative roadmap for the future.

Neuchâtel 2001 – 2004

The pilot study in the Swiss canton of Neuchâtel was organised with the generous help of Yves Delamadeleine, assistant to the Head of the Service de la formation des enseignants, de l'enseignement secondaire 2 et de l'informatique scolaire, Canton de Neuchâtel.

Seven people were interviewed:
- *Jean-Luc Abbet, Head of the STI (Service de traitement informatique)*
- *Denise Delachaux, school inspector*
- *Marc Humber, Head of the ORSESTE (Office de la recherché et de statistique de l'enseignement) and Mme Pannelli (his successor)*
- *Christian Jeanrenaud, teacher trainer, HEP-BEJUNE (Haute école pédagogique Berne Jura Neuchâtel)*
- *Abdelatif Mokeddem, Head of SITEL (Service informatique et télématique de l'Université de Neuchâtel)*
- *Alain Zosso, Head of OSIS*

Following on from the interviews, the study was presented during a meeting of the Platform for ICTs in Education of the Education Department (Plate-forme informatique DIPAC).

9. Key issues in spreading the use of ICT in schools

The organisational study

The pilot of the ERNIST organisational study took place in the Swiss Canton of Neuchâtel in June and July 2003. Organised by the CTIE in collaboration with the Cantonal Department of Education and Culture (DIPAC), the pilot took the form of six one-hour interviews and a half-day workshop. The participants were all part of the Platform for ICT in Education, a commission of the DIPAC. The interviewees came from a number of different services with differing perspectives: a school inspector, a teacher trainer, the head of the project for extending ICT use to all schools, the head of the technical support service, the head of the university computer service and the head of the statistics service.

The initial methodological hypothesis of the organisational study at that time was that the satisfactory handling of change and complexity requires a learning organisation and a systemic approach. By learning organisation is meant an organisation that involves all of its members in the development of knowledge about its own functioning with a view to improving it. As for a systemic approach, it implies considering the system as a whole where all activities are interconnected and all actors have an impact on the system. The aim of the pilot was to test the tools developed for the study.

The context

Neuchâtel is one of the smaller of the 26 Swiss cantons in terms of population. Lying between the lake of Neuchâtel and the Jura mountains, not far from the capital, Bern, the canton is known for its high-precision light-industry, in particular watch-making, for its vineyards and its delightful scenery. Neuchâtel was a discrete pioneer in introducing ICT in schools, connecting many to its ATM network before others had started to think of Internet. The canton was also a pioneer in the use of ICT in the field of health care.

In 2001, the State Council and Grand Council (respectively the executive and cantonal parliament) voted a budget of 11.9 million Swiss francs for a project called «Neuchâtel 2001-2004», to equip and connect all cantonal schools to the Internet, as well as to train teachers. The preparatory work for Neuchâtel 2001-2004 was carried out by the «Platform for ICT in Education». It was this commission that subsequently oversaw the roll out of the project. All the people interviewed here are members of that commission.

The interviews – some paths to follow

The issues chosen

Each interview centred on a key issue related to the integration of e-Learning platforms in education. Each interviewee chose an issue at the beginning of the interview. Some people's formulation of issues was not always very clear to begin with. For example, one person chose «integrating data from teachers» which seemed similar to another issue that dealt with: «using ICTs to collect data related to teaching and ensure its distribution». However the former referred to sharing material created by teachers and the latter referred to statistics. Whenever necessary, there was a discussion concerning the meaning of the words used in formulating the issue. Three other issues chosen by interviewees were: «the difficulty caused by the technical service joining the project two years after the beginning», «the choice of the e-Learning platform» and «handling the class when integrating ICTs into teaching». In the sixth and remaining interview it was not possible to bring the person to choose a key issue. Starting from issues raised by individuals led to meaningful discussions, but the outcomes were not always comparable.

At the end of each interview, interviewees were asked to point to current issues that needed resolution. The issues raised have been regrouped here in terms of the nine areas of activity identified in the field of education: management, online resources, infrastructure, technical support, research, teacher training, teaching, other support to learning and learning itself. Only one issue fell outside the categories because it concerned society in general: «the (misleading) public image of ICTs». Here are the other issues:

- Management: accountability; handling the changing role of teachers; developing forward-looking visions of testing including the integration ICTs in such testing; producing statistical indicators about ICT use in teaching.
- Teacher training: training all teachers, given the extreme spread of competencies; encouraging collaborative working between teachers; keeping teachers informed of technological developments.
- Online resources: encouraging and managing the sharing of online content.
- Teaching: integrating ICTs in class.
- Learning: integrating pupils ICT competencies in teaching.

