



PEDAGOGICAL ADVISORY GROUP
REFLECTIONS ON eTWINNING

PEDAGOGICAL ISSUES IN eTWINNING

Pedagogical issues in eTwinning

Introduction

Partnering with another school in Europe is a real challenge. It is not easy to find the right content for a project based on mutual tangential planes; to develop collaborative classroom activities; to manage the process project; to evaluate it; and to stay motivated (because there is always a fallback after doing these things for the second or third time). So it is important to have a very clear view of the objectives and getting the pedagogical models right for any eTwinning project.

In this paper we will describe some pedagogical models and issues related to eTwinning activities, projects and/or programmes. We will start with a model for describing teaching and learning situations and will give some concrete examples of projects that can be organised under the eTwinning umbrella. We then address how an eTwinning project can be matched to the curricu-



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eTwinning Camp activities,
April 2006

lum; focus on the fun-factor in learning and then elaborate on the development of children's talents by looking at the Gardner's theory of multiple intelligences. Finally we briefly describe some ICT tools for supporting teaching and learning in eTwinning projects.

Characteristics of learning

The role of the teacher is key to the paradigm shift from traditional teaching and learning to more modern ways of teaching and learning. But the role of the learner also changes enormously. In this often termed 'New Learning' the context of the learning changes, the learners are more active and responsible for their own learning and the relationship between learners and teachers changes.

We will briefly look at these three dimensions of teaching and learning.

Changing content

Assessment and the examination process often drives curriculum content including what is taught and how it is taught through, a national curriculum or core objectives. So the curriculum reflects these objectives, translates them into a sequence of learning activities, most of the time regulated by textbooks or computer software and web based resources. The advantage is that teachers can be certain to have handled all the obligatory stuff and they know that they are preparing their students for examinations or standard tests. In the background the subject traditions play a major role: e.g. "You have to know the laws of Newton before solving problems with moving cars."

In problem based learning or in self-exploratory learning the starting point for the learning activity is a real life problem, a question raised by the students themselves, a web quest, a specific assignment, a 'performance', or a task. The theory or information needed to solve the problem, to answer the question, to fulfil the assignment, or to 'perform' the task is available, can be used or gathered.

The teacher is there to coach, support, help or to act as a supplier of resources, knowledge and wisdom.

Active and responsible learners:

To be active and responsible means that learners are not only taking note of what the teacher is telling them, they are actively involved in the choice of content, the ways in which they are going to perform a task, the planning, the collaboration, and sometimes even the evaluation and reflection. In this way there is a distinction from working and learning alone, to students moving from independent learning towards self responsible learning. In the same way collaborative learning can be distinguished from performing prescribed tasks together by moving from co-operative learning towards collaborative learning. In this last stage, full responsibility for the collaboration lies with the learners themselves.

Pedagogical relationship between teacher and learner

It is often stated that in new learning environments the role of the teacher will change from that of an expert into more of a coaching role. This is the inevitable consequence of the fact that the content as to be negotiated between teacher and learner. But maybe a coaching role is not sufficient? Self directed and exploratory learning requires teachers who are willing to be part of the learning group. Of course as experts they have far more competencies, expertise, knowledge and wisdom than the learners, but if the content and process are not fixed, they can also be surprised by the outcomes and results. This is lifelong learning in reality!

It might be helpful to categorise teaching and learning situations in these three dimensions of content, responsibility, and pedagogical relationship. This categorisation can apply to a unit in the curriculum, a selected project or a single activity within one lesson. For such a unit or project a 'profile' can be established.

Table

Content			
a Strongly theory directed, curriculum based	b More theory directed, curriculum based	c More practice orientated, problem based	d Strongly practice orientated, problem based
Responsibility			
a Teacher centred	b Teacher sometimes hands over responsibility to learners	c Teacher mostly hands over responsibility to learners	d Learners have full responsibility
Pedagogical Relationship			
a Teacher is expert, pupil learns	b Some of the teacher activities are coaching	c Teacher has a coaching, facilitating and supportive role	d Teacher is actively participating in the learning process alongside students

What can eTwinning contribute to this model?

eTwinning activities could play a key role in schools and for teachers who want to introduce self directed and exploratory learning into (parts of) the curriculum. The challenge for eTwinning professionals is to provide examples of tasks, content, performances, ideas, issues, themes, concepts, formats and so on where the above mentioned aspects can be used. Furthermore, teachers and school leaders within a partnership should ask themselves what are the objectives of a particular project and what goals do they want to achieve?

Do they want to cover a part of the curriculum in which learning goals are pretty much determined? In this case the content is taking the lead, the teacher will try to maintain

control over the learning and teaching, and the pedagogical relationship will be more expert-like than coaching.

A characteristic profile of the teaching and learning situation will probably be:

Content	a or b
Responsibility	a or b
Pedagogical Relation	a or b

However even in such cases how the learning goals are achieved can be negotiated by the teacher with students.

If the objective is for students to learn to collaborate, then the choice of activities will be more on the right hand side of the table:

Content	c or d
Responsibility	c or d
Pedagogical Relation	b or c

If the teacher is really willing to learn collaboratively with the pupils as well as with the teachers from another country, then we have a learning environment be situated at the far right hand side of the table.

