



Celebrating Thinking Schools

A Summary Report of the Regio Comenius funded 'Developing a Thinking School: Norway to Northern Ireland' Project and the NEELB Creating a Thinking School Pilot Project

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Richard Cummins, Kestrel, Mabel Øhlen, UDE Oslo, Anne Lorange, Marienlyst Skole, Prof Jørgen Frost, University of Oslo, first project meeting, Oslo Nov 2010

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Lorna Gardiner (Project Co-ordinator)

Siobhan McKillop (Adviser)



Richard Cummins, Kestrel, Ita McMullen, Principal, St Mary's Primary School, Bellaghy, Lorna Gardiner, NEELB Project Co-ordinator, Joanne Barr, NEELB Assistant Adviser, Anne Smart, Principal, St Mary's Primary School, Cushendall at first project meeting, Oslo November 2010

1. Introduction

This summary report seeks to reflect the experiences and outcomes of two interconnected projects:

- The NEELB 'Creating a Thinking School' Pilot Project, and
- The Regio Comenius 'Developing a Thinking School: Norway to Northern Ireland' Project.

Both projects were led by advisers from the Curriculum Advisory and Support Service (CASS) of the North Eastern Education and Library Board (NEELB) and involved the same six primary schools within the Board area.

1.1 Background Context: NEELB Pilot Project

The Department of Education in Northern Ireland introduced a 'revised' curriculum in 2007, which includes an emphasis on the development of '*Thinking Skills and Personal Capabilities*'. The key aim is to maximise the learning potential of all our young people so they can realise their potential as individuals and as responsible citizens with the necessary skills and capabilities for life and work in the 21st century.

In fulfilling their role in providing professional development to schools to support implementation of 'the *Northern Ireland Curriculum Primary*', (CCEA 2007), CASS had provided a substantial regionally-agreed programme of training and locally-tailored school-based support to schools in identified key emphases of the revised curriculum, i.e. Assessment for Learning, Personal Development and Mutual Understanding, Thinking Skills and Personal Capabilities and Play-Based/Active Learning approaches. Schools were consulted annually regarding identification of their training needs and support was then planned to best meet those needs within DE priority areas.

During the 2008-09 academic year, on-going monitoring and review by CASS primary advisers of the Thinking Skills aspect of the curriculum implementation raised questions about the need to develop a more robust whole school approach to this aspect of pedagogy. One school in the NEELB area (Ballymena Primary School) had independently sought training from Kestrel Consultancy, England in the 'Creating a Thinking School' programme. This whole-school approach to the teaching of thinking has been developed by Kestrel and offered to schools across the UK for a number of years. As part of the programme, schools develop use of a wide range of thinking 'tools' including Dr David Hyerle's 'Thinking Maps'. Participating schools also have the option of seeking 'thinking school status', awarded by

Exeter University (further information available at <http://www.thinkingschool.co.uk>). Schools involved in the programme are part of the Kestrel 'network' which connects them to other schools involved as part of the thinking school journey.

Initial contact was made between CASS and the Kestrel director and this led, through due process, to the establishment of a small-scale pilot project of the 'Creating a Thinking School' approach with a number of primary schools across the NEELB, the impact of which would be evaluated in terms of both effect on children's learning and achievement and teacher knowledge and attitude.

Schools were invited to participate in the pilot based on the following criteria:

- Schools who had identified Thinking Skills and Personal Capabilities in the process of CASS annual consultation of training need during May/June 2009;
- Schools who had engaged in prior work with CASS support in this area, to ensure a known baseline position;
- Size of school (to enable maximum capacity of 50 teachers in total for practical training purposes);
- Balance of management type.

Following a selection process, a number of schools were invited to participate and the six schools who accepted the opportunity for involvement in the pilot were:

Gorran Primary School

Randalstown Central Primary School

St MacNissi's Primary School

Newtownabbey

St Mary's Primary School Bellaghy

St Mary's Primary School Cushendall

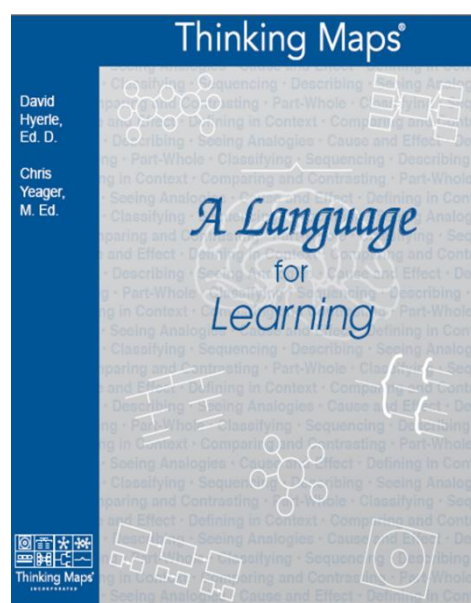
William Pinkerton Primary School

Roles and responsibilities within the pilot were agreed. The successful schools were required to:

- Prioritise staff development time including use of Staff Development Days to progress work related to the programme;
- Attend training sessions and meetings in own school and with other pilot schools as required;
- Engage with CASS officers as required to input data for the evaluation process;
- Ensure whole staff participation in the programme;
- Monitor implementation at whole school and individual classroom level within own school.

CASS staff committed to:

- Communicate effectively with participating schools;
- Provide leadership support throughout the process;
- Facilitate the initial whole staff introductory training and 'Thinking Maps' training and provide travel and subsistence costs as required;
- Fund purchase of the Thinking Maps materials for each participating school (£50 per teacher);
- Support implementation at individual school-based and classroom-based level;
- Lead the evaluation of the impact on children and teachers;
- Facilitate sharing of practice, including liaising with Ballymena PS when appropriate.



As the creator of the 'Creating a Thinking School' programme and UK provider of Hyerle's Thinking Maps programme, Kestrel's role was agreed as:

- Provision of required training materials for CASS staff trainers (at no additional cost);
- Liaison with CASS staff throughout the process as required;
- Keeping schools informed of national developments through the 'thinking schools' network.

1.2 The NEELB Training Model

Based on many years of experience of providing professional development to schools, the following features were defined by the CASS staff as essential in designing the programme:

- CASS advisory staff would be trained as trainers in the programme, rather than rely on 'buying in' external facilitation from England. This would ensure efficiency and **capacity building** for the future and also ensure that explicit connections were made with the Northern Ireland Curriculum context.
- Support for **leadership** would be prioritised.
- All participating schools would ensure that the project **involved all staff** and was a key priority in their school development plan.
- Training would consist of a blend of:
 - **whole staff training** for all schools as a 'cluster' to enable **sharing of practice**;
 - regular **follow up** staff development days/staff meetings based **in individual schools**, thus ensuring that unique needs of each school context were addressed;
 - cluster meetings for **key stage groups**, to ensure that specific curricular requirements and pedagogical aspects were considered;
 - use of LNI to provide an **on-line forum**.



Planning took place in summer term of 2009, with the project commencing in autumn of that year.

1.3 Background Context: Regio Project

During the first phase of the NEELB Pilot, opportunity arose within the NEELB to consider applications for Regio Comenius projects. Through the relationship with Kestrel and their international network, awareness was growing of interest in the thinking schools concept in other regions, and contact was made with colleagues in Oslo Education Authority, Norway to consider progressing an application for Regio Comenius funding to enable joint exploration of the thinking school idea at authority level and involving some local schools as partners. The application was made in March 2010, approved in August 2010, and the project operated from 2010-2012, led by the primary advisers in the CASS NEELB in partnership with staff from Oslo Education Authority (UDE). The grant of €45,000 was primarily focused on funding of shared project activities including a minimum of 24 ‘mobilities’ (individual visits to Oslo), hosting of visits from Oslo colleagues, and key outcomes including attendance at an International Thinking Schools Conference and production of final film.



The rationale for the European project was founded on the shared focus on thinking skills being reflected in educational developments in many countries, and specifically in the curriculum and pedagogy of Norway and Northern Ireland.

In addition to the shared interest in the teaching of thinking, there was also a growing interest in both countries in school improvement and raising standards. In 2009, the Department of Education in Northern Ireland had published a new school improvement strategy *‘Every School a Good School’* (DE, 2009). In Norway, school development was also a major theme of political and public interest, particularly in relation to effectiveness and prevention, with a special focus on the drop-out rate. The community of Oslo had supported a research project in which the Thinking Schools concept had a dominant position. The intention of the project was to influence effectiveness with regard to students who need more specialised provision, by introducing strategies from both the Thinking Schools programme and studies regarding an alternative vocabulary training programme.

The thinking skills focus and school improvement context of this project was therefore of shared significance to the lead authorities, but also of potential interest to all schools across the UK, Norway and beyond. Consideration of the impact of the programme on pupil outcomes is also relevant to the current international interest in school performance and effectiveness, as reflected in PISA studies and in school improvement policy in both Norway and Northern Ireland.

Regio Project Partners:

Authorities

- Curriculum Advisory and Support Service, North Eastern Education and Library Board (CASS, NEELB)
- Oslo Education Authority (UDE)

External Organisations

- Kestrel Consultancy, England
- University of Oslo

NEELB Schools

- Gorran Primary School
- St Mary's Primary School, Bellaghy
- St Mary's Primary School, Cushendall
- St MacNissi's Primary School, Newtownabbey
- Randalstown Central Primary School
- William Pinkerton Primary School, Dervock

Oslo Schools

- Marienlyst Skole
- Bjørndal Skole
- Disen Skole
- Seterbråten Skole

Project Roles and Responsibilities

NEELB

- Co-ordinator/lead partner: administration of the project including budgetary management and accountability;
- Communication with NI school partners and Kestrel including preparation for hosting of project visits;
- Provision/facilitation of aspects of training/sharing of practice;
- Organisation and hosting of Norwegian visits;
- Technological and media support in producing DVD/TV programme;
- Access to website for dissemination;
- Co-ordination of the writing of the written report/proof-reading/final editing.

UDE – City of Oslo, Education Authority

- Management and administration of Norwegian contribution to project, including budgetary management and accountability;
- Communication with Oslo school partners and University of Oslo including preparation for hosting of project visits;
- Facilitation of sharing of practice;
- Organisation of hosting of Northern Irish visits;
- Access to website for dissemination, assistance with translation if required.
- Co-writing of the final report.

External Partners

- *Kestrel Consultancy/University of Exeter* – provision of opportunity for co-facilitation of workshop at international conference and of visits to accredited thinking schools in England/Wales. Participation in project meetings and filming. Provision support and advice regarding aspects of training and evaluation of the concept of Thinking Schools.
- *University of Oslo* – initial support and advice regarding aspects of evaluation.

NEELB and Oslo schools

- Participation in exchange visits and meetings;
- Hosting of visits from partners during project visits;
- Engagement in communication through electronic media;
- Sharing of examples of practice and contribution to evaluation activities, e.g. case study evidence, interviews, samples of children's work, photographs, permission to be filmed.

2. Project Objectives

The key aims of the **NEELB ‘Creating a Thinking School’ pilot project** were:

- to implement and evaluate the effectiveness of a whole school approach to the teaching of thinking in the context of the NI Curriculum 2007;
- to assess the benefits of Hyerle’s ‘Thinking Maps’ (see *Appendix C*) as a tool to enhance children’s thinking and learning.

This was to be achieved through an identified model of professional development for school staff.



Participants engaged at project meeting one, Oslo, October 2010

The objectives for the **Regio Comenius ‘Developing a Thinking School: Norway to Northern Ireland’ project** were agreed at time of application as:

1. To define the features of a ‘thinking school’;
2. To evaluate the impact of the thinking school programme in the identified schools;
3. To compare the experiences of identified schools in Norway and Northern Ireland as they journey towards becoming ‘thinking schools’;
4. To investigate ways of measuring children’s progress in thinking;
5. To disseminate learning to other European regions through written and digital media.

The objectives were reviewed at the initial project meeting and an action plan was developed to guide the project activities and ensure objectives would be achieved (see *Appendix A*).

3. NEELB Project Activities

3.1 Training of Trainers

Two primary advisers were initially trained as trainers in the Kestrel 'Creating a Thinking School' programme during June 2009. Later in October 2009 they also attended training of trainers in David Hyerle's 'Thinking Maps' tool, which had been identified as the main 'thinking tool' which would be introduced in all pilot schools. It was agreed that, in order to ensure capacity to deliver the programme amidst other and changing pressures, that an additional Assistant Advisory Officer would attend the Maps training.



NEELB advisers at Kestrel National Thinking Maps Training of Trainers, Corby, October 2009

3.2 Introduction to the Programme

The pilot project commenced with an introductory principals' meeting in September 2009 to outline the key aims, planned programme for the year and to clarify roles and expectations.

Each principal received a written overview of the details of the pilot project.

3.3 Initial Training – 'Creating a Thinking School'

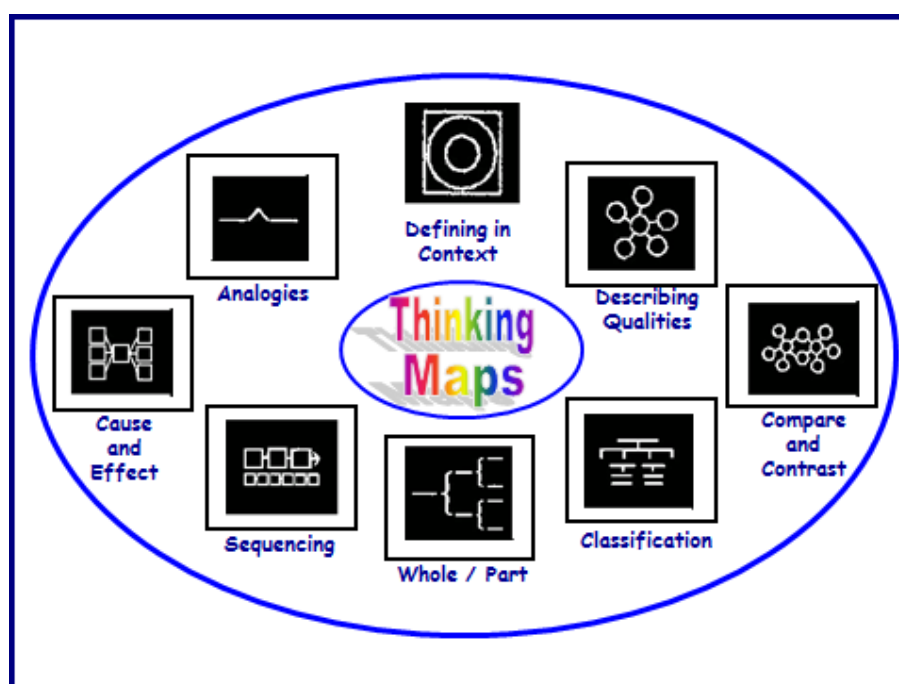
The full staff of all six schools used a staff development day to come together in October 2009 to launch the project and share in the introductory training session to the 'Creating a Thinking School' Programme. During the day, all teachers were asked to complete the 'Teacher Attitudes to Thinking' questionnaire (*Appendix D*), the results of which were then collated and analysed by the advisory staff and used for end of project comparison.