The principal aim in requesting such a list of issues was to be able to choose one to be dealt with by everybody during the workshop. Given that people rarely suggested the same issue, one might conclude that issues and their formulation differ considerably from person to person according to their occupations and preoccupations. The option of choosing a common issue for the workshop may possibly be misguided. It would probably be advisable to find a context in which everybody is working on a common project. In the case of Neuchâtel all participants were part of the same commission and although they theoretically advised about the project of extending computer use to all schools in the Canton, few of them felt directly concerned by the project even if they were sporadically involved. As a result, in choosing their key issues they didn't necessarily refer to the same project.

A question of level

In the interviews, the fields in which the issues were treated ranged from students, to teachers and beyond to the school and the institution as a whole. This could lead to some confusion, because clearly the «level» being referred to considerably modifies the meaning of what is said. However there was a clear division between the perception of learning at the level of pupils and knowledge building at all other levels. In other words it would seem that school is predominantly seen as a teaching organisation but not so much as a learning organisation.

Values and choices

Amongst the values put forward explicitly or implicitly by the people interviewed, the most frequently mentioned concerned a clear image of the institution based on collaboration, sharing, mutual respect, presence and a shared vision. For example, one person said that they had a preference for seeking active collaboration with other Cantons. Another put it differently: «All players have to move forward together both in terms of acquisition of knowledge and a shared vision».

One of the major choices of the project was to create a platform first for students and then later for teachers. This choice, according to one of the interviewees, has led to some resistance on the part of teachers who feel left out. Teachers get the impression that they are not well understood by the administration. One example given was the difficulty of getting access to the network from home. This request on the part of teachers should be seen in the light of the fact that most teachers prepare lessons at home (see «ways of working» about the impact of teachers working alone at home).

The place of technology

Many people stressed the importance of integrating technology in education, with ICTs being an essential part of a large number of activities (including teacher training). However, one person responsible for technical aspects of integration stated that it was not good to put technology up front. What was important, according to him, was to think about changing methods. Somewhat paradoxically, the same person admitted favouring a purely technological approach because it was more conducive to widespread diffusion of technology as it was less challenging to existing practices. Concerning the question of the integration of ICTs in teaching, one interviewee insisted that it was best achieved by using the technology. On this basis, she was in favour of some distance learning in teacher training. Note that ICTs were not seen as a key tool in knowledge building between staff at an institutional level (see below «knowledge building»).

It was interesting to note, as one interviewee pointed out, that technically speaking the school computer network is a prolongation of the administrative network in the Canton. As a result, some of the prior choices for the administrative network are not necessarily appropriate for a pedagogical context.

The implication of actors

One of the major outcomes of these interviews is the way actors see their implication in the project. Despite the professed need for collaboration and a trans-disciplinary

approach, there is a tendency to draw a boundary around ones own area of activity and to refuse to get involved in anything outside that. For example, if your area is statistics then even if you have ideas about the pedagogical implications, it is not up to you to voice those ideas. Mixed up in these considerations are a number of preconceived ideas like, for example, the definition of what is «scientific». One could imagine that such a refusal to be seen to intervene in other people's territories would be a serious handicap in trying to bring together actors from different horizons to discuss their various approaches to and perceptions of a given problem.

Another aspect of the «implication» question is the feeling that some actors have of being excluded and the resentment they feel about not being fully involved in the project. One organisation joined the project after some two years but felt that too little time had been spent in integrating them into it. As a result they continually had the feeling of being «used» but not of being «involved» – which wasn't to their liking. A different example of perceived exclusion was raised by another interviewee who talked of the lack of pedagogical perspective in the group working on the new platform. For this reason, he didn't feel directly concerned by the work.