Content	d
Responsibility	c or d
Pedagogical Relation	d

Some examples

To illustrate this we have given some examples of possible partnership projects and characterised them in terms of each of the dimensions in the table.

Language learning (each other's language or a third language)

Main area of action	Language exchanges in real life situation
Curriculum area	Modern languages
Target groups	Over 10 students
How	Tandem or / and group activities fitting into the curricula
Means of communication	email, forum, instant messaging systems, videoconferencing
Duration	According to the plan but at least for a term, with weekly exchanges
European dimension	Understanding each other, improving or learning a foreign language
Challenge	Internationally used languages in one language learning projects suffer and students with that as their first language do not benefit
Idea	Exchange ideas on a certain topic or just corresponding about family life and comparison of cultural differences
Outcome	Can be a common production but not necessarily
As simply as possible	groups of 2 sending email on a recent hot topic

Teaching and learning activities can be curriculum driven (Content a or b), but at the same time responsibility can be given to the pupils (Responsibility c), and the teacher can coach in the process (Pedagogical Relation b).

Environmental awareness / Sustainable development projects

Main area of action	Practical actions in real life, sharing and discussing the results virtually (measuring, observing, analysing)
Curriculum area	Subjects related to environmental studies
Target groups	Any
How	Group activities fitting into the curricula
Means of communication	email, forum, instant messaging systems, videoconferencing, shared working platform, video, digital photo, web page creation etc.
Duration	Depending on concrete activities, 3-12 months
European dimension	Working together in international teams or sharing ideas
Challenge	Equal engagement is needed, keeping to the time scale set
Idea	International teams can carry out the analysis of the data
Outcome	Analysed data, study paper, newspaper article etc.
As simply as possible	Measuring, recording and exchanging weather data regularly

Teaching and learning activities can be more or less curriculum driven (Content b or c), the responsibility will be more with the teacher because of the prescribed data collection (Responsibility b), and the teacher can be expert and coach in the process (Pedagogical Relation b).

Creative writing (common or third language)

Main area of action	Writing a piece of literature cooperatively
Curriculum area	Mother tongue/literature or modern language
Target groups	Over 10
How	Group activities
Means of communication	email, forum, shared working platform, wiki etc.
Duration	1-3 months + planning, equal number of turns
European dimension	Mutual understanding
Challenge	Keeping to the time scale
Idea	Use creative writing web pages for ideas
Outcome	Tale, play, movie, novel, short story, etc.
As simply as possible	Both groups begin a story and the each group finishes each others.

Teaching and learning activities should be as loose as possible (Content c or d), the responsibility will be more with the pupils also as a skill to be developed (Responsibility c or d), and the teacher can coach and be a peer learner (Pedagogical Relation c or d).

Library project

Main area of action	Reading and exchanging ideas
Curriculum area	Literature
Target groups	Over 14
How	With a study circle of interested students
Means of communication	email, forum, wiki or web page to post book reviews
Duration	2-10 months + planning
European dimension	Getting to know each other's literature and way of thinking
Challenge	Limited language skills, better for common language twins
Idea	At least one piece of literature of both countries each
Outcome	Common reading diary
As simply as possible	Two short stories + 10 simple questions for both

Teaching and learning activities can be more or less problem driven (Content c or d), the responsibility will be divided between teacher and pupils (Responsibility b or c), and teachers can act as experts but also as coaches and fellow learners (Pedagogical Relation a to d).

Matching the curriculum

However much freedom of choice is given to teaching and learning situations in order to meet the objectives, teachers will mostly try to match and integrate their pedagogical activities to the curriculum and culture of the school. The argument given is that classroom activities that are not of direct relevance to the curriculum will easily be forgotten or disregarded when there are the pressures of examinations or of covering the curriculum before the end of a semester or term. Therefore any teacher planning any initial eTwinning

activities should ensure that the context of the activity has some direct relevance to the curriculum in the first instance. Once a dialogue and rapport has been established between students and teachers then informal exchanges may well continue.

For an initial curriculum related e-twinning activity there are a number of questions to consider:

- What would the benefits be for my class in this subject if we collaborated with a school in another country?
- Can eTwinning really make a difference and why?
- How will access to another source of information add to students' knowledge and understanding?
- In what ways will it motivate the students?
- How does it compare with the other resources I have at my disposal?
- What ICT will I need and will it be available at the appropriate times?
- How will I prepare the class to get the most from the eTwinning activity?
- How long will this part of the activity last and what will be the follow-up activities?

Advanced planning needs to take place with the partner school: both schools will need to synchronise their curriculum planning around the topic and the teachers will need to decide the initial activity that will encourage students to want to interact.

Certainly students will learn from authentic sources and obtain real data rather than data found second hand in books or on the Internet. For example in a history lesson students can learn about the experience of historical events from another perspective; the students in each country can interview parents and grandparents and compare stories with each other. They can then prepare a presentation that compares and contrasts the two experiences and discuss why empathy and authentic sources of evidence are so important for understanding.

In mathematics the topics of ratio and percentages could be taught by comparing the costs of living in each country for food and travel. In addition data can be gathered and graphed comparing features or experiences of students in the class and certain hypotheses tested.

Are more Italian children brown eyed than Spanish children? Are Dutch children the tallest in Europe? Do children in France watch more TV than children in Portugal?

