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The following text is based on the answers of thirty-three experts from sixteen European countries to a series of questions about possible changes in education as a response to one of eight challenges identified by the European Commission in its working paper entitled "Schools for the 21st Century". The experts were also asked to indicate what role ICT could play in assisting that change. In addition, people were requested to briefly justify the choice of their proposed change. A second article entitled "Justifying choices" covers this last question.

This work was done in conjunction with [European Schoolnet's Policy and Innovation Committee](#) - the October meeting of which was dedicated to innovation - and in preparation for the 2007 [EMINENT](#) conference. My special thanks go to all those who took the time to answer the questionnaire.

Innovation and ICT enabling changes in education

Introduction

When asked what they would change in education to respond to one of the Commission's challenges to schooling, both the choice of the challenge and the change proposed to some extent revealed the direction in which the experts thought education should develop. At the same time, as people were asked to suggest major changes, one could suppose that what they suggested made a statement about the way things are at present. So, for example, when people responded to the challenge of catering for individual learning needs by advocating a more flexible curriculum this can be understood to say that flexibility is desirable and that it is currently not the case (at least in their national or regional context).

Of the eight challenges put forward by the Commission, almost half of the answers referred to one of the challenges: strategies concerning curricula, school organisation and teachers' roles to enable schools to respond to individual learning needs. The second most popular challenge addressed the training and support of school staff to meet the challenges they face. This was closely followed by the challenge of how schools equip young people with the competences and motivation to make learning a life-long activity. Only one challenge had no takers: how school systems contribute to supporting long-term sustainable economic growth in Europe.

The vast majority of options pointed to were coherent with each other. One of the few discordant answers suggested that schools might not need to change. Nobody else raised the question of whether change was needed. It is interesting to note that although people were asked to suggest how technology could help bring about these changes, very few people proposed changes centred on technology.

A word of caution is necessary before reading on. The following apparently coherent vision of a possible educational future is in fact composed of a series of separate suggestions responding to differing questions. As such, it must be understood as just one of a multitude of possible combinations. It might be interesting to compare these

answers with the four future scenarios developed by Professor David Wood in the THINK and THINK NOW reports commissioned by European Schoolnet.

Proposed changes

Having chosen one of the eight challenges put forward by the European Commission, people were asked to suggest a future change in schooling that could help meet the challenge they had chosen. The following paragraphs structure and describe those changes.

Ways of teaching and learning

Changes related to ways of learning and teaching were high on many people's agendas. These changes were mostly suggested in response to two of the challenges to schooling: catering for individual learning needs and equipping young people for life-long learning. A number of characteristics of these "new" ways were suggested. They included adopting a learner-oriented approach to learning accompanied by a more flexible, pastoral style of teaching and coaching. It was suggested that a problem-based approach to learning should be adopted, enabling students to solve problems of any sort by themselves. Some people also suggested changing the way learning is organised to allow a blended timetable involving personal, social and 'learning to learn' opportunities.

Curriculum

Fundamental modifications to the curriculum often took the forefront and corresponded mostly to the challenge of catering for individual learning needs. The key words were "openness" and "flexibility". People wanted a more open, broader curriculum providing flexibility so as to give real choices. One person, for example, suggested breaking the curriculum into smaller modules. People welcomed the idea of a curriculum that gave scope for inter-subject collaboration. People also sought to find the right balance between obligatory knowledge and key competences and support for the individual needs of students by granting them the freedom to learn using active learning strategies.

Development of teachers

Suggestions for changes in the development of teachers mainly responded to the challenge about training and providing support for school staff. Key concepts here were collaboration, professionalism and experimentation. One person suggested developing collaborative learning communities for teachers to facilitate cooperative work. Another suggested having teacher-researchers in every school. An experimental approach was advocated for initial teacher training programs where teachers experimented with the design of learning practices. The relationship between trainers and teachers also needed changing, people said, with a move to coaching and a critical-friend methodology so as to help teachers face new methodologies within their didactics and exploit new tools and materials. Training itself, some suggested, should be on the job and immediately accessible. It needed to be well integrated in school organisation and supported by the management. Others stressed that teacher training should be developed as a lifelong learning strategy. Finally, as part of a drive to "re-professionalise" teachers, one person suggested improving the competence of teachers to observe, diagnose and support individual deficiencies and demands of students.