This was followed by the primary advisers visiting each school to agree an action plan for 2009-10, which would form part of each school's School Development Plan, and which would guide the implementation of the project.

During the autumn term, each school also administered the 'Myself as Learner Scale' to their pupils and considered the findings. They also reviewed their whole school approach to learning, including, for example, the extent to which a positive learning environment was evident throughout the school, ways in which all staff taught with awareness of their own learning style/preference and how they sought to meet the range of their children's learning needs/multiple intelligences.

3.4 Thinking Maps Training

In December 2009, full staff of the six pilot schools used a second staff development day to share introductory training to David Hyerle's Thinking Maps, as a thinking tool which was new to all schools (*see Appendix C*). All schools agreed to implement the maps within an agreed timescale. This enabled rich and beneficial sharing of experiences across schools.



An on-line forum on C2k's Learning NI platform was created by the CASS advisers to facilitate e-sharing during the implementation phase. Resources and support materials were made available on the site and an on-line forum was moderated to enable school staff to share ideas as new maps were introduced, to ask questions, share problems and find solutions.

During the spring term, advisers facilitated two follow up staff meetings in each school. These were planned within the implementation timetable to enable opportunity for review and reflection on progress at regular points and also to highlight key teaching points as new maps were being introduced through the use of 'Map Games'. The visits also ensured that there was opportunity to address planning for thinking map use within the curriculum context.

Cluster meetings were facilitated by the advisory staff for teachers of each Key Stage during May 2010. All schools participated in this experience and evaluated the opportunity as contributing positively to their classroom practice. The sessions were primarily focused on sharing practice pertinent to a particular key stage. At this point in the implementation process, all eight thinking maps had been introduced and teachers brought along samples of maps they had used or modelled and maps completed by their pupils to share and discuss.

3.5 On-going Leadership Support and Mid-Project Review

A review meeting was facilitated for principals in March 2010. Opportunity was provided to review progress against action plans, address any common issues and agree next steps. Discussion also took place regarding the idea of progressing the application for funding of the Regio Comenius Project in partnership with Oslo Education Authority, which was subsequently progressed.

During April 2010, an experienced principal of Christ the King Primary School in Cardiff was invited to meet with the pilot principals and share her experiences in becoming a recognised Thinking School, accredited by University of Exeter, with the pilot school principals. The principal of Ballymena Primary School also attended this event.

An individual review day was facilitated by CASS advisers in each school during June 2010, with schools again using a staff development day for this purpose. This was an important part of the journey in ensuring whole staff commitment to implementation and also in evaluating progress in relation to impact.



3.6 Thinking Maps and Literacy Links

As part of joint review meetings, all schools agreed that a useful next phase during 2010-11 would be to focus on the use of Thinking Maps in the context of Literacy, given DE's school improvement agenda, as evidenced in their 'Every School a Good School' policy (2009) and their 'Count, Read: Succeed' Strategy (2010)

All pilot schools thus agreed to continue working together and allocated two further staff development days for whole staff to work together in October 2010 and January 2011. CASS advisers facilitated training in 'Writing Across the Curriculum' and then in 'Academic Vocabulary Development' and 'Reading Comprehension' Skills', as defined in '*A Language for Learning*' (Hyerle & Yeager, 2007).

The schools continued to develop their use of thinking maps across all curricular areas, but with a specific focus on Literacy. Their practice was further supported by CASS advisers through follow-up staff meetings in each individual school.

The Regio Comenius 'Developing a Thinking School: Norway to Northern Ireland' Project, was also launched during this period, with initial project visit to Oslo occurring in November 2010 and the first visit by Oslo to Northern Ireland occurring in February 2011.

Principals met at least termly to continue the focus on leading a thinking school, and now also to progress the international dimension of the project.

Through the Regio Comenius funding, CASS advisers and a number of staff from the pilot schools were enabled to attend the Kestrel International Thinking Schools Conference in Swindon in June 2011 and to visit two recognised Thinking Schools in Cardiff. This was also noted as a valuable learning experience, as staff were able to attend a range of conference keynote addresses and workshops and also network with others engaged in the Thinking School journey.

3.7 Introduction of Further Thinking Tools

As the 2011-12 academic year approached, all schools evaluated their implementation of thinking maps as sufficiently well-embedded they were ready to introduce a further thinking tool. CASS advisers facilitated training for two schools in the Philosophy for Children/Community of Enquiry approach and training for four schools in de Bono's Thinking Hats. All schools continued to network and share experiences as the project continued.



4. Regio Project Activities

Throughout the duration of the Regio Comenius project, partners had opportunities to meet on a number of occasions, each with a specifically agreed focus.

4.1 Meeting One

Following notification of the success of the application, the project co-ordinators communicated by e-mail to organise the initial project meeting, which took place in Oslo in from 31st October to 4th November 2010.

The main objectives were:

- To introduce all partners;
- To review project application form, including project objectives, to clarify key features of project and ensure clarity for all partners;
- To agree a project action plan to guide all partners through the project and ensure expected outcomes are achieved.

Representatives of all the main partners participated in this visit, i.e. UDE, NEELB CASS, University of Oslo, Kestrel Consultancy, Marienlyst School and two Northern Irish schools. In this visit, five mobilities for NEELB included Lorna Gardiner, NEELB project co-ordinator, Joanne Barr, NEELB AAO, Richard Cummins, Kestrel, Ita McMullen, principal of St Mary's Primary, Bellaghy and Anne Smart, principal of St Mary's Primary, Cushendall.



Marienlyst Skole, Oslo

Main activities during the visit involved:

- introduction of all key partners and their roles;
- presentations by all partners – backgrounds to partner organisations, and current work with development of thinking schools;
- presentations by lead organisations on educational context and curricula of Oslo and Northern Ireland;
- review of project application, objectives and agreement of action plan;
- a workshop enabled the partners to commence work on considering the definition of thinking schools;
- most meetings were held in Marienlyst School, to enable Northern Irish participants to observe educational practice in Oslo; a workshop comparing/contrasting the NEELB and NEELB contexts and projects was facilitated in the University of Oslo on the final day;
- cultural activities including hosting of traditional Norwegian meal in one of the partner's homes, city tour of Oslo including visit to Vigeland Sculpture Park, the national Opera and Ballet, the Viking Museum and a shared meal to celebrate the launch of the project.



Celebratory meal to launch the project: Oslo, November 2010

By the end of the visit, positive relationships had been well established with all partners and time spent had been invested positively in sharing useful information which highlighted similarities and differences in educational systems and curricula between the two countries. The agreed focus and planned activities for the project were now clearly articulated in a detailed action plan to direct the development of the project and ensure robust monitoring of progress. There had also been interesting discussion to initiate a shared concept of thinking schools, which would be revisited at the next, and future, project meetings.

4.2 Meeting Two

The second project meeting took place in Northern Ireland in from 30th January to 4th February 2011. The main objectives were:

- To further develop relationships between partners and extend the network to involve additional representatives from schools;
- To review progress against the project action plan in order to ensure expected outcomes are on target;
- To enable Norwegian partners to visit Northern Irish project schools and share practice and experience aspects of NI culture;
- To further enable discussion regarding the concept of a thinking school and document progress by producing a DVD film.

Participants from Norway included Mabel Øhlen, Oslo project co-ordinator, Trine Hauger, UDE Adviser and five staff from two of the participating schools – Anne Lorange, Ingjerd Eriksen and Elin Amble Ommundsen from Marienlyst Skole and Terje Bergersen and Christina Grøssvik Dahle from Disen Skole. Kestrel Consultancy was also represented by Richard Cummins during this visit. All six Northern Irish schools had representatives attending the project meetings along with the lead NEELB CASS staff.



Filming in NEELB TV Studio with Siobhan McKillop, NEELB, Trine Hauger UDE, Lorna Gardiner, NEELB, Mabel Øhlen, UDE and Richard Cummins, Kestrel

The main activities included:

- Presentations by authority representatives and school leaders – sharing background/context;
- Visits to all participating Northern Irish schools;
- Workshops in which the definition of thinking schools was revisited;

- Filming of material to enable a short film, *'Thinking Ahead'*, to be produced;
- Meetings to reach agreement and plan for the next major activity of the project, which involved co-facilitation of the Kestrel Thinking Schools Conference workshop;
- Cultural activities also involved a shared welcome meal in a Belfast restaurant, a tour of Belfast, including a tour of Stormont Buildings hosted by Mr Mervyn Storey (Chair of the NI Assembly's Education Committee), a tour of the Antrim Coast including a visit to NEELB's Causeway School and the Giant's Causeway and a farewell Irish themed evening with food and entertainment provided by representatives of the NEELB and its schools.



Some of the project partners who attended the Irish themed evening in the Dunsilly Hotel, Antrim

This visit had enabled further sharing of practice and thinking regarding the concept of thinking schools and significantly deepened the positive relationships between all partners. Progress had been reviewed against the action plan and detailed actions agreed for focus and preparation of workshop for the Kestrel Thinking Schools Conference. An originally unplanned additional outcome of the visit was the production of a short film *'Thinking Ahead'* by NEELB TV, which captured this particular stage in the project's journey in considering the thinking schools concept.

4.3 Meeting Three

The third opportunity to meet took place from 19-21 May 2011 and involved a small group of partner representatives who met in Oslo with the specific purpose of planning a workshop to be co-facilitated at Kestrel's International Thinking Schools' Conference in Swindon. One representative from NEELB CASS, Siobhan McKillop and one NI school principal, Joe McAuley from St MacNissi's Primary School, visited Oslo to work with equivalent colleagues to plan the workshop.

Specific aim:

- To plan a workshop to be co-facilitated at Kestrel's International Thinking Schools' Conference in Swindon.

Activities included:

- Introductions – overview of purpose of meeting and key theme of conference;
- Visit to Marienlyst School and UDE headquarters;
- Cultural activities including hosting of Norwegian meal and city walking tour of Oslo;
- Discussion and agreement of content of workshop for conference – clarification of roles.

By the end of this brief visit, opportunity had been utilised to continue to build relationships between all partners and the aims and content of the shared workshop had been agreed for the Kestrel conference.



A thinking maps lesson in Marienlyst Skole

4.4 Meeting Four

The fourth project meeting involved attendance at Kestrel's International Thinking Schools' Conference in Swindon from 12 - 15 June 2011 and visit to recognised Thinking Schools by representatives of UDE, NEELB CASS, and a group of principals and teachers from participating schools in Oslo and NEELB.

The attendees were:

- Mabel Øhlen and Trine Hauger, UDE
- Marina Badendyck, Kari Mathisen, Randi Karlung and Liv Botten of Bjørndal Skole
- Kristin Lyngstad, Anne Andersen and Anette Ahmad of Seterbråten Skole
- Lorna Gardiner and Siobhan McKillop, NEELB
- Joe McAuley and Orlagh McCallan, St MacNissi's Primary School
- Margaret Fegan and Fiona Higgins, St Mary's Primary School, Bellaghy

- Sandra Stewart, William Pinkerton Primary School
- Audrey Paul, Gorran Primary School
- Anne Smart, St Mary's Primary School Cushendall

It should be noted that the Northern Irish schools who participated contributed partly to the conference costs to enable all partners who wished to be represented.

Main activities of this joint experience included:

- A workshop, entitled '*Leading a Thinking School: An International Perspective*' was effectively delivered by representatives of UDE, NEELB CASS, Bjørndal and St MacNissi's schools, and was positively evaluated by attendees.
- During the conference, participants from Northern Ireland and Oslo had opportunity to fully engage in the conference programme and attend keynote addresses and various workshops and engage with other delegates involved in developing thinking schools. This afforded opportunity to further develop common understanding of the project and of the concept of thinking schools.
- Project partners held a project meeting and shared a meal at the end of the conference to review shared understanding of thinking schools and agree plan for next meeting.
- Following the conference, participants from Oslo and Northern Ireland visited University of Exeter recognised thinking schools in England and Wales to observe practice. NEELB representatives visited Christ the King Primary School and Rhydepenau Primary School in Cardiff, Wales.



The project co-ordinators and Kestrel Conference workshop facilitators in Swindon, including Joe McAuley, Principal, St MacNissi's PS, Siobhan McKillop, NEELB, Lorna Gardiner and Mabel Øhlen, project co-ordinators and Oslo school representatives

This visit had enabled the successful achievement of a main project objective, i.e. co-facilitation of a workshop at the Kestrel Conference. Relationships between all partners and professional dialogue and sharing of practice continued to be developed. There had also been a much appreciated opportunity for school staff to engage in professional development outside their normal work environment, and to observe good practice in recognised thinking schools, which inspired fresh ideas to bring to each region and to share as part of the project.

4.5 Meeting Five

The fifth project meeting took place in January 2012 in Oslo. Siobhan McKillop and Pauline Baird (NEELB CASS), Peter Simpson, Chris McIntyre and Shay Sweetnam (NEELB TV), Richard Cummins (Kestrel Consultancy), Clare Black and Melanie Fitzpatrick (teachers - Gorran Primary School), Sandra Stewart (principal - William Pinkerton Primary School), Lawrence

O’Kane (teacher - St Mary’s Primary School, Bellaghy), Catherine Magill (teacher - St Mary’s Primary School, Cushendall) and Orlagh McCallan (teacher - St MacNissi’s School) were in attendance.

The main objectives were:

- To further develop relationships between partners;
- To review progress against the project action plan in order to ensure expected outcomes are on target;
- To enable Northern Irish partners to visit Norwegian project schools and share practice and experience aspects of Norwegian culture;
- To further enable discussion regarding the concept of a thinking school;
- To film project activities and school practice for the final DVD film.

Key activities involved:

- Presentations on the Norwegian school system and on the work of individual schools;
- Opportunity to visit Oslo schools and for teachers and school leaders to engage in discussion, to observe classroom practice and talk to the teachers and children about their work;
- Participation in a number of project meetings to review progress, engage in future planning, share ideas and establish links between schools;
- Cultural activities including a tour of some of the main attractions in Oslo and an evening of traditional music and food hosted by Marienlyst School.



Some of the NEELB participants, Oslo, January 2012

NEELB TV staff were included in the visit to enable filming of classroom practice in Oslo schools and also of some of the project meetings. Following this meeting, many of the teacher participants engaged in sharing of views and communication about the project through social network sites.

4.6 Meeting Six

The sixth project meeting took place in Northern Ireland in April 2012. Representatives who attended from UDE were Mabel Øhlén and Trine Hauger, and all four Oslo schools were represented on this final visit to Antrim: Kari Mathisen and Eva Hanslien of Bjørndal Skole, Rehana Qureshi, Torunn Helland and Vibeke Alida Viken of Seterbråten Skole, Grethe Kvalheim and Daghild Olavsrud of Disen Skole and Leif Bjarne Ersnes and Anne Lorange of Marienlyst Skole.

The objectives were:

- To further develop relationships between partners;
- To review progress against the project action plan in order to ensure expected outcomes are on target;
- To enable further Norwegian partners to visit Northern Irish project schools and share practice and experience aspects of NI culture;
- To further enable discussion regarding the concept of a thinking school and document progress towards the final project film and report.