In art students can draw half a picture and get their counterpart in the other country to complete it, or they can send a digital image of themselves with the background removed and the students who receive the image can complete the background by either imagining it or by asking questions of their counterpart via instant messaging or email.

All these activities will have curriculum relevance while at the same time will enhance understanding of the culture and values of people in the other country.

Fun and enjoyment

What do 'fun' and 'enjoyment' stand for? Fun is one source of pleasure and enjoyment. Even serious or 'dry' skills or topics can be made to be fun and can be presented in an engaging way. Fun invokes different concepts for adults than for children and fun may differ widely between different cultures.

Enjoyment, however, is more. It involves active participation. According to Mihaly Csikszentmihalyi^[1], an enjoyable moment is distinguished from the rest of life. When people enjoy whatever they are doing, they may have a 'flow experience' and they feel like being swept away by a current. This experience can arise when playing games or sport, reading a book or playing with other children. These enjoyable moments seem to be a constant act across humanity and can lead to deep satisfaction.

[1] eLearn Magazine, Online Learning and fun, <http://www.elearnmag.org/subpage.cfm?section=articles&article=4-1>;
Mihaly Csikszentmihalyi, ;
Thoughts about education, Mihaly Csikszentmihalyi, Ph.D.,
http://www.newhorizons.org/future/Creating_the_Future/crfut_csikszent.html (pls. note no part of this book may be published! – I used other sentences but some words are the same).

The key to this state of flow and a moment of full enjoyment is motivation. Students learning problems are not always attributable to cognitive reasons but can arise from the fact that they do not feel motivated to learn. Teachers who understand this condition have great potential to make students want to learn and turn learning processes into a 'flow' experience. It is here that lifelong and self-propelled learning begins.

Pedagogical consequences

Use motivation to enhance the desire to learn

Motivation can be differentiated by extrinsic and intrinsic factors. Extrinsic motivation can be induced by rules or benefits of doing an activity. Intrinsic motivation, on the other hand, refers to the enjoyment of learning itself. Both aspects are necessary to be highly productive.

Extrinsic motivators may be concrete plans, any kind of benefits, budgets, status, bonuses etc. In education, it is necessary to make clear to students the benefits that result from reading, writing, calculating, etc. These aspects must be real and clearly communicated together with all the advantages and disadvantages. Thus, in order to use extrinsic motivators in an efficient way, schools and teachers may assess which extrinsic motivators they have and how they can use it for motivating their students.

Intrinsic motivation refers to 'doing the activity itself', i.e. to choose an activity for its interest, fascination, or thrill or because it promises the discovery of something new. It helps make students aware of how much fun learning can be. This aspect of motivation is easier to accomplish since teachers may be able to control it themselves and find it a more efficient and consistent way to empower students to find, use and enhance their own abilities. What intrinsic motivation requires is sensitivity and intelligence.

When do students have fun? When they are in charge, when they get attention, when they show themselves, when they make things up as they go along, when they can take

responsibility, when they reach their goals and surprise themselves with their brilliance. But how can this state of enjoyment be reached?

Intrinsic motivation is internal and can't be imposed from the outside. Students choose to be motivated and only they can choose. Referring to Mihaly Csikszentmihalyi, Bernard Dekoven^[2] proposes the following key attributes that may help characterise the state of flow and deep fun and enjoyment:

- clear goals and clear and constructive feedback
- a challenging activity that requires skill
- the merging of action and awareness
- concentration on the task at hand
- the loss of self-consciousness
- the transformation of time

Clear goals give students a direction, a scope in which they are working and help them to control their success. Therefore, the goals must be as clear and meaningful as possible to all students. Best is to develop the goals and the agenda or project plan together so that all students feels involved and take the goal seriously. Goals should be formulated as meaningful challenges and they should be in a written form and visible for everyone.

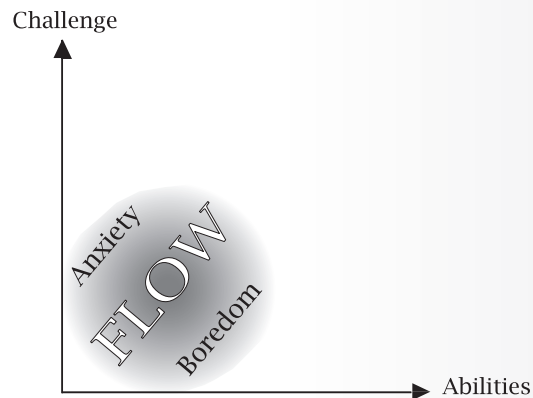
Clear and constructive feedback during learning is necessary to make students aware of their behaviour, their communication or their way of working and solving problems. As coaches or moderators, teachers may help students to understand different ways of communicating and solving problems etc. Constructive and clear feedback is both positive and negative to students' efforts. Competences, well-performed activities as well as any progress should be acknowledged to encourage students to continue or to try out different

[2] 3M meeting network, "When meetings are fun", Bernard Dekoven, 2000, http://www.3m.com/meetingnetwork/articles_advice/bernie/00-10.html

ways. Therefore, feedback has to be open, situation-related and should always be formulated as an observation. Thus, it gives students the chance to grow and to further develop their skills.

