

Research Paper
Macquarie University School Partners' Study Fellowship 2005

Online learning in senior secondary school education: practice, pedagogy & possibilities

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NBCS uses Moodle as its learning management system.

A Scope & Intent**i. Focus of Research**

One component of the 2004/2005 Macquarie University School Partners' Study Fellowship was to ascertain the most effective strategies used in 'best practice' European and Canadian schools as a framework to deliver senior courses via distance or blended learning pedagogies; education distributed to the points of learning.

ii. Specific Research Area for Macquarie University School Partners' Study Fellowship Report

Researching and developing a viable e-learning framework to deliver Stage 6 Courses in a 'blended' context. This framework will then be applied to course modules as suitable for NSW Board of Studies courses (Stage 6 Legal Studies). The research focus however, is not limited by the content of this course, rather looking to the best methodologies for delivery.

iii. Study Tour Focus

The intention of the 2005 Study Tour program was to ascertain the place and future of blended, distributed and distance education models of learning, using online curriculum material prepared and delivered via a digital learning platform.

This research paper outlines a number of 'best practice' case studies, observations and dialogue, drawn from a range of educational institutions or practitioners in England, France, Sweden, Denmark, Iceland and Canada during March and April 2005.

iv. Assumptions and Intent

This research paper does not seek to justify the use of online content within the learning process. Its intention is to reflect on best practice adoption of online content within schools or institutions. The assumption is made that online content has the ability to:

- transform the learning process in powerful and relevant ways
- engage students into new ways of learning
- promote personalised learning
- enable differentiated learning within the classroom
- develop strong patterns to foster lifelong learning
- improve student outcomes in demonstrable measures
- improve retention rates
- significantly increase flexible delivery of courses
- significantly increase access to courses
- address national priorities in learning
- include parents in the learning process more effectively
- develop skills within students that will be relevant to new technologies
- create flexible pathways

B Extract

Why consider online curriculum content?

- Improved ownership of learning
- Improved student outcomes
- Improved independent learning
- Attracting broader range of students
- Improving retention rates
- Improving completion rates at senior school level
- Improved teamwork
- Student motivation
- Student goal achieving (and setting)
- Improved course participation levels
- Personalized/individualized learning
- Ability to offer broader range of courses
- Improved behavioural conditions
- Teacher ownership of differentiated levels of student achievement and partnership in course creation and delivery
- Differentiated learning – more effectively addressing remedial needs
- Improved levels of teacher professionalism and competence
- Creation of ‘baseline’ competency in education provision (regardless of teachers)
- Creation of new teaching context – flexible workplace/loads/multi-institutional employment
- Excellent repositioning of Digital Learning Objects and associated course resources
- Seamless integration of technology into everyday living: added virtual dimension
- Ability to incorporate broader, international perspectives

No one best model exists in terms of being the ‘best’ way in which to incorporate the use of online content into pedagogical approaches, because the intentions of different models are so diverse.

However, a model that involves the teacher:

- as the active developer of lesson specific content and
- operating from a student-centred philosophy and
- catering for personalized and differentiated approaches

supported by:

- comprehensive web-based well developed online content,
- delivered via a student-centred portal and
- within a stable learning management system

would seem to be a highly successful model. Any online content used in this context should be in a format where it could be easily re-formatted to operate as suitable for a blended delivery context or as independent modules for partial or complete distributed (distance) access.

Key factors to consider would include:

- age appropriateness
- access to hardware and related technologies
- stability of platforms and associated support structures
- access to developed curriculum content
- available staffing
- teacher accreditation in the area of online course design and delivery
- building design and classroom layout

C Key Words: Terminology

Blended Learning

Courses delivered in mixed mode format:

- Some face-to-face
- Some distance or self-paced
- Some as support to face-to-face learning

Digital Workspaces

Workspaces created through the use of specific hardware and software that facilitates the interaction of students and teachers anywhere, anytime. Workspaces could be synchronous or asynchronous.

Distance Learning

Courses provided by a registered institution/s where student is removed from local context of provider; or may be undertaken in association with face-to-face classes (eg. Iceland).

Distributed Learning

Education or courses distributed to the point of access or available technology or teachers; learning can occur independently of time and place. In a distributed learning environment, students can study away from the place of instruction and can choose between courses offered at more than one location.

e-Learning

Online courses undertaken through the use of digital technologies: could be completely externally moderated, blended delivery or as part of face-to-face model.