The main activities during this visit were:

- An initial workshop which commenced in a city centre Belfast venue, with a focus on sharing policy and curriculum information of interest across the educational systems of the two countries;
- Further opportunity to film project activities for the final film throughout the visit;
- Oslo participants visited all six Northern Irish schools;
- Further workshop opportunities in which partners engaged in further discussion in relation to the growing understanding of thinking schools, and for teachers and principals to share practice and to progress ideas for evaluating the outcomes of the project;
- Presentations on progress with the project were made by all key partners;
- A workshop was also facilitated regarding the agreed benefits of the project for schools, school leaders and administrators;
- Cultural experiences for the visitors included a city tour of Belfast including the peace walls, the Titanic quarter and the City Hall, a tour of the Antrim Coast and Giant's Causeway and an Irish cultural evening hosted by St MacNissi's Primary School.

4.7 Meeting Seven

The final project meeting took place in Oslo in June 2012.

The key objectives were to evaluate and review the project objectives and progress shared information for the writing of the final report.

Northern Ireland representatives were Lorna Gardiner and Siobhan McKillop (NEELB CASS), Janet McKane and Anne Hyland Ross (teachers - Randalstown Central Primary School), Ita McMullan and Margaret Fegan (principal and teacher - St Mary's Primary School, Bellaghy) and Audrey Paul (principal - Gorran Primary School).

Opportunity was provided to visit two of the Oslo schools and share ideas with staff. The school staff also had opportunity for a tour of Oslo city and to visit a Norwegian school, which was not involved in the project.

The main activity centred on evaluating the impact of the project and progressing key information for the final report. The final meeting concluded with a celebratory meal hosted in a restaurant with panoramic views of Oslo city.



Some of the Oslo and NEELB participants with project co-ordinators at final meal, Oslo, June 2012

5. Regio Comenius Project Outcomes

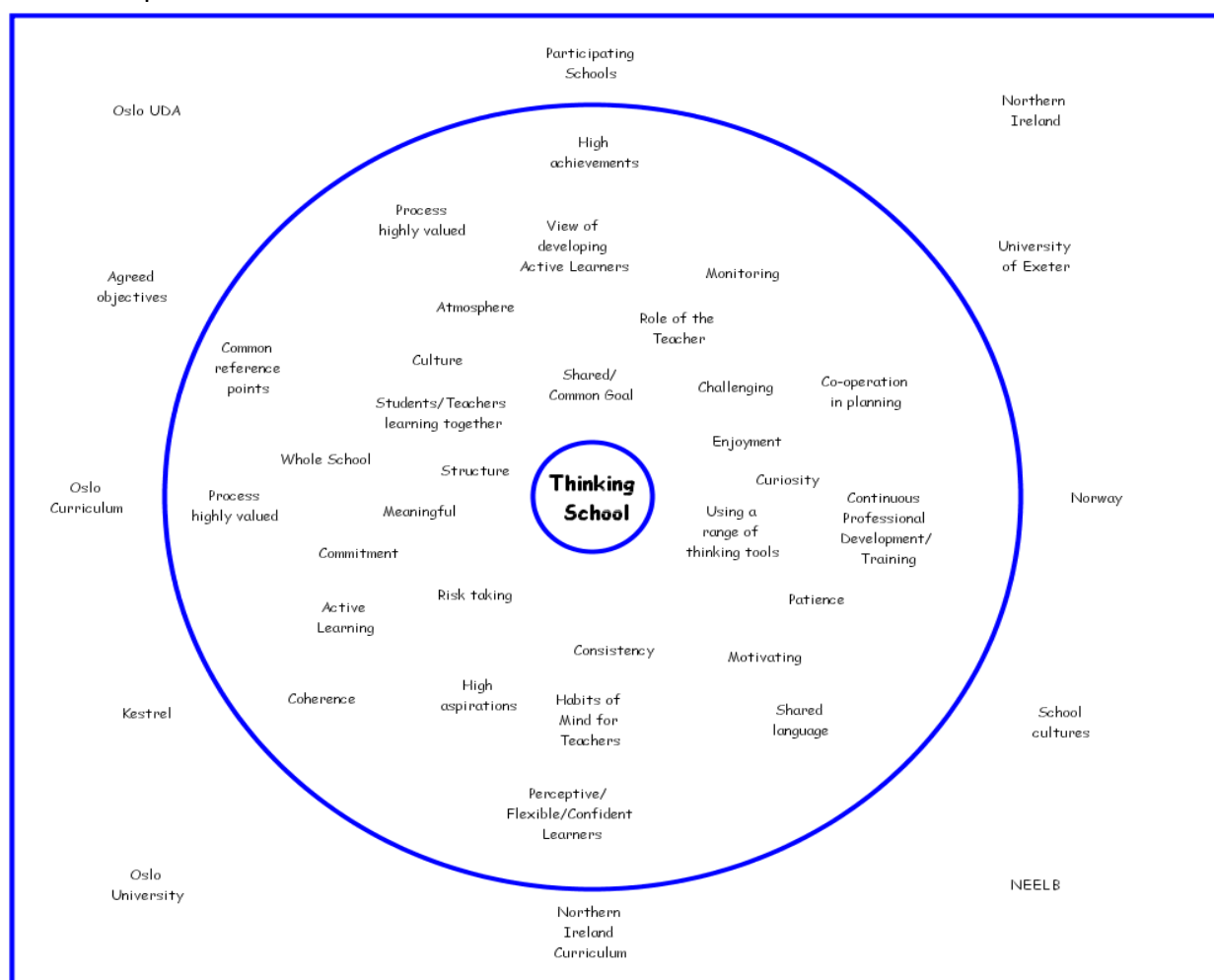
The objectives agreed at time of application have all been achieved, as detailed below:

5.1 To define the features of a 'thinking school'.

A 'Thinking School' has been defined by Kestrel Consultancy as:

"a learning community in which all members share a common language; where thinking strategies and tools are used across the curriculum and teachers and students have sound understanding of metacognition ..."

This definition was taken as a starting point by all partners involved in the project in order to discuss and define the features of a thinking school, which became a recurring feature of the programme for all project meetings. During the first meeting in Oslo in November 2010, participants offered ideas on the features of a thinking school, which were recorded using a Circle Map:



At the next visit in Northern Ireland in February 2011, this was revisited during one of the plenary meetings. The original definition was discussed further and added to – *‘a Thinking School is one in which there is a culture where people become active, independent learners, working in an atmosphere where risk-taking is encouraged’*.

A representative group of the authorities, school principals and Kestrel consultancy engaged in a discussion which was filmed. A number of other participants shared brief views of their concept of a thinking school and this was all collated in a short film called *‘Thinking Ahead’* available for viewing on partner websites. This process was mirrored in practice within individual partner schools with the outcomes fed back at subsequent project meetings.

5.2 To evaluate the impact of the thinking school programme in the identified schools.

At the initial project meeting in Oslo in November 2010, a key element of the programme focused on identifying potential approaches to evaluation. The theme of measuring impact was revisited at all subsequent project meetings. It was a particular focus of interest for the participants who attended the International Thinking Schools’ Conference in June 2011, as opportunity to discuss this issue with recognised thinking schools proved very helpful.

It was agreed from the outset that each local authority would control independent evaluations of the wider work beyond the scope of this project, but that there would be a shared approach to identification of aspects of practice in which impact should be evaluated, specifically children’s attitudes to learning and teachers’ responses to the professional development within the programme.

Agreed tools and methods for collating the evaluative information were identified as:

- ‘Myself as A Learner Scale’ (R. Burden, Nfer Nelson)
- Teacher attitude questionnaires
- Principal/teacher semi-structured interviews

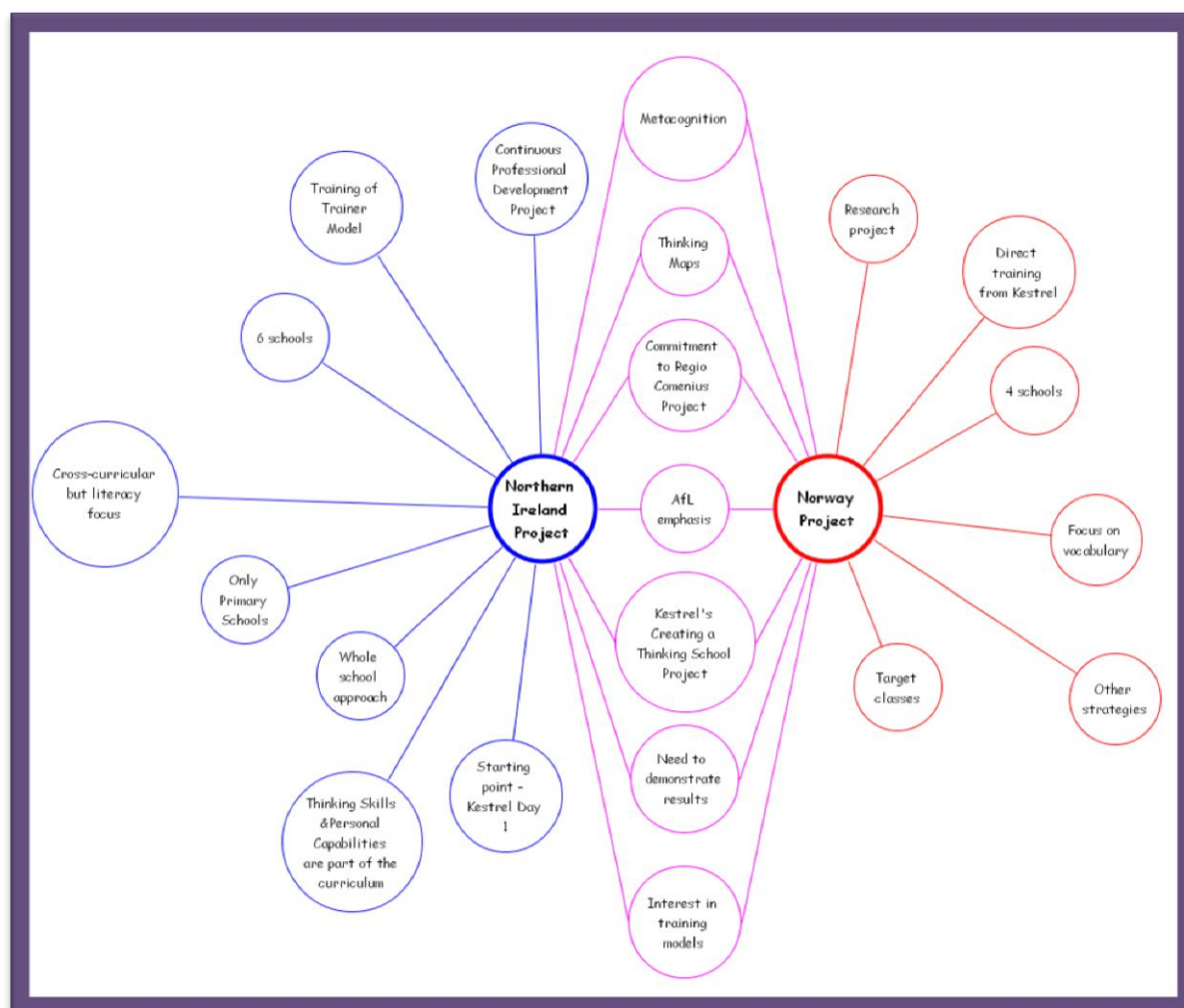
Individual school co-ordinators/principals also monitored progress through staff meetings, collection of portfolios of evidence and classroom observations.

Evaluation findings are captured in the following chapter of this report.

5.3 To compare the experiences of identified schools in Norway and Northern Ireland as they journey towards becoming ‘thinking schools’.

The project provided opportunity during all meetings for participants to compare the journeys taken by different schools within two regions in moving towards becoming ‘thinking schools’. Experiences were shared in identifying aspects of good practice, where strategies have worked effectively and produced positive outcomes and also in identifying what obstacles or difficulties may have hindered progress.

Comparison of schools in the two partner regions representing different school systems and curricula provided rich data for exploration. At a number of the project meetings, presentations were made outlining key aspects of each of the educational/school systems at a range of levels. At the first meeting in Oslo (November 2010) participants compared and contrasted features of the two systems and represented their thinking using a 'double bubble map' (see below).



A significant activity within the project was the preparation for and co-facilitation of the workshop at Kestrel's International Thinking Schools' Conference in Swindon (June 2011). A team of four participants from Norway and two from Northern Ireland presented the workshop entitled '*Leading a Thinking School: An International Perspective*'. Evaluations were very positive. A larger group of representatives from Norway and from Northern Ireland were enabled to attend the conference and benefit from engaging in conference activities and professional dialogue with others involved in the thinking school network. During this visit, all participants were also able to visit accredited thinking schools in England/Wales and observe good practice.

During all project meetings, participants had opportunity to visit local schools involved in the project in Oslo and NEELB. This provided rich opportunity to observe classroom practice at teacher level and also whole school approaches at leadership level. This offered first hand experience of both pedagogical approaches, and also methods used in implementing the

thinking schools project in the partner country. At the third visit, some individual classes established partnerships across the two countries, enabling teachers and children to communicate through e-mail, letter, etc. For a period of time a number of participating teachers utilised social networking to continue to engage in professional dialogue and share practice.

5.4 To investigate ways of measuring children's progress in thinking.

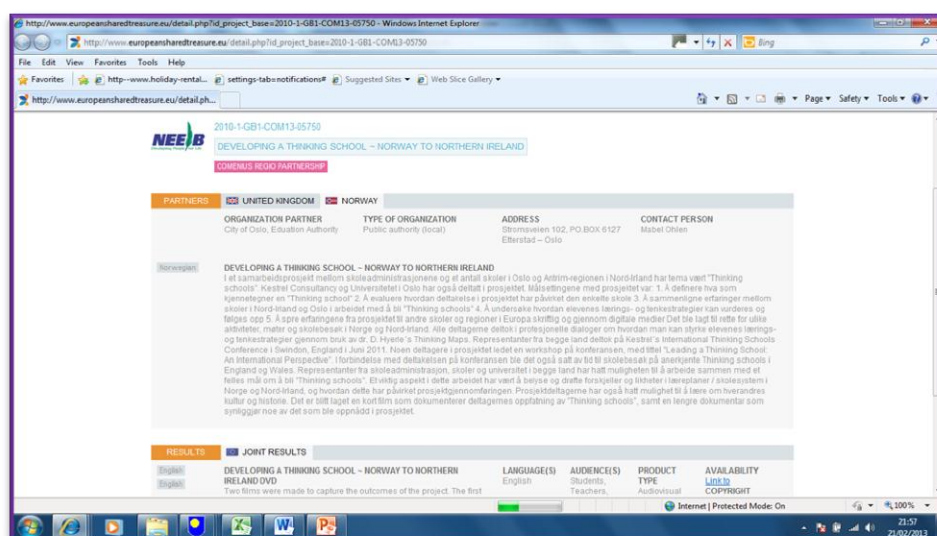
The project afforded many opportunities for all professionals involved in the thinking schools project to engage in dialogue regarding how children's progress may be measured. Teachers and principals shared their views of the various ways in which children were responding, both verbally and in written form, e.g. children better able to explain their thinking processes, improved structure in children's extended writing. Samples of work were observed during school visits and shared for discussion at project meetings.