A challenging activity that requires skills is a prerequisite for enjoyment. The 'state of flow' only occurs when all of our abilities are challenged in an appropriate way. When the challenge is higher than our ability, anxiety and stress will appear. When the challenge is below our ability, boredom will be the result (see picture below). Consequently, when students are 'in a flow', they reach the highest degree of satisfaction, productivity and thus of enjoyment. In this case, tasks become enjoyable and rewarding in themselves.

To find 'flow' activities, it is necessary to understand the students' targets and desires and incorporate them into the pedagogical goals. The activities should enable students to combine their interests with the learning. Furthermore, students should be free to select the way they work and teachers should empower them to take control of their own learning. During the learning process, team work may help to create knowledge and support from the



students themselves. Students may be made 'experts' or 'mentors' in one or the other subject within their own or other classes. Also communities of practice are playgrounds where students may improve their knowledge by gaining new experiences through interaction with each other. ^[3]

The merging of action and awareness

Students may learn best in realistic and authentic situations. Learning by doing they understand what the use of their action and their learning is for. One possibility may be concrete examples and 'stories' taken from practice and daily life. The students' own experiences are a great source for this. Also working together with people from outside school like parents, organisations, companies or other schools may help to make learning purposes more authentic, realistic and convincing.

The consequence of clear goals, challenging activities and feedback is that students are engaged and active so action and awareness merge. They concentrate on the task and the challenge and give their best. In this situation, they are so busy that they lose their self-consciousness and time passes without being noticed.

"These are the characteristics of intrinsically motivated learners:

1. They chose to have a positive attitude.
2. They are aware of how much they are paying attention to the topic and they control it.
3. They know that they can be motivated by observing others interest in the topic.
4. They learn from boredom.
5. They are open-minded.
6. They believe that the learning may be worthwhile.
7. They are excited by the prospect of competence.

[3] The figure is from Bernard Dekoven, 2000, http://www.3m.com/meetingnetwork/articles_advice/bernie/00-10.html
Also see: Deep Fun, Bernie Dekoven, <http://deepfun.com>

When people are intrinsically motivated they enjoy learning. They are more likely to succeed at whatever tasks they do. They are less easily discouraged. They work harder, longer and more effectively. They take on challenges." ^{[4][5]}

What can eTwinning contribute to fun and enjoyment?

As stated above, fun and enjoyment mainly arise from a challenging activity that requires skill. Learning together with another school and other students from another country is thrilling in itself since everything is 'new and different'. And when integrating eTwinning in the curriculum, students learn with each other and from each other. That's also something new. Moreover "The pupils know in the moment they do a task what they do it for" (Michael Gros, primary school teacher, Saarlouis, Germany).

When teachers use this idea and implement eTwinning in their lessons, they automatically create the potential for authentic learning situations. With eTwinning, students are placed into a realistic working situation; they have a concrete goal, a concrete subject, concrete tasks and 'external' partners with whom they work together on one and the same goal and subject. Also important is to work professionally as described above with clear goals, project plans, interesting and thrilling topics, team work, feedback etc. And most important is to involve the students themselves in each of the steps to make them feel part of the project and to make them feel responsible for what they do. Each student has her/his role and is important to the specific eTwinning project. This kind of working is enjoyable. In some cases it can be so enjoyable that eTwinning teachers have reported that students maintain contact and write emails to their foreign friends from home.

[4] Make Learning Fun by Jon Jenkins and Gerrit Visse, <http://www.imaginal.nl/learningFun.htm>

[5] Other references:

- Beyond Boredom and Anxiety (Jossey-Bass, 1975, 2000)
- Flow (HarperCollins, 1991)
- "When Students Do Not Feel Motivated for Literacy Learning: How a Responsive Classroom Culture Helps", curry.edschool.virginia.edu/go/clic/nrrc/rspon_r8.html
- Center for Coaching and Mentoring, "Internet Survey Results: Is Work Fun Anymore?" www.coachingandmentoring.com/funsurvey.html
- Penny Oldfather, University of Georgia, When Students Do Not Feel Motivated for Literacy Learning:
- How a Responsive Classroom Culture Helps: http://curry.edschool.virginia.edu/go/clic/nrrc/rspon_r8.html

One extrinsic motivator, which is very important for students, is the use of media. The imagination and possibility of communicating virtually over hundreds or thousands of kilometres with foreign people is fascinating and thrilling to many of them. And many students just enjoy communicating via email, video conferencing, websites etc.

Developing the talents of students

Within the paradigm shift of traditional teaching and learning one of the main challenges is the question of personalised learning. Education - even mass education – has to answer the needs of all students regarding their learning styles, learning methods, interest and talent. There are several research projects and country programmes on supporting less able and gifted children, those who need even 'more' personalisation, more attention in order to develop their skills and competencies. In this section we will give some ideas on how to help the talented to further develop their social and aesthetic competencies.

In the past, programmes to help talented and gifted students were based on the idea of providing them with more information, more materials and maybe different activities in order to ensure that they can acquire more knowledge. In many countries all or some of the "seven flexibly paced educational options"^[6] help them to bloom: early entrance, grade skipping, advanced level courses, compacted courses, continuous progress in their regular classrooms, concurrent enrolment in advanced classes, and credit by examination.