Time and means

One thread running through all the interviews was the question of the lack of time and means. This was related more generally to differing attitudes to time and to handling change. Project time was opposed to administrative time, for example. The latter implied an annual ongoing budget and less pressure to get things done within a specific time frame. In contrast, project time was seen by some as providing welcome budgetary flexibility, in which means could be shifted to times in the project when they were most needed. One person, who was pleased with this budgetary flexibility, said that running such a project required a different rhythm from that of administration. However, a project-based approach required work to be completed by the end of the project. One person spoke of the pressure of accountability. Note that another person underlined the influence of the temporal perspective in choosing technology. He pointed out that choices made on a long-term administrative basis were not always well understood by those pursuing a shorter-term project orientation. A number of people complained of the lack of time and the strategies adopted to handle that lack. As far as change was concerned, one person talked of the «turbulence» of frequent reforms and the need to handle this turbulence. It is interesting to note that one interviewee stressed the importance of planning in teaching. She stated that those teachers who are best at planning their activities are also best at integrating ICTs in class. Another interviewee mentioned that urgency was often seen as a priority, masking the real priorities of the project. Lack of time was pointed to by a further interviewee as a major reason why most teachers preferred to have someone else create online content for them. Creating content was seen as extremely time consuming. Another interviewee pointed to time constraints as being a major barrier to participating fully in commissions and group work. Apart from an obvious shortage of means, the time available is both a question of priorities and the perception of the work to be done. For example, if knowledge building is not seen as an integral part of work, there will never be sufficient time for such activities.

Ways of working

Many teachers prefer working individually. In primary education the notion of working in small groups rather than doing frontal teaching has been encouraged. However, the introduction of ICTs has revealed the fact that some teachers have been avoiding working in small groups. One person explained that the way time was organised played an important role in this individualist approach as most teachers left school as soon as their classes were over. There was no obligation to spend working hours (outside of class time) at school (as in Canada). In addition, he pointed to architectural limitations. Schools have not been designed to provide office or meeting space for teachers. On an institutional level, people stated that their preference went to collaboration and the development of a shared vision. One interviewee stated that most work took place in the form of trans-disciplinary groups with meetings at each key stage of the process. According to him, such an approach diminished the gap between expectations and results. However, the interviews with a number of other people seemed to indicate differences in opinion about whether the approach was really trans-disciplinary and collaborative, for example the complaint that the pedagogical aspect is not sufficiently taken into consideration.

A judgmental culture

On the level of pupils, assessment plays a key role. Although all primary school teachers have received training in formative evaluation, most evaluation is still summative. The reason for this, it was explained, is largely structural because of the obligation to give marks and to carry out exams and because of the attitude of parents who are more at ease with marks than without them.

On an institutional level, assessment is often equated with judgement. The example was given of teachers feeling judged when their online material was assessed for its appropriateness in use by others. Here again we run up against the divide between the way learning is perceived (and assessed) for pupils and how knowledge building is to take place, if at all, on a staff level.

Circulating information ...

Various channels are used to circulate information: meetings of workgroups; circular letters; posters; publications; ... One person stressed the difficulty of informing teachers about the possibilities provided by ICTs. He felt there was a need to demystify technology because a popular belief held that technology could do many things that it wasn't capable of. Note that although everybody uses email and there are a number of web sites, electronic means are rarely used as a deliberate means for circulating information about what is happening in the educational system.

... and knowledge building

Actors pointed to various ways they use to develop knowledge. These included technology and pedagogical watch involving visits to companies and other educational institutions as well as calls for tender. When it came to teacher training, one interviewee insisted that there was limited communication between colleagues. As a result there was very little collective formulation of training requests. Another

person mentioned their practice of capitalising on individual experience by forming mixed working groups.

Studies and research work were also quoted as forms of knowledge building but little seems to be done and the collaboration with academic research was seen as a problem by several of the people interviewed. One person said that research and work in the field were two quite separate worlds and suggested that to bring the two together would require dealing with a practical issue from the field. Another interviewee saw research as a cutting-edge activity whereas teaching implied working with the «masses». He felt that research results couldn't be generalised so easily. Moving from research results to their application in practice requires a lot of time and energy. As for the idea of using schools as test beds, he concluded that curriculum pressure at upper school levels made it out of the question.

The workshop

The initial presentation

After some fifteen minutes of administrative business, the work related to ERNIST was able to begin. This was a regular meeting of the Neuchâtel Education department's «Computer platform» bringing together the heads or representatives of the different services. The meeting was planned to last from two to five o'clock (and the ERNIST work had been organised accordingly) but most of the people said they planned to leave at four, cutting one hour off the time available for the work on ERNIST. This decision made it impossible to seriously do what had been planned, but there was nothing that could be done about it.

The workshop began with a brief presentation of initial outcomes from the six interviews (see above) for some thirty minutes. This was followed by a simulation exercise based on one of the key issues interviewees had identified. The work was divided up into two parts, both dealing with a hypothetical issue needing a solution: The need to encourage teachers to share content. The first part raised four aspects of the work:

1) Indicate possible paths for responding to the issue and choose one.
2) Major steps necessary to respond to the issue according to the path chosen.
3) Description of the activities involved in each of these steps.
4) Who would be involved in each activity and what institutional context do they work in?