Forms of assessment

It was mostly the challenge of catering for individual learning needs that a number of people pointed to as they wrote of the need to change forms of assessment. These changes might be summarised as trying to help schools come to terms with the

challenges of lifelong learning and its impact on schooling. They included the need to diversify forms of assessment to take into account different key competences. They also involved extending forms of evaluation to assess, support and accredit students' learning taking place outside schools. And finally, one person suggested putting greater emphasis of the role of self-evaluation as a key part of learning strategies.

Creating and managing flexibility

Once again, as with many of the points raised here, the question of creating and managing flexibility was linked to the challenge of catering for individual learning needs. Flexibility was seen in terms of time, place and learning content. One person argued that we should "remove rigid schedules, old-fashioned curricula, uniform spaces with feudal and hierarchical structures". Another suggested that the length of lesson should be rethought to allow time to go deeper into a subject area. Changes in the organisation of time and location were also advocated so as to reduce the number of lessons/hours per week of obligatory, common teaching and to gain teaching time for tutoring students individually.

Other changes

Amongst the other changes proposed, areas covered included: the provision of resources for disadvantaged areas; broadening the range of learning resources and providing access outside school via various devices; opening school, as a privileged place of learning, to the local community, to industry and to the wider world; developing distributed leadership with greater autonomy for head teachers who should take the lead in teacher development; qualitative research to explore the learning process and results of these experimental practices initiated in teacher training courses.

Using ICT to support innovation

In the questionnaire, people were asked to give a practical example of the role ICT might play in facilitating the educational change they had suggested. The following is a summary of the types of examples given.

Communication & collaboration

In responding to the questionnaire, communication and collaboration are the prime uses that ICT is put to in seeking to change education. ICT is seen as a vehicle for collaboration and contact with others at any time and place, enabling, for example, communication between parents and authorities. ICT is also seen to extend both the scope of communication but also the role of students, enabling them to collaborate and communicate with learning partners and become decision-makers in their own learning. Tools such as blogs, wikis and pod/videocasting are proposed to support flexibility by working online and making communication, edition and publishing easy across the world. ICT is also seen to encourage and help teachers by providing dynamic, easily accessible guidance and communication resources whereby they can find support and communicate with coaches and colleagues. Finally, several people pointed to the increasing use of ICT to support social networks and the potential use of these for learning.

Facilitator and enabler

Many people perceive ICT as a facilitator or an enabler to help meet educational challenges. For example, they see ICT as enabling schools to become more attractive and be more motivating for students. One person mentioned that ICT favours equality because it provides a creative and social platform. Others see ICT opening the way to 'personalised' learning by providing a more flexible educational environment in terms of

roles, content and location. ICT is used to support change and innovation, for example, by enabling experimentation in changing scenarios within school using such means as learning platforms and "internet classrooms". It also supports training of teachers to meet challenges in their work. Finally, ICT is seen as one of the major drivers in making lifelong learning so important today.

Access and resources

Access has understandably always been a preoccupation for advocates of ICT. Here, however, ubiquitous access via pupils' laptops and wireless internet throughout schools, easy-to-use portable devices and mobile phones and the provision of digitalised resources through educational portals are seen as enablers of "self-directed" learning.

Assessment

ICT was put forward as a means to extend assessment to include different modalities of evaluation and to make assessment criteria and evaluation processes more explicit. Particular mention was made of wide-scale use of e-Portfolios for formative assessment of teachers and learners. E-Portfolios were also advocated to document the development of competences so as to motivate students and improve their self-esteem and to help teachers in their tutoring task.

Differentiation

In seeking to cater for learners' needs, ICT was proposed as a way to deal with differentiated learning styles by taking into consideration individual learners' needs and knowledge/competence profiles. In the same vein, some people suggested that ICT made it possible to offer high quality individual learning courses tutored by professional teachers so as to improve the chances for individual learning. From an organisational perspective, a couple of people suggested that ICT could be employed to improve the control and coordination of such a differentiated system based on the knowledge and competence profiles of individual learners.

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