Recently special attention has been paid to the social and emotional development of the talented. They often stick out regarding their social skills: many of them take a leading role in their communities and are exceptionally able to communicate concepts. At the same time a lot of them often have strong academic but poor social self-concepts. Their intellectual, emotional and physical development is often unbalanced. Most of them are educated without special attention and they often find themselves in embarrassing situations regarding peer reflection and teacher attitudes.

They are often have mixed emotions or are unhappy about their talent, because they do not or cannot fit into the group of ordinary students, and it might lead them to hide their talent and abilities in order to be more accepted. "Talented students often perform below their abilities, find themselves in alienation, can be victims of their own perfectionism, self-criticism or sensitivity; can cause troubles in the classroom by being rebellious, conformist, bored, single-sided etc."^[7]

To a large degree, the needs of the gifted and talented are not different from those of other students. They go through the same development stages, they face mostly the same problems,



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but these stages are shorter or earlier in time; or the problems may have bigger effects on them. It has been apparent ever since talented students were first monitored that they tend to choose their friends or mates from their 'mental age' instead of their chronological age. In particular their social skills develop more rapidly and successfully when they

have the opportunity to interact with their true peers about issues that are of their common interest. It is also stated that special programme enhance their self-esteem, and studies show that adolescence is developmentally the most appropriate stage for widening horizons of social interactions.^[8]

- [6] ERIC Clearinghouse on Disabilities and Gifted Education
<http://ericec.org/digests/e527.html>
- [7] Gifted and Talented Students: Meeting their Needs at New-Zeeland Schools
http://www.tki.org.nz/r/gifted/handbook/stage1/char_challenges_e.php
- [8] Linda Kreger: Promoting Positive Social Development, Gifted Development Center, Colorado
<http://www.gifteddevelopment.com/Articles/Promoting%20Positive.htm>

Competence based education

However there is not a commonly accepted set of key competences, an OECD project, "The Definition and Selection of Key Competences"^[9] is well known and widely used for defining what education has to develop in order to prepare the new generation for life and lifelong learning. Three categories have been set with sub-competencies: using tools interactively, interacting in heterogeneous groups, acting autonomously.

Social competence

However the above list even in its detailed version does not make explicit what social competencies are. We can assume that social competence is the most overall competence of human life, and for the talented and gifted it might be exceptionally easy and difficult to master those skills that are incorporated under this umbrella. Social competence refers to the social, emotional, and cognitive skills and behaviours that children need for successful social adaptation. This term absorbs sub-competencies and skills related to interaction and communication' it is the ability to act in an appropriate way to the situations given. Skills and behaviours required for healthy social development vary with the age of the child and with the demands of particular situations.

Aesthetic competence, artistic gift

Nothing can be applied for this category from the DeSeCo list directly. Aesthetic competence basically applies to two things: the ability to understand art and the aesthetic dimensions of everyday life such as the culture of arranging the area where we live and the way we dress. The other component is creativity - the ability to create pieces of work with aesthetic value. In exceptional cases it appears as the gift of artistic talent. Almost every child finds pleasure in creating 'nice things', in drawing and painting, singing and dancing etc. in their early years.

[9] DeSeCo Project <http://www.portal-stat.admin.ch/deseco/index.htm>

Learning skills, learning styles, the 8 intelligences of Gardner^[10]

Howard Gardner formulated a list of seven (later eight) intelligences. The first two have been typically valued in schools; the next three are usually associated with the arts; and the final two are what Howard Gardner called 'personal intelligences'.

Linguistic intelligence enables us to convey our thoughts in speaking and writing, to understand the message of oral or written texts, it helps us learn foreign languages. It includes the sophisticated and artistic use of language. This intelligence is a means of remembering information. Professions that need high linguistic intelligence are writers, poets, lawyers, spokesmen, among the others. "From a very early age we have all been encouraged to develop the art of communication. Even if we do not consider ourselves to be particularly talented, we have at least learned sufficient so as to interact fairly successfully with others. There are however, individuals who have developed their linguistic skills to the point where it becomes an art. They have the ability to write and/or talk fluently, utilising a broad vocabulary to express the precise meaning of what they wish to convey and they can speak almost melodically with changing intonations and rhythms of sound to express feelings and promote memory."^[11]

Logical-mathematical intelligence is to help analysing and solving problems. It appears in thinking logically and being good at mathematical skills. People with logical-mathematical intelligence are good at investigating scientific principles. They can draw logical conclusions

[10] <http://www.infed.org/thinkers/gardner.htm>

-Gardner, H. (1975) *The Shattered Mind*, New York: Knopf.

-Gardner, H., Csikszentmihalyi, M. and Damon, W. (2001) *Good Work: Where Excellence and Ethics Meet*, New York: Basic Books.

-Gardner, H., & Hatch, T. (1989). Multiple intelligences go to school: Educational implications of the theory of multiple intelligences. *Educational Researcher*, 18(8), 4-9.

- T. Hatch and H. Gardner (1993) 'Finding cognition in the classroom: an expanded view of human intelligence' in G. Salomon (ed.) *Distributed Cognitions. Psychological and educational considerations*, Cambridge: Cambridge University Press.