The authority representatives benefited from shared thinking regarding potential correlation between developing children's thinking skills and their academic attainment. It was agreed that this was a complex issue, as there are many variables, and it is difficult to prove causality, therefore further research and development is required in this area.

Project members who attended the Kestrel International Thinking Schools Conference in Swindon participated in a workshop facilitated by Professor Bob Burden of University of Exeter. This workshop enabled exploration of a range of available tools which could potentially be used to measure children's progress in thinking, and some of the school partners trialled alternative tools for their own school use. Participants had opportunity to engage in professional dialogue with others on the thinking schools journey and share views and experiences.

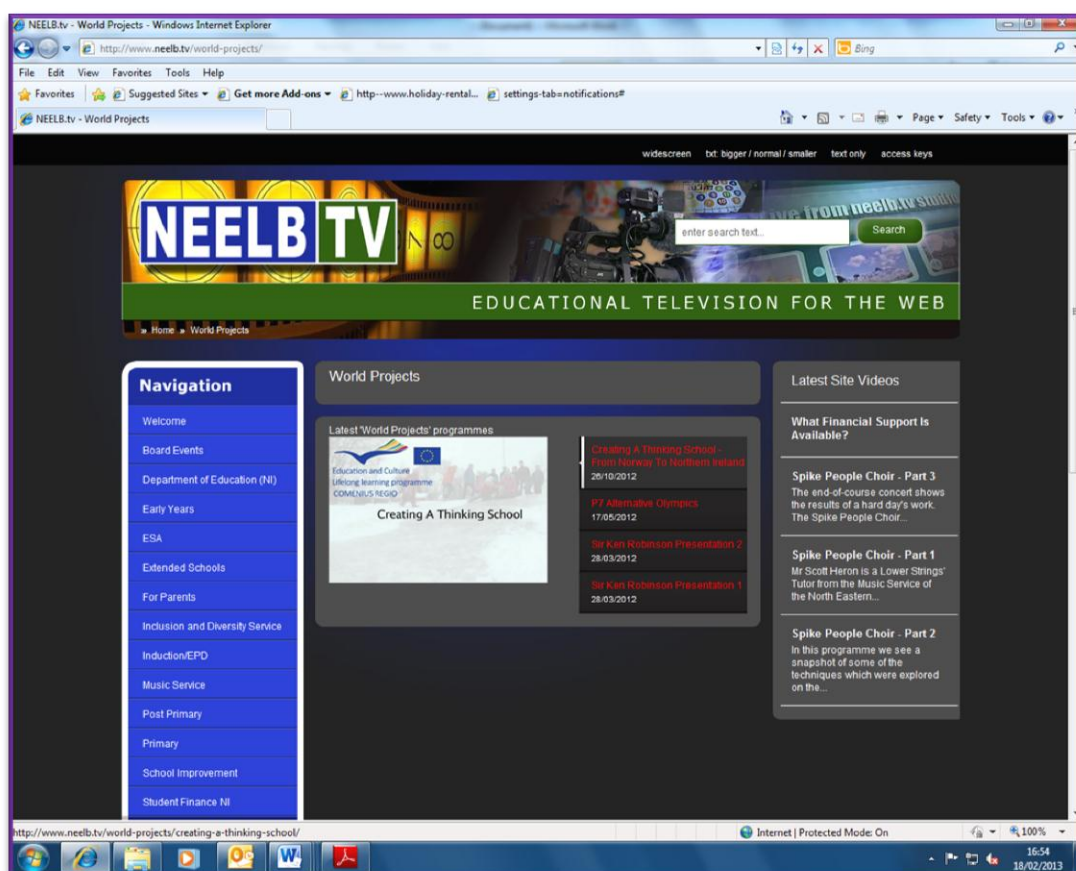
5.5 To disseminate learning to other European regions through written and digital media.

The final project report was co-written by both lead agencies and will be placed on their organisation's websites – www.uddanningsetaten.oslo.kommune.no and www.neelb.org.uk. The findings of the project will also be published on the European Shared Treasure (EST) online database - www.europeansharedtreasure.eu.



As detailed previously, staff from the project co-facilitated a workshop at the Kestrel Annual Thinking Conference in Swindon, attended by a range of educational representatives from across the UK, USA, South Africa and Norway.

Two films were made to capture the outcomes of the project. The first '*Thinking Ahead*' was produced in February 2011 to capture growing thinking regarding the concept of thinking schools. The final film, *Creating A Thinking School - From Norway To Northern Ireland* is a documentary film to reflect the overall outcomes of the project. Both films are available on the partner websites named above and also on www.neelb.tv, they are also hyperlinked on Kestrel's sites www.thinkingschool.co.uk/, www.thinkingfoundation.org and on individual partner school websites, where available.



5.6. Intrinsic Benefits re Culture and Society

At each visit, opportunity was provided as part of the programme for all participants to engage in activities to experience aspects of the local culture, such as city tours, visits to museums/national heritage sites, parks, music, traditional dance and local food. The Chair of the Assembly's Education Committee in Northern Ireland also facilitated a tour of Stormont during the first visit to Northern Ireland. These occasions provided excellent opportunity for participants to develop understanding and appreciation of each other's cultural tradition and history and proved to be an important part of the project.

6. Overall Results

~ Both Projects ~

The main results of implementation of both projects were evident at individual teacher, school leader, whole school and local authority levels. The specific focus of the European project on thinking schools was an effective one, but it is important to note that participants at all levels of the project reported positive benefits of learning about wider aspects of education, beyond this focus.

In addition to the shared approaches to evaluation highlighted previously, NEELB review has been based on evidence provided in:

- *Evaluation proformas completed at end of INSET sessions;*
- *'PMI' (Plus, Minus, Interesting) records completed at some of the training sessions;*
- *Semi-structured interviews held with principals at end of project;*
- *Discussions held with NEELB teachers and principals at final Regio project meeting in Oslo;*
- *Pre and Post project teacher questionnaires (see Appendix C).*

6.1 Authority Level

6.1.1 Shared evaluation of the professional development 'model'

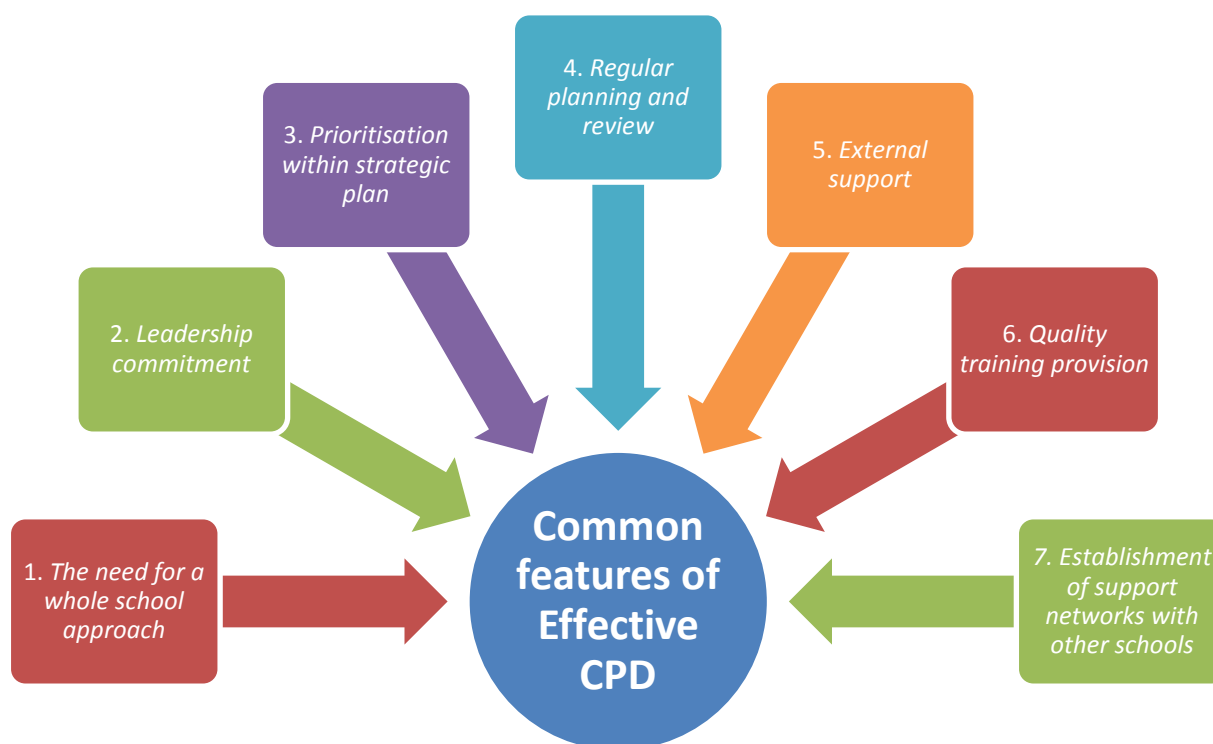
NEELB CASS had a key function in providing training and support for the pilot schools as they implemented and evaluated the effectiveness of a **whole school approach** to the teaching of thinking in the context of the NI Curriculum 2007, which was effectively achieved, both within the NEELB pilot, and in the wider context of the Regio Comenius project.

Through the European project, staff in school administration, teacher training and university education had the opportunity to liaise in a joint venture and share approaches to delivery and evaluation of the impact of a whole-school professional development programme in two different regions. They had the opportunity to engage in professional dialogue, to reflect and to learn from one another.

The identified focus of the project on thinking skills was important due to the curricular requirements in both partner regions on promoting effective learning, and in the wider context of growing international interest in the teaching of thinking. This enabled both partner regions to deepen appreciation of the place of thinking skills in each of their curricula as they shared their practice. From the outset, there was also a common focus on

exploring the correlation between developing thinking schools and school improvement, which reflects the political and policy emphasis of both education systems.

Both authorities evidently shared a leading role in providing professional development/training for participating schools. Opportunity to share and compare approaches to and models of training and support was a key benefit of the Regio Comenius project. A number of common features of effective continuous professional development have been identified, and will be used to describe results in further detail:



6.1.2 NEELB evaluation of the professional development ‘model’

○ A whole school approach

NEELB principals all agreed that a whole school project is an effective way to connect learning across the Key Stages, particularly where the focus reflected a key emphasis of the statutory curriculum. The shared sense of purpose for the whole school was heightened by the prioritisation of the project within School Development Plans (*see below*), and with regular opportunity to attend INSET sessions as a whole staff together. This enabled all staff, including principals, to fully understand the rationale for the programme, operational aspects and implications for implementation. One principal noted in an end of course evaluation form that, *“I am very excited about possibilities of this project with all staff in agreement.”*

One of the major benefits highlighted by school staff was the acknowledgement of a ‘common language of thinking’ used by all staff, and increasingly by the wider school community. This was particularly evident at regular staff meetings at which progress was

monitored and reviewed. Provision of very regular opportunities to share samples of children's work at staff meetings was reported as having been a crucial element of the programme in building whole school momentum, ensuring consistency and, as one principal described, *"keeping the practice alive in some classrooms."*

Whilst some principals reported that initially there were different levels of engagement amongst the staff, the general conclusions were that the whole school approach helped to negate this and create a strong connection across the key stages. All schools reported generally high levels of motivation and enthusiasm by their staff.

A common challenge noted by pilot schools was the need to deal with changes in staffing and especially to ensure that a robust induction to the thinking schools' concept and practices was provided for new staff.

○ *Leadership commitment*

Principals shared their general reflection that participation in this project had been 'highly motivating' from a leadership perspective. It had provided the means to make sense of thinking skill development within the curriculum context as a whole school by providing a *'structure for development'*.

The facilitation of opportunities for principals to meet regularly as a project group to discuss leadership issues was also an important dimension of the project. In addition to a formal meeting agenda, this afforded the chance for informal sharing of each school's journey and mutual learning to take place.

Two schools also shared that they had appointed a Thinking Schools' Co-coordinator, clearly tasked with leading the development of the project. For all schools, it was recognised that having a highly motivated leadership team to 'drive' the momentum of the work was an essential feature for successful implementation.

The provision by CASS of opportunities for principals to meet with peers who were further along their journey in leading thinking schools was also highlighted as a positive strategy. The principals of Christ the King Primary School in Cardiff, now recognised as an 'advanced thinking school' by the University of Exeter, and of Ballymena Primary School, who in 2012 became the first primary school in Northern Ireland to be recognised as a thinking school, both generously shared their school's unique experiences. This sharing of practice effectively enriched the pilot schools' leadership capacity.

All project schools also had opportunity to host Oslo teachers and school leaders within their schools and to participate in Regio project meetings in Northern Ireland. Five of the principals also took the opportunity to visit Oslo and three attended the Kestrel International Thinking Schools' Conference. Many other vice principals and co-ordinators from all schools participated very fully in Regio project activities. Participants acknowledged in final review that the opportunity to share leadership approaches across the two European

regions, in very different educational systems, was enriching in opening thinking, and also in affirming existing good practice.

○ *Prioritisation within strategic plan*

The expectation of inclusion of the thinking schools focus within each school's School Development Plan was considered by all participants as a fundamental strength of the model. This ensured that the whole school recognised the project as an important priority and also that appropriate resources, time and attention was allocated to ensure full commitment.

During the first term, following the introductory INSET day, CASS advisers worked with each principal individually to progress an action plan for implementation of the programme during the first year (see example: *Appendix B*). This sought to reflect the school's baseline position and to ensure detailed planning for successful implementation, with a particular focus on consideration of agreed success criteria. CASS advisers also facilitated regular staff meetings, which focused on monitoring of progress, and progress was subsequently reviewed by the whole staff in an end of year review session facilitated by CASS in each school, which then informed the next phase of implementation in year two.

Although the project commenced with an explicit focus on thinking skills, the focus in year two on Literacy, enabled schools to address the 'raising standards' agenda within a school improvement perspective – as one principal commented, an opportunity strategically to '*kill two birds with one stone*'. Teachers and principals also acknowledged in feedback at the end of the projects that, although development had had a major focus on Literacy, practice was embedding right across the curriculum.

○ *External support*

In responses to the NEELB principal interviews, views were expressed that "*the schools felt 'lucky' to be involved*" and appreciated the opportunity to avail of access to training and support.

Principals also reported that the overall pilot programme structure was helpful to '*move developments on*' within schools, where sometimes the plethora of responsibilities slows momentum down. They also placed particular emphasis on the benefits of working within an agreed externally facilitated 'structured programme' in which regular planning and review meetings were embedded. This encouraged, and enabled, teachers to learn together as they were encouraged to come to staff meetings, share samples of work and revisit key messages from INSET sessions.

All principals reported that the role of CASS in providing external *support* was important, but also recognised that *accountability* was also a crucial part of the success of the project. Principals recognised that roles and responsibilities for all partners had been clearly defined at the outset, and all schools subsequently sustained an impressive level of commitment for

the duration of both projects. In appreciating the investment of the Board in facilitating training, support, provision of resources and opportunity to be involved in a European project, the principals also appreciated their roles in contributing fully and enthusiastically to project activities.