Flexible delivery

Courses delivered within a framework that allows for students to be either present in a face-to-face context, or removed from this point of learning. The course framework may also be disassociated from a traditional time framework for course completion. Work may be undertaken in an accelerated format or spread over a longer period of time.

Independent Learning

Students able to complete courses independently of a real time teacher or in association with face-to-face class work.

LAMS

Refers to the specific Learning Activity Management System (LAMS), as developed by Macquarie e-Learning Centre of Excellence (MELCOE). Now available as open source.

LMS

Learning Management System: may be a commercial product e.g. Moodle (freeware), Web CT (commercial), ANGEL (commercial) or DigitalBrain (Commercial) or a created system.

Multimedia Objects

The use of a range of technologies to enhance the instructional design and delivery of curriculum content. It may involve embedded audio or visual components, or it may be web-based.

Online curriculum

Course content prepared for publication in a digital format: e.g. Word, Powerpoint, HTML, Webpage, Multimedia, MP3 or other formats.

Portal

A digital framework that is created as the web-based entry point for data access or learning delivery systems. Could be commercially produced (e.g. Moodle), an in-house creation (e.g. MyHighcliffe) or a tailored system managed by an external provider for use across a range of schools (e.g. DigitalBrain)

Self-paced courses

Courses where entry/completion could be continuous; students pace themselves; course structures and timeframes may have been freed up or broadened.

Virtual Classroom

A real classroom that exists in a virtual dimension – on the web. Students may be drawn from any country, any school.

Virtual Learning Environment

Online material that can be accessed via digital means anywhere, anytime, provided the technology exists. A virtual learning environment may involve a single student working alone or it may constitute a virtual community linked via a forum or web-based community. There may be a face-to-face component in a virtual community.

Virtual Learning Objects

A repository of online curriculum content which may be independent learning material that could be applicable to a range of education systems, or they may be components of a wider learning module, or suitable to become an integral component of a digitally based course.

D Participating Schools, Institutions or Individuals

1. Highcliffe College, Christchurch, Dorset, UK
2. Brooke Weston City Technology College, Corby, UK
3. Kings International College, Camberley, Greater London, UK
4. Kemnal Technology College, Sidcup, London, UK
5. Kingshurst City Technology College, Birmingham, UK
6. National College for School Leadership (NCSL), Nottingham, UK
7. Lycée l'Oiselet à Bourgoin-Jallieu, (near Grenoble), France
8. Lycée Marie Curie d'échirolles, (near Grenoble), France
9. Kinnarpsskolan, Falköping, Sweden
10. Värmdö Distans, Stockholm, Sweden
11. Statens Pædagogiske Forsøgscenter – SPF (National Innovative Centre for General Education), Copenhagen, Denmark
12. Fjölbrautaskóli Snæfellinga, Grundarfjörður, Iceland
13. Fjölbrautaskólinn Armúla, Reykjavík, Iceland
14. Distributed Learning, Iceland
15. Blended learning; Open School, Victoria, BC, Canada
16. Greater Vancouver Distance Education School, Vancouver, BC, Canada



NCSL, Nottingham, UK



Grundarfjörður, Iceland



Värmdö, Stockholm, Sweden

E Research Summary: Key areas of inquiry

1. Key areas of Inquiry:

- (i) Educational outcomes – why consider online curriculum content?
- (ii) What rationale exists for online curriculum development?
- (iii) What models exist in the area of online course development?
- (iv) What factors enable the successful use of technology to deliver supportive online course material?
- (v) How is technology best used to improve the quality of teaching?
- (vi) What might “best practice” look like?

2. Other areas of enquiry

- (i) Approaches to system management: key factors influencing stability of platforms
- (ii) Strategic decisions necessary for successful implementation of online curriculum
- (iii) What implications are there for policy development?
- (iv) Implications for teacher work load and preparation

1. Key areas of Inquiry

i. Educational outcomes – why consider online curriculum content?

- Improved ownership of learning
- Improved student outcomes
- Improved independent learning
- Attracting broader range of students
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- Seamless integration of technology into everyday living: added virtual dimension
- Ability to incorporate broader, international perspectives

ii. What rationale exists for online curriculum development?