[11] Inspiring Breakthrough: <http://www.inspiring-breakthrough.co.uk/learning-styles/kinaesthetic-learning.htm>

and see the patterns behind things and actions. Those gifted with this type of intelligence often choose scientific careers. "Some individuals are able to learn just about anything using their logical skills. They are able to calculate and work out relationships and connections between items. They enjoy mental challenges seeking out solutions to logical, abstract and mathematical problems and have good deductive reasoning skills. On a lesser scale, they may simply excel at games involving skill and strategy such as chess or computer battle games."^[12]

Musical intelligence involves skills in the performance, composition, and appreciation of musical patterns. It encompasses the capacity to recognise and compose musical pitches, tones and rhythms. According to Howard Gardner musical intelligence runs in an almost structural parallel to linguistic intelligence. "Music is a much more powerful learning tool than people tend to appreciate and it is therefore important for all of us to incorporate the art of music into our lives to a certain degree. Musical intelligence is more than merely ability with music per se – it is much wider, encompassing an aptitude for rhythm and patterns of sound. There are certain individuals who have a superb natural ability to be creative with any rhyme, rhythm or sound. There are also cultures, particularly African cultures, where this intelligence is in evidence to a greater extent than in other cultures."^[13]

Bodily-kinaesthetic intelligence enables us to solve problems with our body and to use our body to express ideas. This kind of intelligence means good coordination of movements. According to Howard Gardner mental and physical activities are related. "Some people find that they are able to learn extremely well when they are involved in some form of physical activity rather than just sitting still. They may be extremely skilful with their hands, or they may be very physically skilled using their whole body. In either case such individuals are able to adapt these physical abilities towards many different kinaesthetic challenges. To some

[12] Inspiring Breakthrough, as in footnote 6

[13] Inspiring Breakthrough, as in footnote 6

extent, Western culture often sees this 'manual' intelligence as of lesser value than other intelligences – however, it is clear that all of us would prefer our surgeon to excel in this intelligence."^[14]

Spatial intelligence involves the potential to recognise and use the patterns of wide space and more confined areas. "Some people are gifted with the ability to visualise the world with great accuracy. They are able to think in three-dimensional terms and can re-create an idea into a working visual model that they are also able to adapt and modify such a model prior to any physical construction. Such individuals have an amazing ability to create a mental map of a new territory providing a strong sense of spatial awareness for where they are positioned in relation to the world around them. If you possess Visual-Spatial Intelligence, you are also highly likely to be good at arts and crafts, including design work. You may have an aptitude for architectural design, or be an excellent map-reader who can create an image of a landscape from the information on a map. You will probably find flowcharts and diagrams useful ways of considering information. It is often easy to recognise someone with Visual Spatial Intelligence, as they are able to navigate easily and visually arrange new information."^[15]

Interpersonal intelligence: is concerned with the capacity to understand the intentions, motivations and desires of other people. It allows people to work effectively with others. Educators, salespeople, religious and political leaders and counsellors all need a well-developed interpersonal intelligence. "Some people have a superb ability to establish rapport with others quickly and easily, making them feel at ease. They are able to read other peoples reactions and empathise. The ability to communicate in this way is a vital human intelligence. Each of us is already equipped with the skills to perform this intelligence. Indeed, we have no doubt supported a colleague or taught a skill at some point in our lives, or perhaps we've simply practised good parenthood. However, we are not all necessarily

[14] Inspiring Breakthrough, as in footnote 6

[15] Inspiring Breakthrough, as in footnote 6

confident at interacting effectively with others in familiar, casual and working environments – unlike those with a strong interpersonal intelligence. Interpersonal Intelligence may be defined as the ability to recognise distinctions between other people to know their faces and voices; to react appropriately to their needs, to understand their motives, feelings and moods and to appreciate such perspectives with sensitivity and empathy.

Intrapersonal intelligence:

entails the capacity to understand oneself, to appreciate one's feelings, fears and motivations. In Howard Gardner's view it involves having an effective working model of ourselves, and to be able to use such information to regulate our lives. Very few of us will have been taught the importance of developing Intrapersonal skills for the ability to reflect and monitor your own progress, thoughts and feelings, strengths and weaknesses are not encouraged in educations. Indeed, education has its own formal tests that we must attend to. Those few who do possess Intrapersonal Intelligence have often acquired it for themselves by taking an active interest in their ability to control their own destiny. Howard Gardner, in his book 'Frames of Mind' defines Intrapersonal Intelligence as sensitivity to our own feelings, our own wants and fears, our own personal histories, awareness of our own strengths and weaknesses, plans and goals."^[16]

Naturalist intelligence is the ability to recognise cultural artefacts like cars or trainers and may also depend on the naturalist intelligence. Some people from an early age are extremely good at recognising and classifying artefacts. For example, we all know kids who, at 3 or 4, are better at recognising dinosaurs than most adults. Howard Gardner identified Charles Darwin as a prime example of someone possessing this type of intelligence. Naturalist intelligence enables human beings to recognise, categorise and draw upon certain features of the environment. It 'combines a description of the core ability with a characterisation of the role that many cultures value' It is also the ability to discriminate among living things

[16] Inspiring Breakthrough, as in footnote 6

(plants, animals) and sensitivity to other features of the natural world (clouds, rock configurations). This ability was clearly of value in our evolutionary past as hunters, gatherers, and farmers; it continues to be central in such roles as botanist or chef."^[17]

Pedagogical consequences

As a response to Gardener's theory many teachers and even schools or whole education systems changed their view of learning. They accepted that we all learn differently and this must affect education. It is also obvious that training the first two intelligences as schools usually do is not enough, because all of them are needed for a quality life, and because knowing how we learn can help improve learning further. It applies for the more and for the less talented as well. As Gardner stated in his later works, students must be given the opportunity to work on certain topics in depth, in detail instead of having a broad overview of everything in a rigid curricular system.^[18] However even though there is criticism on his ideas, those schools and systems that have been built on his ideas have achieved success in personal development as well as in standardised tests.