○ *Quality training*

NEELB CASS provided substantial training to the pilot schools, as a cluster and as individual schools. The evaluation of the training and support provided is summarised below:

At the end of the initial in-service training day for whole staff of all pilot schools, participants were asked to complete a 'PMI' ('*Plus, Minus, Interesting*' developed by Edward de Bono) as an evaluation tool. A summary of main responses of the 51 participants are summarised below:

'Plus' Comments	Number of responses
Lots of new ideas for stimulating children	4
Found the support of others from other schools helpful	3
Feel this will improve standards of teaching & learning	3
This will help with implementing the Revised Curriculum	4
Lots of good ideas	5
Very interesting	3
Loved the overview of Thinking Maps	7
Good resources were provided	5
Good ideas & strategies for developing thinking in our school	8
Well presented/facilitated course	13
Liked challenging teaching methods - allow time for thinking	3
Very thorough overview of programme	2
Good background to theory of thinking	3
Good examples of practice across the curriculum	2
Helpful overview of thinking toolkit	2

'Minus' Comments	Number of responses
This will need perseverance/hard work!	6
It is a little daunting!	9
Impatient now - excited to get started	2
A lot of information/theory	22
Would have liked to work more as a whole school	7
Would have liked to hear more about Ryan's thinkers' keys	2
Not enough info on some of the tools	2
More examples of pupils using the Toolkit	2
Not enough time	2

'Interesting' Comments	Number of responses
New way of looking at learning	5
New ideas for the classroom	2
Seeing how children will respond	4
Mind maps	10
The information about how the brain works was interesting	5
Multiple intelligence theory	3
The variety of tools which are available	10
Activities within groups very practical	1
De Bono's Thinking Hats	1
Seeing samples of work completed by real schools/children	1

It was apparent that the day had generally been a positive introduction to the project, and that whilst there was an overall sense of appreciating that a key aim was to present the 'big picture', some teachers had found this a little overwhelming – particularly as reflected in the numbers who commented on the day being heavy on theory. That aside, the many positive comments indicated that clear messages had been communicated, and many staff were eager to implement new ideas, and had been prompted to review practice as a result.

End of course evaluation forms were completed by participants at all subsequent INSET days for staff of the pilot schools (courses focused on introducing the Thinking Maps and exploring Literacy Links with the Maps) and also at cluster sessions. Attendees evaluated the courses as 100% effective/very effective and 100% useful/very useful, with 87% of those evaluating it as very effective/very useful.

NEELB CASS provided substantial training to the pilot schools, as a cluster and as individual schools. Comments from some of the whole school training days included:

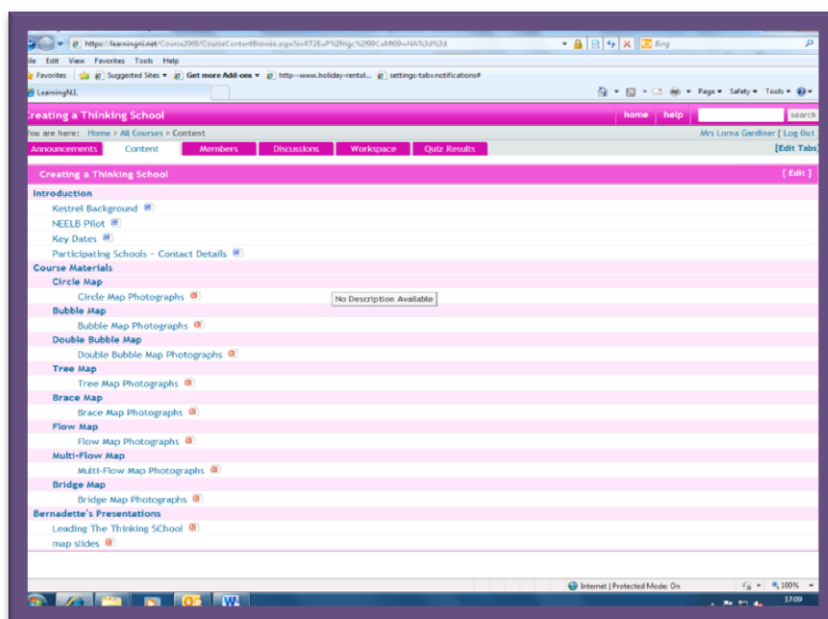


At the end of the second INSET day, at which teachers were introduced to the Thinking Maps, almost 40% of participants indicated in their evaluation response that there had been *'a lot of information to take in'* or *'intense theory covered'*. However, the majority of those respondents commented that they appreciated that it was essential to take time to understand the rationale underpinning the thinking schools concept, and specific comments included, e.g.

- *"It is useful to take time out to really think about my own learning";*
- *"The course provided a step by step guide to what it means to be a thinking school";*
- *"Today provided good background to the theory of explicitly teaching thinking skills."*

In the final end of project review, all schools reported high levels of satisfaction with the quality of training and support provided by NEELB CASS. Principals particularly commented

on the positive impact of the school-based support which one principal explained “*enabled the momentum of the project to be sustained.*”



Contents of the LNI e-learning site. The discussion forum was well used in early stages of map implementation

○ *Establishment of support networks with other schools*

Opportunities were provided during the project for teachers and principals, as appropriate, to attend and participate in:

- joint INSET days with staff from other schools;
- a regular principals' forum;
- inter-school key stage meetings at a mid-point of implementation; and
- an on-line forum, designed to facilitate sharing of the work carried out in each school.

All schools reported that working alongside other schools who were at a similar point of implementation was important in keeping momentum going. One NEELB principal reported that

“It was helpful that all staff from the 6 schools were learning together and sharing with each other.”

6.1.3 Impact of participating in European project at authority level

Through establishing partnership at education authority level, the NEELB and UDE staff involved had opportunity to develop their own professional practice through sharing and reflecting on common issues such as:

- Achievement and standards in the school improvement context;
- Curriculum emphases;

- Pedagogical approaches;
- Models of Continuous Professional Development/training (*as discussed above*).

As both countries are included in the OECD evaluation, there were benefits in comparing how this has influenced recent policy initiatives.



*NEELB representatives at
Thinking Schools Conference,
Swindon*

Opportunity to visit schools in another European country provided a different perspective, enabling school leaders and teachers to identify strengths and weaknesses within their own school and educational system. Through sharing cultural experiences during visits, participants recognised the similarities and connections between aspects of history, culture, social issues, etc.

As members of an island nation, there were particular benefits for Northern Irish partners in participating in this European project. Establishing a positive connection with the wider European community lessened the sense of isolation often felt.

Positive relationships have been established between authority staff involved and an informal network now exists for sharing information and practice.

The agreement of a joint action plan at the outset provided a core tool to enable all partners to monitor progress and keep shared focus throughout. The project co-ordinators were able to refer to it to guide activities throughout the project and at each project meeting, key targets and actions were reviewed and next steps planned.

Opportunity was built into the programme of all project visits for participation in workshops/group discussions on some of our main themes. This enabled a shared appreciation of the differences and also similarities between the two educational systems, with particular discussion on how to improve quality of pedagogy in order to better support children's learning and attainment. A key outcome was an agreed understanding of the concept of a thinking school and of the potential impact of the explicit teaching of thinking skills. The joint focus on thinking maps enabled rich sharing of teacher and trainer experiences for mutual benefit.

6.2 School Level

6.2.1 Impact on teaching and learning/children's attainment

When reviewed at final project meetings, schools in both NEELB and Oslo noted children responding positively to using thinking tools, such as thinking maps within their work, including:

- *High levels of motivation*
- *Use of thinking tools such as the thinking maps independently to approach tasks and solve problems.*
- *Quality and structure of writing*
- *Ability to make connections in their learning*
- *Being more aware of thinking*
- *Working together and sharing ideas*
- *Evidence of the thinking process*
- *Supports the principles of assessment for learning*
- *Tools for planning*
- *Language development for second language (Oslo)*
- *Increased confidence and improved risk taking*
- *Helps visual learners*
- *Tools for problem solving especially children with learning/reading difficulties*
- *All children can use every map at different levels*
- *More opportunities to repeat what they are learning in different contexts.*

For the NEELB schools the introduction of specific thinking tools had helped to make sense of, and put structure on, the statutory requirement to develop thinking skills across all curricular areas. It also placed the school improvement agenda firmly in the classroom where the pupils developed as independent learners and, as one principal explained: “.... became more aware that thinking belongs to them and they can use tools to do it better.”

This affirms the key aim of the NEELB pilot project regarding the assessment of the extent to which the use of Hyerle's Thinking Maps enhances pupils' learning and thinking. All six schools reported positive outcomes for pupils in relation to how Thinking Maps helped structure children's thinking, their capacity to plan and complete tasks, and particularly to enhance writing across the curriculum (*see case studies*).

Two of the NEELB pilot schools were inspected by the Education and Training Inspectorate during the lifespan of the project and overall provision in both schools was found to be Very Good. In one, the ETI reported that *“The school is currently involved in the North-Eastern Education and Library Board’s ‘Thinking Schools’ pilot and this is impacting positively on the children’s acquisition of creative and critical thinking skills.”*

In relation to evaluating the impact of introducing thinking tools at whole school level, and specifically in relation to implementation of Hyerle’s Thinking Maps, the following key points were identified in teacher evaluations and in semi-structured interviews with principals and teachers:

- *Improvement in writing* – this had been an area for development in some of the schools. All agreed that thinking maps are a “fantastic tool” for teaching the skills needed for writing. Whilst acknowledging that the focus on the thinking had an impact of slowing down the composition process, all noted that the quality of outcome in writing showed significant improvement for pupils across the schools. In one of the NEELB schools inspected, ETI reported that *“the development of the children’s writing has been enriched through the use of innovative approaches to develop and organise their ideas and give structure to their extended writing activities.”* The innovative approaches referred to were the Maps.
- *Enhancing learning* – one teacher expressed a view shared by many participants that the thinking school concept and all thinking tools *“fit so well with all of the NI curriculum”*. It was generally felt that access to thinking tools, and particularly the maps, has helped children to ‘frame’ or ‘structure’ their thinking. One principal highlighted that, *“Children’s thinking processes have become more important – rather than focus on outcome only.”* Many teachers noted the benefits for pupils of introducing thinking tools which promote independence. One principal stated that: *“Children are more aware that thinking belongs to them and they can use tools to do it better.”* Another principal highlighted particularly that in their school, *“Key Stage 2 teachers have embraced it well as they can see children’s understanding deepen rather than just regurgitating information.”*

In commenting on Numeracy provision in the inspection report of one of the pilot schools, ETI stated: *“The children work very well in groups; in all key stages, they share and work through their ideas effectively and are able to select from a range of thinking maps to structure their reasoning in a logical way to develop further their mathematical thinking”*.

- *Support for **all** children* – all schools acknowledged that the use of thinking tools such as thinking maps enables differentiation. One teacher described a key benefit as, *“Thinking maps assist children in breaking down a task or problem into manageable chunks.”* Some teachers specifically noted that the use of thinking maps provides a scaffold or helpful structure to children who have been struggling with literacy – as

one principal said, *“making the task less daunting.”* Some schools also highlighted that boys seem to connect well with thinking maps as a visual tool as it is perceived by them as a ‘logical approach’ to the task/learning. It was however, also acknowledged that outcomes and level of use of the maps will vary according to children’s confidence levels and abilities. One principal summarised the view that: *“Developing use of thinking tools for children improves learning for less academic children through exposure to language and thinking during collaborative exercises.”*

- In one of the pilot school’s inspection report, ETI specifically noted benefits for the language development of the children in Foundation Stage classes: *“In many instances, [the FS children] contribute mature oral responses, present persuasively, articulate and justify well-researched and well-expressed opinions. This has been enhanced by the whole school focus on developing the children’s thinking skills through the use of ‘thinking maps’ which are used well throughout the school to develop and organise the children’s mathematical and literacy ideas and language.”*

All partner schools, in Oslo and Northern Ireland agreed to administer the ‘*Myself as Learner Scale*’ to cohorts of pupils. This tool, created by Professor Bob Burden of University of Exeter enables staff to gauge children’s attitudes to learning and to themselves as learners by assessing students’ general academic self-perceptions.

In Oslo, all four schools in the project completed the test in August 2011, and again in May, 2012. The schools reported that the tool gave valuable information concerning each student, and this completed the information they already had on the students from other national and local assessments. Oslo Education Authority staff concluded that the assessment proved to be a good tool for the teachers to adjust their teaching and communication with their students, but it was difficult to use the information as a way of evaluating the outcome of the project.

In Northern Irish schools MALS was administered near the start of the NEELB project in November 2009 to provide a baseline measure, and repeated again in May/June 2012, at the end of the project, to enable comparisons to be made.

An analysis of the main MALS results suggested that over a two year period the children in Northern Ireland developed a significant change in their attitudes to themselves as learners:

- 66% of the surveyed groups had an increase in the class average scores of up to 8 points;
- 66% of the highest scoring children increased their score between 3 to 14 points; and
- 83% of the lowest scoring children increased their score between 8 to 53 points.

6.2.2 Impact on teaching staff

Although realistically it was noted that there were varying levels of engagement among staff in some schools, in all schools, it was reported that all teachers want to use thinking maps now. In most, the use of thinking maps as a 'tool' was embedded within classroom routines and many whole school practices. In some schools, staff have stated that they would not go back to *not* using thinking maps and staff are still excited



at seeing and sharing new opportunities for using the maps and for integrating them with other thinking tools.

It is also noteworthy that both projects had opportunity to engage in significant professional development throughout the duration and many highlighted the positive benefits of this in evaluations.

The teacher questionnaires which were administered in all Oslo and NI schools (see NEELB example: *Appendix D*), provided useful and interesting results in terms of informing analysis of impact of the project at teacher level. The purpose of the questionnaire was to gain some understanding of teacher attitudes to learning and specifically to the teaching of thinking.

In NI, an initial questionnaire was administered at the beginning in October 2009 and a slightly enhanced version with some additional summative questions added, was then administered at the end of the project in June 2012 (**48 staff completed**). This enabled analysis to determine the extent to which teacher attitudes and aspects of classroom practice had changed.

There was evidence of a significant change in teacher attitudes in the majority of areas questioned. Of particular note, was a trend towards more certainty in responses with significantly fewer '*don't know*' responses at final administration. Examples of areas in which this is most pronounced are detailed with commentary on impact on teacher attitude and pedagogical impact.

In relation to teacher awareness/knowledge of aspects of broader learning theory for example, the following changes were noted:

Statement	Initial % response	Post-project % response
<i>Gardner's theory of multiple intelligences enables us to embrace the strengths of every child in the class</i>	2% 'disagree' and 46% 'don't know'	78% 'agree' or 'strongly agree'
<i>My own practice is designed to provide opportunities for visual, auditory and kinaesthetic learning</i>	10% 'don't know'	100% 'agree' or 'strongly agree'

This reflects a growth in levels of teacher knowledge and understanding of theories of Multiple Intelligences and Learning Styles/Preferences, such as those cited.