The second part dealt with:

5) What are the main obstacles that might make each step more difficult?
6) Knowledge building strategies – what additional knowledge or information would be required? And how would this be obtained?
7) Criteria and ways of measuring success.

Each group received pre-printed sheets to record the results for each of the seven questions and groups were to report back and present to the others after each of the two parts.

Working in groups

Three groups were created by dividing up people according to where they were sitting around the table. Initially more than half an hour was planned for each part but as the time had been shortened they were given 15 minutes. The animator went from group to group listening to what people were talking about, but rarely intervened. When it was time to reconvene only one group (the one that had opted to meet in the cafeteria, the one containing those most openly reticent about taking part in this exercise) said they had finished. The other two groups had not got beyond the first two questions. Note that the two groups who didn't manage to finish had some difficulties not mixing up the various questions. It is probable that these seven stages cannot be isolated or treated in succession but rather have to be dealt with in parallel. When the groups reconvened, it became obvious that the objective had not been clear for many of the participants because of the diverging understanding of what was meant by «content». Some time should have been taken to collectively discuss the wording of the issue to be dealt with. Such a clarification of words had been done in the interviews when necessary. In addition, if it had been possible to present succinct research results that would also have helped to channel discussions.

The following is a summary of the propositions of the three groups.

Group 1

- The underlying value should be to provide personal satisfaction and recognition for individuals
- Create a «culture» within the institution based on this underlying value
- Look at mechanism to transmit content
- Develop indicators (to pilot the system)

Comment: This proposition is sensible and full of good intentions, but lacks the necessary details. When challenged with how they would «create» such a culture, they brushed the challenge aside saying that it would be no problem.

Group 2

- Start from existing material
- As content exists, the work would be a question of integrating content into teaching
- There's a need to carry out «marketing» to create interest

Comment: The underlying idea here is that the teacher does not create content but simply uses it. It would have been interesting to explore the tacit assumption underlying this perspective but in the atmosphere of the workshop, it wasn't possible. This clarification should have gone on before the actual simulation to avoid participants going off at a tangent.

Group 3

- They consider content as being a question of «exercises»
- The question is how to share material and the need to regulate such sharing
- The ideal solution would need to be modular
- There is a need to develop (or clarify) the related pedagogical concepts

Comment: Content developed by teachers is seen as being exercises related to existing

*content (or curriculum). Here again there is an underlying assumption about teachers'
role related to content that needs to be discussed. To be able to be attentive to such
«subtle» details – the unearthing of which might be seen as threatening – there needs
to be an atmosphere of confidence and mutual trust.*

As mentioned above, it was planned to spend time both in the interviews and the
workshop clarifying the words used to describe the key issue being dealt with. This
was done in some of the interviews, but was not always necessary. It is apparent that
it should have been done in the workshop, but the pressure of impossible time-
constraints led to it being overlooked.
Participants were surprised by the nature of the work planned for the workshop. The
organisers took the calculated risk of not providing participants with an explicit
description of what was to take place. A number of participants were unwilling to
engage in the activities proposed. This might be partly due to the fact that the activity
required them to relinquish some control of the situation and accept that there could
be something to learn.

1   Prof. David Wood, THINK, European Schoolnet, 2002
    http://www.eun.org/eun.org2/eun/en/Insight_Policy/content.cfm?ov=19103&lang=en

2   Prof. David Wood, Think Again, European Schoolnet, 2003
    http://eminent.eun.org/html/presentations/wood.pdf

3   For example Fullan, M. Leading in a Culture of Change, Jossey-Bass, San Francisco, 2001

4   EUN (2003) Virtual Learning Environments for European Schools: A Survey and Commentary, EUN,
    Brussels.

5   Virtual learning environments

6   http://www.ictadvice.org.uk/index.php?section=te&rid=1994&wn=1

7   Fullan, Michael, Leadership and Sustainability, May 2004
    http://home.oise.utoronto.ca/~changeforces/pdf/UKpre-reading.pdf

8   OECD Education Ministerial in Dublin, 18th – 19th March 2004 http://www.oecd.org/edumin2004

9   The example of the school portraits carried out by school inspectors (a separate thread of the ERNIST
    project) is quite different. The fact that school inspectors, whose traditional role is related to compliance
    with norms and standards, were required to look for evidence of innovative practice in ICT use in schools
    had a profound impact on the practice of inspectors but also brought welcome recognition and deeper
    understanding to innovative schools.