We are born with certain kinds of intelligences; we are better at one than another. In our developmental stages they do not improve in parallel: some intelligences of our can be forerunners while the others lag behind. All of them can be improved, but knowing where our original advantages lie helps us to learn better and to master our real talents.

What can eTwinning contribute to developing talents?

All the ideas below refer to those who need some development in these areas or to those who are already exceptionally good at the tasks mentioned. It is important to be conscious and to understand why they choose or are given certain tasks. It is advisable to talk with the

[17] Inspiring Breakthrough, as in footnote 6

[18] The Unschooled Mind, Intelligence Reframed, and The Disciplined Mind

students about their learning styles and build a personal development plan together with them that applies to their own personality and learning styles.

Socially talented students

These students who have linguistic intelligence should be given communication tasks in eTwinning projects. They can do research work on the Internet or in the library, they can lead the construction of a joint digital newspaper, or hold any kind of leading position in group work. Those that are shy in personal relations can improve through digital communication.

Students with logical-mathematical intelligence are supposed to be happy in problem solving situations or when they have to think of logical ways of doing something. They are really good at planning.

Students with interpersonal intelligence are at a real advantage that can be further developed in (international) projects and will add some extra value to group work. Talented students having interpersonal intelligence can be given a leading role in group work; they can organise distribution of work, they can be given the responsibility for keeping the time, or they can be asked to handle sensitive issues like making group members do a better job etc.

Students with aesthetic talents

Students with linguistic intelligence can contribute to writing projects or can do the writing parts of broader projects. This way they further improve their own skills and heighten the level of group production. They can also be good at interpreting pieces of writing.

Those having logical-mathematical intelligence and aesthetic talents at the same time can create aesthetic visual structures and logical games and puzzles - perhaps in a digital format. They can be good at programming. They might like the task of developing a flowchart of the project and they are likely to have new ideas.

This student with musical intelligence can contribute to international games where music is the focus or their teachers can arrange for cooperation where music plays a part. They might be really good at creating quizzes using sounds of musical instruments or quotations from pieces of drama, poetry or art. They can even design a quiz about famous people, bird song or animal sounds; or they can solve quizzes and other similar exercises easily, or they can compose some rhythm or digital music that is then used within the framework of the project.

Students in this category having kinaesthetic intelligence are probably happy with tasks involving dance, drama, and any type of acting. They are usually good at artistic craftwork, like woodcarving, weaving or pottery. In an eTwinning project they might want to try digital design programs or their art production can be videotaped.

This students having visual-spatial intelligence are very good at arranging visual information, like creating posters, exhibitions, photo-galleries, websites etc.

Linking ICT tools to pedagogical practice

The answer to real educational transformation and improving student achievement using ICT is not simply providing access to content, but using the full range of tools available for students to seek the answers to authentic questions (relevant to the student's life experience) in a supported environment where well constructed resources are just one part of the equation and where critical thinking and problem solving skills are key. This section explains how these tools can justify the use of ICT alongside or instead of traditional text based resources; the possibilities the tools open up for opportunities for individualisation and personalisation; the potential for learning to be collaborative and to be supported and accessed anytime and anywhere; and the opening up of the classroom through access to other teachers, experts and students in other schools nationally and internationally

E-learning just like all forms of learning is not just about one way transmission of content or interactive simulations; it is also about collaboration and communication with others. Many of the tools around for developing educationally sound content support a constructivist view of learning and a belief that students learn best by enquiry and action. Social constructivism views collaboration as an important element in developing robust understanding.

Asynchronous Communication

Collaboration tools can be either synchronous (in real time) like instant messaging and chat forums, or asynchronous like email and collaboration tools where messages are left for others to respond to when they next log in and does not require users to be online at the same time. Most students may well have used these tools themselves for communication with friends and family or in their own learning. Each tool has a role to play in learning. Instant messaging allows real time collaboration or immediate responses to a query. Help desks often work that way.

Asynchronous communication provides learners with time to consider a view or a question posed by others and to respond later and support those who are do not feel able to participate fully in face-to-face or synchronous discussions. This benefits learners who are shy or who take more time to think and who therefore tend to respond more slowly than others in a class. In an asynchronous discussion these learners can take their time and thus they are more able to participate in a discussion and to have their voice heard.

The first online asynchronous collaboration tools were all text based in the form of computer mediated communication tools. These tools opened up the classroom by give teacher and learners the opportunity to communicate with other teachers, an expert other than a teachers or a group of other learners in the same class or school or in other classes or schools within the country or across the world post responses to thoughts and views about a topic of mutual interest. The BBC, for example, has recently launched a site where people can post their stories of living in the Second World War and these will soon be categorised

and held in searchable database as part of a living history project (BBC, 2004). (This is also another area where content is created through a community).