The responses in relation to questions which concerned the extent to which classroom environments promoted thinking indicate significant change, which may also reflect improved levels of teacher confidence:

Statement	Initial % response	Post-project % response
<i>The children in my class share a common language for describing their thinking and learning</i>	46% 'don't know' and 19% 'disagree'	98% 'agree' or 'strongly agree'
Statement	Initial % response	Post-project % response
<i>My classroom provision seeks to explicitly make connections for children in their learning</i>	21% 'don't know'	100% 'agree' or 'strongly agree'
Statement	Initial % response	Post-project % response
<i>Thinking is visible in my classroom</i>	5% 'disagree' and 27% 'don't know'	100% 'agree' or 'strongly agree'

Arguably the most noteworthy evidence of the impact of the project in terms of its intended outcomes is in relation to the extent to which teachers viewed the teaching of thinking skills to be a *whole school approach*:

Statement	Initial % response	Post-project % response
<i>My school has developed a structured and cohesive approach to the teaching of thinking skills</i>	12.5 % 'disagreed' and 42% 'don't know'	100% indicated 'agree' or 'strongly agree'

This statistically significant shift in the views of over half of those surveyed reflects the hoped for change in mindset as the thinking school concept has become embedded.

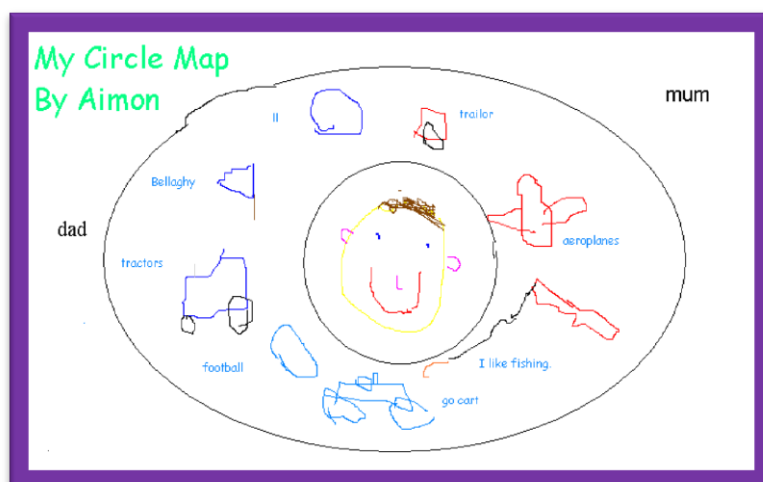
The analysis of this survey tool provided some convincing evidence that the thinking schools project has had a positive impact on teacher attitudes and on their perception of the effectiveness of their classroom practice. It also reflected a significance increase in teacher knowledge of a range of thinking tools and their implementation in classroom practice.

In Oslo, teacher questionnaires were administered at project end. Key findings were:

- More than 50% of the teachers reported that thinking is essential in the learning process, and that it is important for the teachers to be aware of the students' preferred thinking and learning strategies; this may be compared with 95% of NI teachers at end of project 'agreeing' or 'strongly agreeing' that *'Thinking is at the heart of the school curriculum'*.
- More than 83% reported that teaching the students a range of thinking and learning tools can help the students learn more; this may be compared with 100% of NI teachers at end of project 'agreeing' or 'strongly agreeing' with this statement.
- On the statement, *"Children learn best when learning is connected"*, more than 84% of the teachers agreed that this was very important; this may be compared with 100% of NI teachers at end of project 'agreeing' or 'strongly agreeing' with this statement.
- The students' emotional connection in the learning process was reported as important by 64% of the teachers; this may be compared with 90% of NI teachers at end of project 'agreeing' or 'strongly agreeing' with this statement.

The difference in outcome between the two countries with a higher percentage of positive responses from Northern Irish teachers may potentially reflect the impact of a statutory curriculum (*Northern Ireland Curriculum, Primary, CCEA, 2007*) which explicitly recognises thinking skills within its content and within its defined pedagogical approaches.

Oslo teachers were also asked to rate on a scale from 1 to 6 on how much they think the students benefit from using Thinking Maps in their learning process; the mean score was 4.42. This shows that after a relatively short period, the teachers recognise the importance of continuing working with the Thinking Maps.



As part of the NEELB questionnaires, teachers were asked to highlight their levels of awareness of a range of thinking tools and the extent to which they used the tools in classroom practice. An analysis of the responses indicates interesting impact of participation in the project.

As may be expected, with Thinking Maps having been a shared central focus for professional development in all schools, results showed an increase from 64% who stated that they had 'never heard of' the tool, to 89% of teachers who cited that they were 'very familiar' with it. It should be noted that some schools were employing temporary/substitute teachers who were still undergoing induction at the time the final questionnaire was completed. Significantly, in terms of how frequently Thinking Maps was being used in practice, responses increased dramatically from 84% who 'never' used the tool pre-project to 94% who indicated that they were using Thinking Maps 'frequently' by the end of the project.

In relation to other tools, the two additional thinking tools which were introduced to some of the schools in the final year of the programme were de Bono's Six Thinking Hats and the Philosophy for Children/Community of Enquiry approach.

Prior to the commencement of the project, only 38% of respondents indicated that had 'never heard of de Bono's Six Hats, so there was already some level of awareness/knowledge of this tool in some schools, although only 33% of respondents indicated that they used the tool 'frequently' or 'occasionally'. By the end of the project, all participants indicated that they were aware of the tool, with 85% indicating that they were 'very familiar with it and 78% stating that they used the approach 'frequently' in classroom practice.

In relation to the Philosophy for Children approach, at the pre-project stage, 51% of respondents indicated having 'heard of' the approach, including 9% of them stating that they were 'very familiar with it. In practice at that stage, 24% of teachers stated that they 'occasionally' used the approach, with only 3% stating that they used it 'frequently. By the end of the project, almost 97% stated that they had 'heard of' the approach, of which 29% were 'very familiar' with it. However, only 29% indicated that they were using the approach 'frequently and 10% 'occasionally' in practice. This slightly less impressive indication of implementation may reflect the particular nature of this 'tool' which may be less 'flexible' for adaptation across every lesson every day compared to the potential uses of Thinking Maps or Hats.

Teacher responses indicated a relatively high level of familiarity with 'Mind Maps' (72% 'familiar with' or 'had heard of'), as a different type of 'visual tool' to the Thinking Maps, prior to the project, which did not substantially change by the end of the project. Interestingly however, teachers indicated that their use of Mind Maps decreased throughout the duration of the project from almost 17% using Mind Maps 'frequently' and 53% using them 'occasionally', to only 6% using them 'frequently' and 26% using them 'occasionally'. This may again reflect the focus within all schools on using Thinking Maps as

more universal and flexible visual, or alternatively, it may reflect the impact of a whole school focus on a new visual tool in reducing use of existing visual tools.

Teachers were also asked about their knowledge and use of other thinking tools: 'Habits of Mind', Ryan's 'Thinker's Keys', Bloom's/Andersen's Taxonomy and De Bono's CoRT tools (Cognitive Research Trust). Although some increases were noted in terms of levels of familiarity/awareness, there was no indication that increase in knowledge led to implementation in classroom practice.

6.2.3 Impact of being part of European project

In Northern Ireland, schools expressed that there was a certain 'kudos' for their schools at being part of a European Project, which brought a level of excitement to the wider school community. Some principals reported that the project had helped raise the profile of the school with parents and the local community.

All project schools had opportunity to host project visits and have reported that this was an enriching aspect of the project, widening horizons at whole school level and creating a positive pressure to continue developing practice. During visits, teachers reported that planning for visits required a reflective approach and that responding to questions from visiting teachers created a meta perspective on their own practice. Many reported that this boosted confidence and self-esteem in showcasing their practice. Teachers enjoyed having the Norwegian visitors and this was exciting for the children – one stated that she felt it *"made the children feel special."*

Teachers in the partner schools have thus had considerable opportunity to professionally develop through involvement in this project. Through shared meetings and project visits, they engaged in professional dialogue with colleagues in the partner region around the shared focus of thinking schools. They have shared experiences and approaches used in their own classrooms and outcomes observed in the children's responses. Many acknowledged that they felt there were more similarities than differences between the two systems.

The opportunity for teachers to engage in professional dialogue during project visits provided evidence of much in common across the two systems – as one teacher said, *"It was fascinating when meeting teachers from Norway and knowing that these people were trying to develop the same things!"*



Some NEELB schools clearly have an on-going commitment to developing an 'onward-looking' ethos, and one principal noted that, *"This has helped our school achieve something which we thought was important."* Another co-ordinator expressed that their school will now, *"Look for other opportunities to make links with other countries."* Some schools have formed links with a partner school in Oslo, and have engaged in sharing communication at teacher level, and in some cases, at pupil level - all who did expressed a hope to keep the European links going.

Aside from professional development opportunities created for individual principals and teachers who participated in project meetings and particularly for those who had opportunity to visit Oslo or to attend the Kestrel Thinking Schools conference and visit Welsh schools, the view was expressed that significant personal development was also experienced for them in seeing other educational contexts and cultures. Almost all schools whose teachers participated in visits to Oslo reported that the experience had helped build the confidence of the teachers involved.

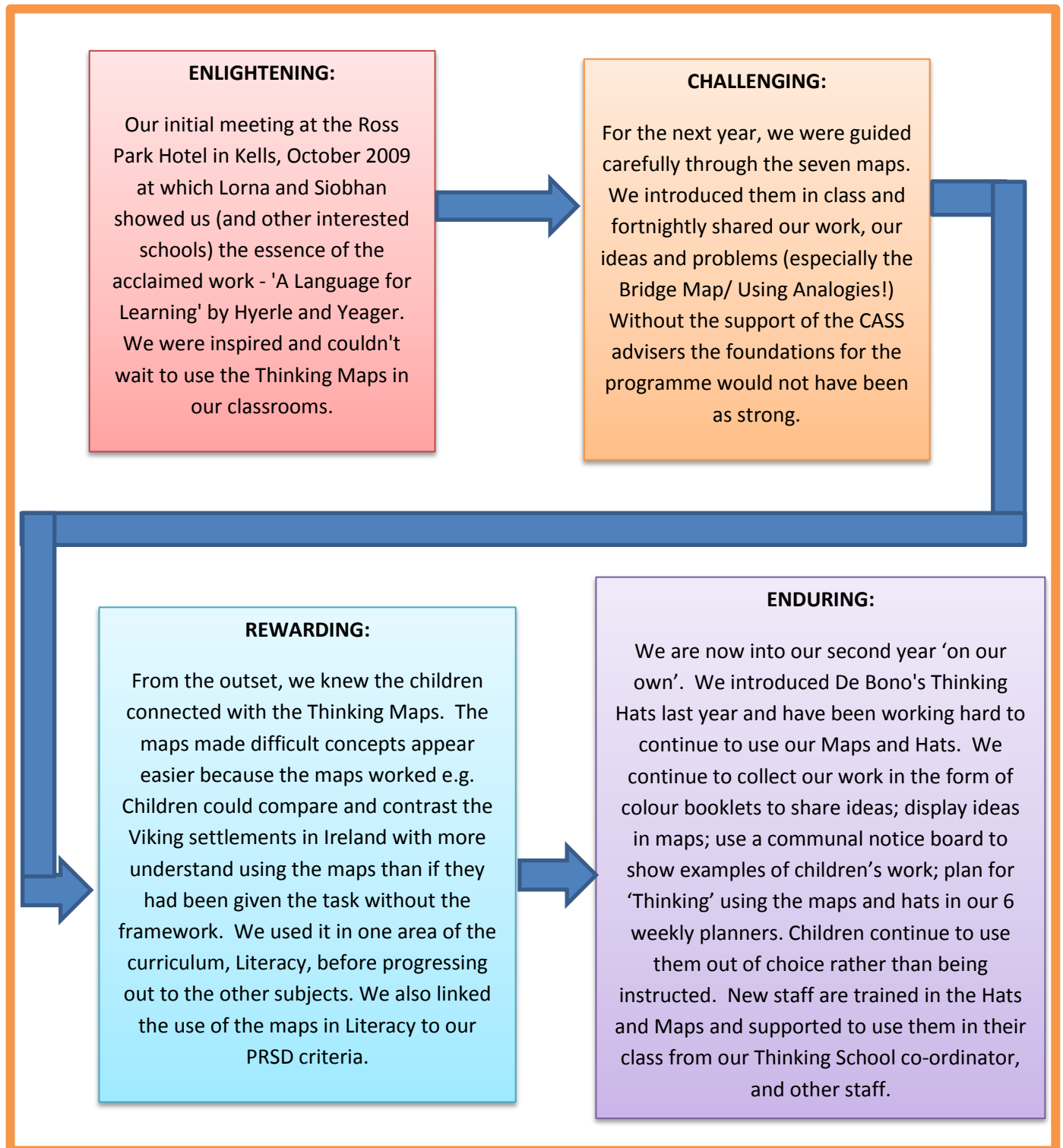


Anne Smart, principal of St Mary's PS Cushendall presents cultural gifts to acting principal of Marienlyst Skole during visit

Pupils in the project schools have benefited from having opportunity to learn about children's school and life experiences in another country. Some have had opportunity to communicate through letter, e-mail and video links. As pupils in both regions have been introduced to the same thinking tools, i.e. use of Hyerle's thinking maps, they may in the future be able to directly share experiences and make connections on how they are learning.

One school's thinking school co-ordinator represented the school's experiences in their journey towards becoming a thinking school in a 'flow map'!

*"Our journey along the 'Creating a Thinking School' has been **enlightening**, **challenging**, **rewarding** and **enduring**. These adjectives describe four distinct stages in our development as a staff and a school."*



7. Case Studies

The following case studies from some of the participating schools provide further evidence of the effectiveness of the projects at school level.

7.1 Case Study 1: A Co-ordinator's Perspective

We started our 'Thinking Skills' journey in 2009 when we were invited to take part in the Creating a Thinking School project, led by NEELB.

Initially, it was of interest to us as we were in the process of implementing the Revised NI Curriculum, all Assessment for Learning (AfL) strategies were well embedded into planning and we felt we needed guidance and support in the development of the 'Thinking Skills' strand of the curriculum. The introduction of the Thinking Tools provided the staff the opportunity for professional development, closely linked with the development of the Revised Curriculum. We found the introduction of the Thinking Maps provided a rich language for learning across all curricular areas and encouraged us, as a staff, with new ways of thinking which enabled us to improve pupils' cognitive abilities of planning.

Through the use of AfL strategies, we had always provided our pupils opportunities for effective questioning to challenge each other to develop their thinking. With the introduction and development of the Thinking Tools, we noticed a more structured development, in all our pupils' ability, to talk about and discuss their learning using a common, shared language. As a staff, we felt that a strength of the project was the support given by the CASS officers, who through advising us in developing a well structured Action Plan, coupled with clearly focused In-Service allowed for staff of all schools involved in the project to regularly meet and share their experiences and practices – this was truly invaluable.

Through meetings, not with our own staff, but with those in our cluster groups we were able to share ideas, take risks and gain confidence in our practices. As we, and the children, became more confident, in the use of the Thinking Maps, we began to develop their use into our daily practice. Soon we discovered more ways to use and infuse the maps via classroom and whole school displays.