10 The situation is worse in Germany, Italy, Sweden, the Netherlands, Finland, France, Ireland, Norway and
    Switzerland. Only Austria and Portugal scored better. Source: The teaching workforce is aging, Educational
    Policy Analysis 2002, OECD., quoted in preparatory papers for the OECD Dublin Ministerial about education.

11 Op Cit.

12 18 – 19th March 2004.

13 http://www.elig.org/

14 http://www.educa.ch

15 http://sfib-ctie.ch

16 http://www.edk.ch/

17 http://www.bbt.admin.ch/

18 http://www.admin.ch/bbw/

19 http://fronter.info/index.phtml?set_lang=en

20 http://fronter.accessium.nl/

21 See the four scenarios in the THINK report by Prof. David Wood and the OECD's six «School of Tomorrow
    scenarios».

22 Estelle Morris, MP, «Professionalism and Trust – the future of teachers and teaching», DfES, Nov. 2001
    http://www.dfes.gov.uk/speeches/media/documents/professionalismandtrust.pdf

23 The PriceWaterhouseCoopers report: «Teacher Workload Study»
    http://www.teachernet.gov.uk/_doc/932/ACF19E2.doc

24 See the report by the STRB «Teacher Workload Surveys 2000. Summary of findings»
    http://www.teachers.org.uk/resources/word/c59.doc (Word) or
    http://www.teachers.org.uk/resources/pdf/c59.pdf (PDF)

25 White Paper «Schools: Achieving Success» http://www.dfes.gov.uk/achievingsuccess/download.shtml

26 National College for School Leadership (NCSL) provides career-long learning and development
    opportunities, professional and practical support for England's existing and aspiring school leaders.
    «http://www.ncsl.org.uk/

27 A complete list of the 32 schools is available in the annex to this document.

28 «Raising Standards and Tackling Workload: a National Agreement» DfES, 2003.
    http://www.teachernet.gov.uk/_doc/3479/Agreement%20to%20reform%20school%20workforce.doc

29 The Workforce Agreement Monitoring Group (WAMG) http://www.remodelling.org/who_wamg.php

30 The consultation paper: http://www.teachernet.gov.uk/_doc/3180/Standards1.pdf

    For a short summary of the results of the consultation process see:
    http://www.teachernet.gov.uk/_doc/3940/Summary%20-%20consultation%20-%20final.doc

    See also the case studies on support staff in secondary schools
    http://www.teachernet.gov.uk/wholeschool/supportstaff/Management/Support_Staff_Case_Studies/

31 The National Remodelling Team (NRT) http://www.remodelling.org/

32 The London Leadership Centre who are part of London University
    http://www.londonleadershipcentre.com/contact.html

33 Standard Assessment Tasks (SATs). Subjects are split into assessment tasks (SATs), at 10 levels, depending on the age of the child. Pupils are tested at the end of the Key Stages to establish which attainment level they have achieved. There are four Key Stages, each covering stages of the compulsory school years (Year 1 to Year 13): KS1 Years 1-2 (Age 5-7), KS2 Years 3-6 (Age 7-11). KS3 Years 7-9 (Age 11-14). KS4 Years 10-11 (Age 14-16). Children are tested at 7, 11 and 14 in maths, science and English, partly by internal assessment and partly by written tests marked externally. Independent schools are not obliged to participate in these tests. (Source: http://www.fulbright.co.uk/eas/studyus/events/ukschools.doc)

34 OFSTED http://www.ofsted.gov.uk/

35 See the AST website http://www.teachernet.gov.uk/ast

36 http://www.remodelling.org/

37 See the Minister of State for School Standards, David Miliband's speech «Personalised Learning: Building a New Relationship with Schools» published by the DfES

38 Thomas, Hywel et aliud, Transforming the School Workforce Pathfinder. Evaluation Project, DfES, London, 2004.

39 http://www.oecd.org/dataoecd/46/43/2074954.pdf

40 For more information about Chadderton, see the website of the Chadderton Historical Society: http://www.chadderton-hs.freeuk.com/

41 http://www.theradclyffeschool.co.uk/

42 http://www.remodelling.org/case_study_detail.php?id=13&filters[text]=Bramford%20Primary

43 http://www.ncsl.org.uk/

44 eFIT http://www.efit.at