There are also virtual project environments such as Sitescape which also provide a space to work on a collaborative project and where documents can be posted and shared. Users are notified by email if they so wish each time some new posting appear on the site. Document sharing can also be facilitated through tools like MSN which allow users to connect in real time and work on a document together by sharing a document or a user's desktop remotely.

Synchronous communication

Newer collaboration tools involve the use of phone and video over the Internet and improve the potential of earlier video conferencing solutions which required dedicated bandwidth usually provided over an expensive ISDN line to a fixed point in one room in a school. These systems required other users to have a compatible system at the other end and to be timetabled to be in their video conferencing suites at the same time. Now a webcam connected to any PC can be used using free tools like Yahoo Messenger, Net Meeting, Skype or iSite although compatibility between Apple and Windows technologies cannot yet be achieved on all these systems.

Voice over a data network (VoIP) has allowed institutions to place telephones in every classroom with no additional wiring, because the phones can share an existing data port with a PC. IP telephones operate like traditional telephones but offer cheaper or free phone calls because the data traffic goes across the Internet. An IP telephone can act as a terminal for class registration, provide a fast method for locating staff and students through an online timetable, and give access to email. You can invite visitors remotely into the classroom; for example, grandparents can talk to your class about their experiences of growing up in a town or a country through the speaker phone capability built into the phone, and conference calls can be set up between classrooms so one external expert can communicate with several classes at the same time.

'Softphone' is similar, but the 'phone' is in fact software that sits on a PC and allows PC to PC interaction over the Internet free of charge or at a low cost if calls need to be made to another phone. Teachers from anywhere in the world will be able to work with you and your class and students at home for any reason will be able to keep up with the lesson. These technologies will start to challenge the location of 'school' and provide part-time learning opportunities to a myriad of people in a way that traditional distance learning could not.

The calls on IP telephony services are carried across the data network to the limit of the network and to the nearest node to the telephone then a local call charge is carried to the point of contact.

The virtual classroom

Virtual classroom software is also available and is increasingly being provided a component of a Virtual Learning Environment. This software enables traditional teaching to take place over the Web with learners or tutors dispersed. Tutors and learners log in to the same Web site, and they can listen through either their PC or a separate telephone connection. The whole event can be recorded so those who miss the sessions are not as disadvantaged as students who miss a face to face class as they can replay the whole session at their own convenience. Learners who were at the session can also replay all or part of the session to clarify something they may not be sure about. This solution can be used in a variety of situations, for example, where:

- All learners are based in different locations
- The teacher is in a different location from the class
- A guest tutor or expert is invited to speak to the group but is unable to travel to the institution
- A group of learners are located at another school; they have no specialist in that subject and are unable to travel to the location of the teacher.

Virtual classroom software means that minority subjects can be offered to students who might otherwise have had to transfer to another school for their studies.

In a virtual classroom you can show a presentation, use a whiteboard or load a Web page for learners, and surveys are also possible so that you can check for understanding or gain immediate feedback on the lecture or seminar. The range of tools available with this software emulates the traditional teaching environment.

Conclusions

Within an eTwinning partnership teachers should decide what kind of pedagogical model they want to use. Three aspects are of great importance.

1. The 'content' dimension runs through projects that are rather theory driven to projects built around an authentic real life problem. In most cases international exchange projects will be more of the latter in nature.
2. In the dimension of 'responsibility', is the teacher fully in charge or to what extent are the pupils responsible?
3. The third dimension is the 'pedagogical relationship'. Is the teacher still the content expert or is s/he willing to learn with the children?

There are other pedagogical issue to take into account. Teachers need to decide what the relation is between the project and the existing curriculum.

It is said that international projects are fun and enjoyable. We elaborated on this issue by giving a serious background to this as a very important element of learning. Finally eTwinning projects with collaborative teaching and learning situations provide wonderful opportunities to develop the talents of children. By looking at Gardner's intelligences we

highlighted examples of how to enhance these intelligences by giving pupils certain tasks and responsibilities or by choosing particular projects.

Finally, we discussed the possibilities ICT collaboration and communication tools (asynchronous and synchronous) can play to strengthen and support these pedagogical practices.

The views expressed in this publication are those of the authors and not necessarily those of the eTwinning Central Support Service.

Copyright © eTwinning Central Support Service and the authors. Publisher: eTwinning Central Support Service, rue de Trèves 61, 1040 Brussels, Belgium

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Published within the framework of the eTwinning Central Support Service

Photographs: Lifetime Learning/Getty Images

eTwinning (www.etwinning.net) is the main action of the European Commission's eLearning Programme. The objective of the eTwinning action is to strengthen and develop networking among schools using Information and Communication Technologies (ICT).

The Pedagogical Advisory Group (PAG) set up within the framework of the Central Support Service (CSS) for eTwinning is composed of experts coming from teacher training, school inspection and pedagogical research. The role of the PAG is to analyse, reflect and comment on the eTwinning activities and develop a theoretical framework for the eTwinning action which will ensure the lasting pedagogic value of the eTwinning activity in schools.

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ISBN 907820933-X