Perhaps the biggest challenge faced by teachers at the beginning of the project was a total change in our teaching methods. As a whole staff we were committed to the project and we knew that if the project was to be successful – by which I mean the pupils' learning was

ultimately improved – then we would have to change our teaching methods and incorporate the use of thinking tools into our planning to provide the pupils with as many opportunities of using the tools across the curriculum. An initial challenge for us, as practitioners, was the time taken for planning and assessment. As we were introducing topics to the children which provided them opportunities to use the maps, this meant developing and changing existing planning and updating assessment to reflect the classwork.

Having adapted our planning to reflect the use of as many maps as possible a further challenge for staff was finding a tangible way of measuring their success. We were very much trusting in what we believed were improved attitudes to learning and a developing ability to think to a higher level. As teachers, we believed in what we were doing, could see the benefits in our classrooms and therefore, were prepared to spend time developing our own practice accordingly. We needed to find an appropriate way of collating and recording the work – and issues such as: ‘Do we mark it?’, ‘Do we record it in books?’, ‘How did we assess thinking?’, always challenged us. The latter remains one of our biggest challenges.

It was also important to our staff and myself, as a teacher, that the parents of the pupils were aware of new methods. To promote the use of the maps, we informed our parents through our school website, curriculum evenings, setting homework that encouraged the use of maps and parents’ meetings. We also relied heavily on the pupils themselves, particularly at Key Stage 2, to explain the use of Thinking Maps and Thinking Hats to their parents at home to help enhance their knowledge and understanding.

As Co-ordinator, one of my biggest challenges was the monitoring, evaluation and collation of evidence throughout the project. The staff were totally convinced of the value of using the tools and thus we set ourselves a target of gaining Thinking School accreditation by University of Exeter. Evidence was collated into a portfolio, made up of both paper and multi-media evidence, showing good practice at all levels within the school. The school recently achieved its target with Accreditation being attained.

As we move to the future, we hope to continue to let the Thinking Maps and De Bono’s Thinking Hats embed in the school and build on the practice to include other tools which we feel would support and enhance the methods we are currently using in our overall aim to improve pupils’ standards.

7.2 Case Study 2: A Foundation Stage Teacher’s Perspective - the Impact of Thinking Maps on Children’s Learning

The introduction of Thinking Skills and Personal Capabilities in the Revised Curriculum brought new challenges to teachers like myself who have been teaching for a long time! So it was with great interest and to be honest a bit of scepticism I attended our first training day on the road to becoming a “Thinking School” Was it going to be another initiative which would really only be valuable for older pupils?

The Primary 1 year is always “Groundhog Day” as I have to introduce the Thinking Maps and Thinking Hats to my children each year. I am now introducing them earlier in the year as I find them to be such useful tools to develop early literacy and numeracy.

During Literacy lessons, the maps are very important tools for children to organise, present and communicate their ideas. During early phonological lessons, children can sort real objects into sets which begin with the same sound by using a Tree Map. When describing a character or a setting in a book a Bubble Map becomes a very helpful tool. At the beginning of the year, real objects can be used, progressing to the teacher modelling writing of the children’s ideas and then at the end of the year, the children can make a very good attempt at writing their own Bubble Maps. Flow Maps are an effective way of assessing the children’s ability to retell a story in sequence and detail. Young children love saying

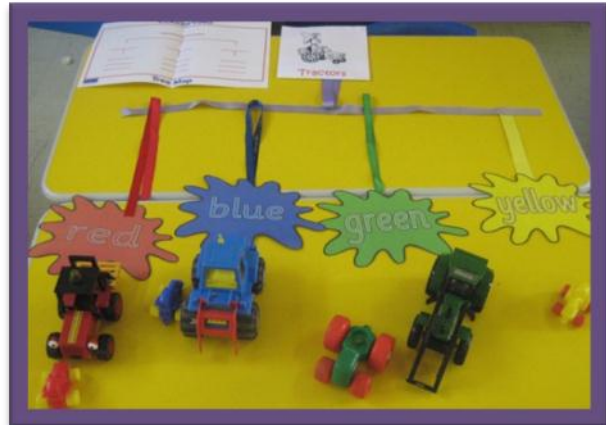


Foundation Stage pupils creating a Brace Map using real objects

the words Double Bubble Maps and these maps are very helpful to develop higher level thinking of comparing and contrasting characters, settings, emotions and even words during our Shared Reading time.

The use of Thinking Maps during numeracy lessons has also become integral. Bearing in mind “Sharma’s Levels of Learning”, thinking maps can be used very effectively to engage the young children when they are still working at the concrete level. Then they can progress effectively to the abstract level and of course the maps are good scaffolds for the children to use as they communicate their mathematical learning. Brace Maps help young children visualise the whole- part relationship in number bonds. The young children can use real objects on their maps to investigate number bonds. As the year progresses they can replace the concrete materials with pictures, then actual numbers and finally to the abstract level of sum notation. Tree Maps are a very obvious mathematical tool to aid sorting and classifying. Bridge Maps can be of great assistance to young children who struggle with colour naming as this map can help them to relate real objects with a specific colour.

It is always a great thrill to observe the young children using their Thinking Maps spontaneously. This frequently happens during Play Sessions. Often children will create their own Bubble Map to describe a favourite toy. As they sort naturally during the course of play they will automatically use a Tree Map. A Brace Map becomes important as a recipe aid to making Play dough and also in our “Take Apart and Put Together” workshop. Thinking Maps also appear on our planning boards for play.



I have found Thinking Hats to be very useful during planning and plenary sessions. The young children love to put on their hat as they report to the class what they have been learning during play. Having a different focus helps to keep the children’s attention and also helps develop the thinking of the child who is reporting.

We often comment in our staff room that we wonder how we taught without the Interactive Whiteboard. It is now a bit like that with Thinking Maps and Thinking Hats. These tools have become central to both staff and pupils and are an extremely useful tool for our young children in the laying of those deep foundations which enable our children to become active and lifelong learners.

7.3 Case Study 3: A Key Stage One Teacher’s Perspective - Impact of Philosophy for Children/Community of Enquiry

I believe that the children have started to progress with their knowledge and understanding of philosophy throughout the year that I have had them. At the start of the lessons children were unable to distinguish the difference between open, closed and philosophical questions. Now the children are able to explain that a philosophical question ‘Relates to the bigger picture’.

Through the series of lessons I have delivered they have maintained a high level of interest and their thinking skills have progressed through the contribution to lessons related to themes and the varied stimuli used. High ability pupils are quite able to think creatively and can state “I think this because...” “I agree / disagree with this because...” Lower ability children can provide reasoning for their statements but not necessarily follow on from other children’s ideas. However, with one of my lower ability children in Literacy I have been extremely impressed with his new found gain in confidence to speak out and use language and reasoning in front of his peers that he wouldn’t have done before.

Pupils have been developing their ability to work with one another, show respect for others and their opinions. Pupils can make simple links or connections in their learning, especially when the stimulus is heavily linked to the current theme. Pupils have exhibited some of the elements of successful discussion. I believe that the pupils will continue to progress next year by using the range of skills which they have required this year.

I feel that Philosophy offers a very inclusive approach to talking and listening and it allows pupils to progress at their own level alongside their peers.

I wanted to use thinking skills to support, enhance and further stimulate pupils' learning and understanding in all subject areas. The children had already been introduced to the thinking maps before I began in the school and after working through them in my class I feel that they are continuing to utilize and familiarize themselves with them. I have been pleased with this result and can see the benefits in the children's work and their way of thinking. Children will often suggest which map they think would work best for a piece of work. Again with my lower ability children I have found that the maps have really helped to structure their ideas.

I feel that I am now better equipped through the expertise I have gained from the staff and CASS training. I believe that this training was vital to promote the development of the whole child.

I was able to participate on a Regio Comenius project visit to Norway. This was an excellent opportunity for me to share ideas with other teachers and look at examples of the thinking maps being used by children in Norway. This gave me more inspiration and confirmed my belief that the thinking maps really are an excellent tool to aid children's learning.

7.4 Case Study 4: A Key Stage Two Teacher's Perspective

I began teaching 24 years ago and have seen many changes in the classroom over the years. When introducing a new topic initially I would have researched the information and then given it to the children. They in turn proceeded to complete a worksheet filling in blanks, etc. The children did learn but they were not active in their learning. Now, however, my classroom has changed and is now unrecognisable in comparison as the children do their own research and present their findings in a variety of ways. To allow the children to do this effectively we have introduced a variety of 'thinking tools' into our school.

In my classroom I realised that presenting children with a blank page was daunting and they really didn't know where to begin! Now, with the implementation of the eight Thinking Maps and Thinking Hats, children have a focus to help them with their thinking and are learning how and when to apply the correct maps to different tasks e.g. in our Winter Survival Topic the children, wearing their White Hats, used a Circle Map to gather their information on various animals. One group took the information about birds off the Circle Map and used a Tree Map to put it into appropriate categories to help them write a report

on a specific bird. Another group, wearing their Green Hat, took their information on hibernating/migrating animals and sequenced it using a Flow Map, which they then used to produce a PowerPoint Presentation on Hibernation/Migration. This was shown to a younger audience. These presentations were evaluated by their peers, using the Yellow and Black Hats, which provided the opportunity for comments on the strengths and weaknesses of their work in light of the success criteria. The presentations were then edited and shown to the younger children in the P2/3 class. On returning from the P2/3 class there was an opportunity, using the Red Hat, for each group to share how they felt about their experience.

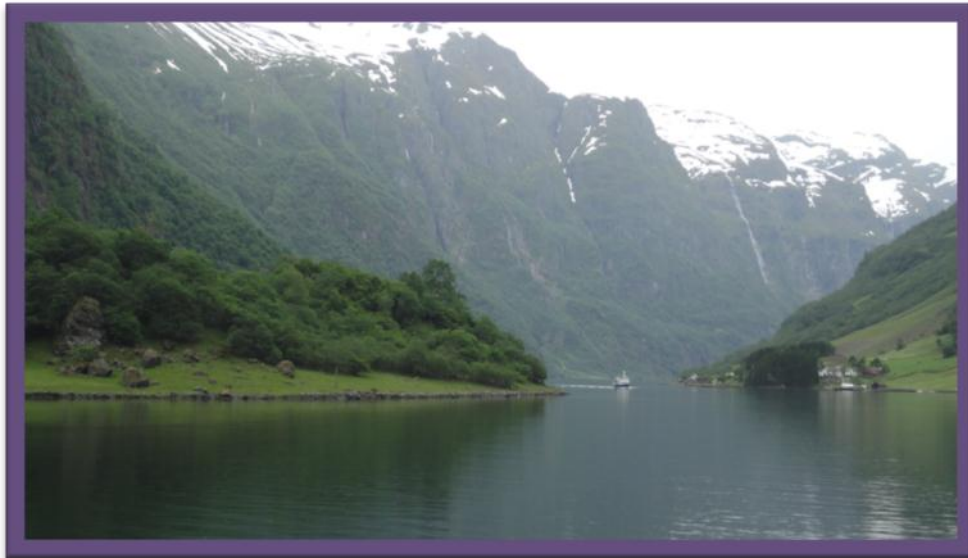
The children worked independently throughout the activity and only came to me to share what they had learned or to seek guidance. This freed me up to work closely with children who needed one to one. They too can use the maps and hats at their own level and therefore don't feel different! For me there is a thrill in standing back and watching children work collaboratively to produce a good end result.

We as a staff also agreed that the children in our school were not the best talkers and listeners so when we heard about Community of Enquiry we decided to try it out. We have found that the children love this time together and the building blocks give the children clear boundaries for group discussions. It allows the children a 'safe space' to express their thoughts on different issues and the children know that their thoughts are important and valued. During this time the children have been taught about different kinds of questions and encouraged to ask open and philosophical ones. As a result we have found that children ask closed questions less often. We find that the children are thinking on a higher level as stimuli produce all sorts of themes and questions in their heads. The staff as a whole notice that all the children take part during these community of enquiry times because Think-Pair-Share is an integral part of the process. Previously this would not have been the case. I, as a teacher, have loved hearing so many children say that this is their favourite time of the week.

All these tools, we have found, have helped us begin to create a Thinking School. Although I have not mentioned Numeracy here, the maps lend themselves to all kinds of mathematical thinking. Through the continued use of these tools we will endeavour to raise standards in Numeracy and Literacy.



8. Conclusion



Integral to both projects described in this report, was the intention to ultimately benefit pupils' learning in the participating schools. The evidence presented would indicate no doubt that that was significantly achieved.

Through the professional development opportunities afforded, teaching staff were enabled to develop common understandings, beliefs and practices about the teaching of thinking, and whole school communities were able to develop a common language for thinking.

Importantly, educational professionals from two countries, including academics, advisers, consultants, principals and practicing teachers, shared on a journey of understanding of children's learning. Though separated by miles of ocean, we discovered more commonalities than differences, and agreed fundamentally on the importance of whole school approaches to implementation of such an initiative for high impact. We also agreed on the centrality of access to high quality continuous professional development utilizing a variety of training and support approaches and which addresses issues of both leadership and teaching and learning.

The success of these projects lies ultimately in the key partners' shared passion for lifelong learning and in their commitment to making a difference to the lives of young learners.

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Appendices

ACTION PLAN ~ Regio Comenius Project: *Creating a Thinking School - Norway to Northern Ireland*

Baseline Position:

A 'THINKING SCHOOL' HAS BEEN DEFINED BY KESTREL CONSULTANCY AS:

"A LEARNING COMMUNITY IN WHICH ALL MEMBERS SHARE A COMMON LANGUAGE; WHERE THINKING STRATEGIES AND TOOLS ARE USED ACROSS THE CURRICULUM AND TEACHERS AND STUDENTS HAVE SOUND UNDERSTANDING OF METACOGNITION..."

The proposed project will focus on exploring this process of developing a whole-school approach to developing children's thinking in a small number of identified schools, led by City of Oslo Education Authority, Norway and Northern Ireland (CASS, NEELB). External expertise will be provided by Kestrel Consultancy/University of Exeter and University of Oslo. All partners are using David Hyerle's Thinking Maps as one of the thinking tools.

The Department of Education in Northern Ireland has recently introduced a Revised Curriculum in 2007, which includes an emphasis on the development of 'Thinking Skills and Personal Capabilities'. The key aim is to maximise the learning potential of all our young people so they can realise their potential as individuals and as responsible citizens with the necessary skills and capabilities for life and work in the 21st century. This aspiration is also being reflected in educational developments in many other regions. The focus of this project is therefore of significance to all schools across the UK and beyond. Consideration of the impact of the programme on pupil outcomes will also be of interest in the current strategic context in Northern Ireland which is primarily concerned with education quality (ref: 'Every School a Good School' - DE, 2009).

In Norway, school development is a major theme of political and public interest, particularly in relation to the effectiveness and prevention, with a special focus on the drop-out rate. The community of Oslo has supported a research project in which the Thinking Schools concept has a dominant position. The intention of the project is to influence effectiveness with regard to students who need more careful education, and by means of strategies from both experiences with Thinking Schools program and studies regarding vocabulary training. This project will enable us to demonstrate and disseminate ways of teaching which could be more effective.

TARGETS	ACTION	WHO	TIMING	RESOURCES	SUCCESS CRITERIA	MONITORING
1. <i>To define the features of a 'thinking school'.</i>	<ul style="list-style-type: none"> The project team will consider the Kestrel definition of a thinking school. They will also define thinking schools using a circle map. The definition will be reviewed throughout the project and refined to become an agreed definition by the end of the project. Participating schools will also consider and discuss the evolving definition through the project's website. Representatives who attend the Kestrel conference in Swindon will visit recognised Thinking Schools in the area. 	<p>All</p> <p>Representatives of all partners</p>	<p>Initial definition agreed at first meeting, Nov 2010. Continued as agenda item at all project meetings; discussion thread on the project website throughout</p> <p>June 2011</p>	<p>Kestrel definition and criteria Other academic definitions Curriculum documents Project website and meetings Time for individual schools to discuss definition</p>	<p>All partners will have a shared understanding of the features of a thinking school, which is evidenced in classroom practice. This will be documented in the school's portfolios and the project's final report. A representative group will have visited a recognised Thinking School and reviewed reflections on the observation.</p>	<p>Individual schools will record progress in agreeing definition at staff meetings. Project co-ordinators will monitor participation in discussion on website. Records from project meetings will be collated.</p>
2. <i>To evaluate the impact of the thinking school programme in the identified schools.</i>	<ul style="list-style-type: none"> To identify aspects of practice in which impact should be evaluated To review available tools to measure the desired impact To agree and, if appropriate, develop new tools for measuring the impact To collate baseline data To continue to collect appropriate data for schools' portfolios and case study evidence as required To collate evaluative evidence for final report 	<p>Representatives of all partners Led by Jorgen – input by Kestrel/ Mabel/Lorna Representatives of all partners</p> <p>Jorgen Schools</p> <p>Project co-ordinators</p>	<p>Project meeting Nov 2010</p> <p>Nov 2010 to Jan 2011 Feb 2011</p> <p>By March 2011 On-going</p> <p>Writing meeting June 2012 Completed by July 2012</p>	<p>Evaluation tools/surveys available</p>	<p>Agreed tools will be developed/used to measure the impact of the project. Evaluation data will be included in the final project report.</p>	<p>Individual school co-ordinators/principals monitoring progress through staff meetings, portfolios of evidence. Classroom observations. Project coordinators liaising with Jorgen throughout.</p>

3. <i>To compare the experiences of identified schools in Norway and Northern Ireland as they journey towards becoming 'thinking schools'.</i>	<ul style="list-style-type: none"> • Opportunities for representatives to visit schools and classrooms and engage in professional dialogue and staff development during project meetings. 	Representatives of all partners	On-going		Some children and teachers from participating schools will have had the opportunity to share learning experiences, practically or virtually. E-learning materials/ evidence will be produced and available on partner websites. Schools and school administration of both countries will enhance understanding of culture, curriculum and educational approaches of each other's countries.	Project coordinators will record key discussion themes from project meetings and monitor participation on website. Classes who liaise in partnership work will document learning shared. Lorna to liaise with neelb.tv to ensure filming is completed on schedule.
	<ul style="list-style-type: none"> • Some individual classes to partner across the two countries. Teachers and children may communicate through website, video conferencing, e-mail, letter, etc. Shared projects; virtual field trips. 	School representatives	On-going	Access to website, video conferencing facilities, etc. Neelb.tv		
	<ul style="list-style-type: none"> • Good practice documentary film to be produced as part of project outcomes. • Use of website/video conference for teachers to engage in professional discussion, e.g. use of thinking tools, classroom displays 	NEELB.tv Project co-ordinators and teaching staff	By June 2012 On-going	Neelb.tv Website/video conferencing facilities		
4. <i>To investigate ways of measuring children's progress in thinking.</i>	<ul style="list-style-type: none"> • Project meetings will enable discussion on the topic of how to measure children's progress in thinking. • A short film will be produced capturing a professional debate on the topic. This will be available on www.neelb.tv and hyperlinked from partner websites. 	Representatives of all partners NEELB.tv	Project meetings – commencing Feb 2011 Feb 2011	Neelb.tv Academic journals, books, etc.	All partners will have enhanced understanding of ways of measuring children's progress in thinking. Film will be produced and available on-line.	Project co-ordinators ensure completion

5. To disseminate learning to other European regions through written and digital media.	<ul style="list-style-type: none"> Kestrel Annual Conference in Swindon will be used as a forum for staff from the project to co-facilitate a workshop/seminar. Project materials will be available on partner websites. Good practice documentary film will be produced and available on websites. 	Identified staff from Norway and NI schools, NEELB and Oslo UCD Representatives of all partners NEELB.tv	Prep visit in Norway April 2011	Kestrel	Workshop will be facilitated and positively evaluated at the Kestrel conference High quality final film and report will be completed on time	Project co-ordinators will monitor preparation and delivery of workshop, report and final film.
			June 2011	Websites		
			By end July 2012	NEELB.tv		

Sample Year One Action Plan: NEELB Creating a Thinking School Project

Issue: 'Creating a Thinking School' Stage One 2009-10							
BASELINE POSITION	TARGETS	WHEN	HOW	SUCCESS CRITERIA	MONITORING METHODS	WHO	RESOURCES
The school has engaged in the Revised Curriculum professional development programme and are familiar with the TS&PC framework within the NIC 07. Staff have begun to consider planning for thinking skills within curricular planners. AfL practices are well-embedded throughout the school. Effective questioning has been a focus for staff development. Group work strategies and mind maps have been introduced but require further	1. To develop children's understanding of themselves as learners and of how they learn.	26 th Oct 09 Nov 09 Nov/ Dec 09 Nov/ Dec 09 ↓	INSET day for whole staff introducing thinking school programme. Complete baseline teacher questionnaire re attitudes to and practices in thinking and learning. Administer MALS questionnaire to all children and collate responses. Complete VAK questionnaire. All staff (teaching and ancillary) complete Gardner's MI Questionnaire. Staff meetings – plan and review work carried out on learning styles and MI. Class discussions providing opportunities for children to develop sense of self as learner. Use of 'Mind Your Head' books to stimulate discussion.	Key elements of the school's baseline position will have been revisited and refreshed to ensure increased consistency in developing children's understanding of themselves as learners and of how they learn. All staff will have shown development in their approaches to teaching in a way which reflects knowledge of children's learning styles and MI. The school's Learning & Teaching Policy will have been reviewed to take account of these developments. Parents/carers are aware of this focus through interactions with children at home. Children and staff will have a deeper understanding of themselves as learners. Learning styles/MI will be an intrinsic part of learning and teaching and will be evidenced in children's levels of engagement, reactions, responses and in language used. Planning will begin to reflect staff's growing awareness of making learning and thinking	Staff meetings Completed and collated staff and children's questionnaires PRSD – discussions and classroom observations Teachers' planning (PDMU) Classroom displays	Whole staff CASS staff Governors	SID 26/10 'Mind your Head' booklets MALS, VAK and MI questionnaires Staff meeting time

development to ensure a consistent approach. Play-based/active learning approaches are well-established in P1-3 and are currently being developed in the other classes. Most staff have developed understanding of self as learners and teach with awareness of children's learning styles and of brain-based learning. Classroom displays are created focusing on learning styles, etc. Participation in UNICEF's Level 2 Rights Respecting Schools Award complements this programme.	2. To implement Hyerle's thinking maps throughout the school.	<p>7 Dec 09</p> <p>Dec 09</p> <p>Jan-May 10</p> <p>↓</p> <p>12th Feb 10</p> <p>May 10</p> <p>June 10</p> <p>Jan-May 10</p> <p>↓</p>	<p>Professional development for staff:</p> <ul style="list-style-type: none"> ○ Whole staff INSET ○ Planning meeting to agree systematic introduction of the maps ○ Fortnightly staff meetings to review implementation progress and plan future actions ○ Identify opportunities for map use within current planning ○ Interim INSET session/s with CASS facilitation as work with maps progresses ○ Staff participate in key stage meetings with other pilot schools ○ Whole school review and forward planning <p>All teachers explicitly introduce and reinforce all 8 maps at fortnightly intervals. Raise parent/carers' awareness of thinking maps as a tool to support children's thinking and learning</p>	<p>explicit.</p> <p>Staff will understand the specific thinking processes represented by each of the maps and will have identified a range of appropriate curriculum contexts in which to model and apply the maps. Staff are willing to share and support each others' practices within own school and in the wider pilot group. Staff will adhere to the agreed timescale for implementation. Staff will have identified and agreed further action for year 2 development. Children will correctly apply and construct all 8 maps with appropriate support. Children will recognise maps as teacher applies them in new situations. Children identify appropriate thinking maps in response to prompt or question. Parents will be able and willing to talk with children about the use of maps in their school work.</p>	<p>Staff meetings PRSD observations and meetings Portfolio of evidence of maps used across key stages (samples of children's work and classroom displays/ photographs) Teachers' planning and children's planning boards</p>	<p>All staff CASS staff Governors</p>	<p>SID 7th Dec 09 + June TBC</p> <p>Thinking Maps folders for each class (supplied by CASS)</p> <p>Staff meeting time</p> <p>3 x pms for clusters</p>
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‘Thinking Maps’ - some background information

Thinking Maps, developed by Dr David Hyerle, is a visual tool which help students develop their thinking processes in a structured way. They are based on eight fundamental cognitive processes and provide a common visual language which can be used with learners of any age, right across the school system.

Each cognitive process is represented by a particular ‘map’ - a visual representation which is graphically consistent and flexible to allow students to reflect and expand their thinking and explore their learning. Each map is accompanied by a frame of reference to capture the context for the students’ thinking and the influences shaping it. The eight maps and the cognitive skills they represent are:



Defining in context (*circle map*)



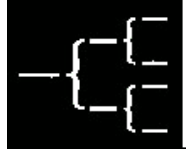
Describing attributes (*bubble map*)



Comparing and contrasting (*double bubble map*)



Classification (*tree map*)



Part-whole spatial reasoning (*brace map*)



Sequencing (*flow map*)



Cause and effect reasoning (*multi-flow map*)



Reasoning by analogy (*bridge map*).

For further information, see <http://dft.designsforthinking.com/>

TEACHER QUESTIONNAIRE RE BELIEFS AND PRACTICE - THINKING AND LEARNING

PLEASE READ THE FOLLOWING QUESTIONS AND TICK THE BOX WHICH BEST REFLECTS YOUR CURRENT ATTITUDES OR PRACTICE.

SECTION A

1. ALL SCHOOLS ARE 'THINKING SCHOOLS'

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

2. THINKING IS AT THE HEART OF THE SCHOOL CURRICULUM

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

3. PERSONAL SKILLS AND CAPABILITIES UNDERPIN SUCCESS IN ALL ASPECTS OF LIFE

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

4. THINKING SKILLS SHOULD BE EXPLICITLY TAUGHT

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

5. THE TEACHING OF THINKING SKILLS SHOULD BE INFUSED THROUGHOUT THE CURRICULUM

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

6. CHILDREN NEED TO HAVE ACCESS TO A RANGE OF THINKING TOOLS TO HELP THEM BECOME MORE EFFECTIVE THINKERS

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

7. CHILDREN LEARN BEST WHEN LEARNING IS INTERACTIVE, PRACTICAL AND ENJOYABLE.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

8. CHILDREN LEARN BEST WHEN LEARNING IS CONNECTED

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

9. IT IS MORE IMPORTANT THAT CHILDREN GAIN THE SKILLS OF KNOWING HOW TO LEARN THINGS FOR THEMSELVES THAN THAT THEY GAIN SUBJECT KNOWLEDGE

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

10. TEACHERS SHOULD FIND OUT AS MUCH AS POSSIBLE ABOUT HOW THE BRAIN WORKS TO HELP INFORM THEIR PEDAGOGY

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

11. IT IS NOT IMPORTANT THAT TEACHERS UNDERSTAND HOW THE HUMAN BRAIN WORKS

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

12. IT IS IMPORTANT FOR TEACHERS TO CONSIDER CHILDREN'S EMOTIONAL CONNECTION IN THE LEARNING PROCESS

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

13. EACH CHILD LEARNS IN THEIR OWN UNIQUE WAY

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

14. FOR A TEACHER, KNOWING YOUR OWN PREFERRED LEARNING STYLE CAN HELP DEVELOP YOUR AWARENESS OF HOW OTHERS LEARN AND HOW YOU CAN SUPPORT THEIR LEARNING

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

15. TEACHERS SHOULD USE TEACHING APPROACHES APPROPRIATE TO DIFFERENT LEARNING STYLES

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

16. EVERY CHILD CAN LEARN WITH THE RIGHT TYPE OF SUPPORT/TEACHING

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

17. LITERACY AND NUMERACY ARE THE MOST IMPORTANT SUBJECTS IN THE CURRICULUM

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

18. PERSONAL DEVELOPMENT AND MUTUAL UNDERSTANDING ARE AT THE HEART OF THE CURRICULUM

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

19. GARDNER'S THEORY OF MULTIPLE INTELLIGENCES ENABLES US TO EMBRACE THE STRENGTHS OF EVERY CHILD IN THE CLASS

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

20. IMPLEMENTATION OF THE NORTHERN IRELAND CURRICULUM 2007 WILL EMPOWER CHILDREN AS INDEPENDENT AND EFFECTIVE LEARNERS

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

21. MY OWN PRACTICE IS DESIGNED TO PROVIDE OPPORTUNITIES FOR VISUAL, AUDITORY AND KINAESTHETIC LEARNING

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

22. THE CHILDREN IN MY CLASS SHARE A COMMON LANGUAGE FOR DESCRIBING THEIR THINKING AND LEARNING

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

23. THINKING IS VISIBLE IN MY CLASSROOM

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

24. MY CLASSROOM PROVISION SEEKS TO EXPLICITLY MAKE CONNECTIONS FOR CHILDREN IN THEIR LEARNING

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

25. MY SCHOOL HAS DEVELOPED A STRUCTURED AND COHESIVE APPROACH TO THE TEACHING OF THINKING SKILLS

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STRONGLY DISAGREE	DISAGREE	UNSURE	AGREE	STRONGLY AGREE

SECTION B

PLEASE INDICATE YOUR LEVEL OF KNOWLEDGE OF, AND USE OF, THE FOLLOWING THINKING TOOLS BY TICKING ONE BOX IN EACH SECTION BELOW....

<u>TOOL</u>	<u>VERY FAMILIAR</u>	<u>HAVE HEARD OF</u>	<u>HAVE NEVER HEARD OF</u>	<u>USE FREQUENTLY</u>	<u>USE OCCASIONALLY</u>	<u>NEVER USE</u>
Art Costa's Habits of Mind						
David Hyerle's Thinking Maps						
Tony Buzan's Mind Maps						
<u>RYAN'S</u> Thinker's Keys						
Community of Enquiry/Philosophy for Children						
Bloom's/Andersen's Taxonomy						
Edward de Bono's 6 Hat Thinking						
De Bono's CoRT tools (Cognitive Research Trust)						
ACTS approach						

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE.

NAME: _____

CLASS/ES TAUGHT: _____

SCHOOL: _____