- Teaching quality improves due to consistent quality of preparation
- Courses constructed as a total and available in their entirety or as modules
- Student awareness of direction and goal of courses
- Personalized instruction
- Differentiated teaching
- Differentiated learning
- Clear access to resources
- Flexible structures
- Ability to ‘patch’ together courses from multiple providers
- Encouragement for all students to participate (forums, committees)

- Higher standards of course creation, conception and delivery
- Student motivation improves
- Improved teamwork, problem solving
- Greater choice and flexibility of subjects
- Can provide a safety net for the school in the advent of weaker teachers
- Ability to provide courses to rework areas
- Continuity of course delivery and consistency (despite staff changes)
- More relevant to contemporary work context
- Equity of access
- Provides flexible teaching opportunities for teachers

iii. What models exist in the area of online course development?

- School based course development
- Commercially created course units
- School based virtual learning objects
- Complete course units
- Virtual learning objects suitable for different education systems and courses
- De-regulated distance education courses
- Cooperative course access in a de-regulated educational context

iv. What factors enable the successful use of technology to deliver supportive online course material?

Technology:

- Access
- Reliability
- Ease of use including consistency of framework
- Technical support
- Classroom infrastructure with either smart-board technology or a digital projector and linked computer key to pedagogical change and implementation of online content so as to enhance courses
- Remove access to traditional whiteboards

Teaching:

- Professional development delivered at the point of work, not via in-service
- High expectations that staff use technology
- Individual ownership by teachers of use of ICT

Product:

- Good instructional design
- Clear understanding of the construction of online course material

School:

- Strong school educational leadership
- A willingness to work as collaborative partners with other institutions
- Passionate educational person driving program
- Flexible / innovative staffing
- Clear school vision
- Clear understanding of the school's vision and direction in relation to the use of online course material
- Clear programming models
- Collaborative business partners or sponsors
- Effective financial strategies for design, creation and delivery of online course material

Systemic:

- Strong national educational leadership
- Consistency in system
- Supportive Government policy

v. How is technology best used to improve the quality of teaching?

- The seamless integration of technology into every classroom and every context so that it is a component of every course
- Teacher ability to incorporate the use of technology into any coursework, as appropriate
- Teacher confidence in technology and ability to problem solve or access help if necessary
- An established and workable process for the development of online course material
- The ability to access online course content from multiple providers if there is no capacity to locally create online material
- Teachers who understand the pedagogy of instructional delivery
- Passionate and innovative teachers who are willing to experiment with the processes of teaching in a multimedia environment
- Teachers who have understood the concept of personalized learning, facilitated through differentiated program and delivery within a wider classroom context
- Teachers who are comfortable with performance management processes, including data driven improvement processes
- A programming framework that supports the delivery of any particular course being completed or maintained
- Physical infrastructure (classroom or school design) to support the use of technology
- Improved capacity to cater for absent (long/short term) students and teachers

vi. What might “best practice” look like?

Students are able to complete units of work in a flexible time frame in a flexible format i.e. a blend of traditional school and or online learning using one or more accredited educational service providers. These service providers would be developing course content, based on national curricula, using original content as well as content sourced from a nationally managed content repository.

These courses and service providers would cater for students in a variety of situations and a variety of learning needs and styles, using a variety of technologies.

Best practice might take the following into account:

Administration and Management

- The adoption or construction of a database management system that is comprehensive, stable and adaptable to a local context. It needs to be understood and used by every person in a particular school community.
- Ability for portal to draw from and interpret relevant data
- Dynamic data interface to support the management of learning
- Vision driven education processes
- System reliability and stability
- Online Reporting/Assessment as a continuous concept
- Pervasive notion at every level of school community: expectation of success in learning
- The establishment of a ‘business’ component within a school, that supports the creation, distribution and use of online curriculum content both within and beyond a school
- Realistic budget expectations
- Provision of ADSL connection at homes of staff
- All staff given laptop
- Flexible patterns of school executive management – even to the point of annual re-construction of roles as suited to support current target programs
- A single platform for course management software would be an enormous advantage

- An acceptance and understanding of performance management and data driven change processes by teachers and school communities: raising standards through transformation
- Creating capacity within a school for change and improvement: using this to inform all decisions in relation to staffing, class organisation and course management
- Clear and effective course administration systems
- Informal staff meetings as opposed to traditional schedules – use of email and forums for information and communication
- Collaboration with other schools
- Consistent “look” and format of web pages across subjects
- Flexible staffing formulas that enable staff to work in multiple locations
- Regional liaison over course construction and delivery
- A team approach to online material creation: the availability of course writers (may be teachers), instructional designers and graphic artists
- Helpdesk facility
- Cohesive school vision for the direction of technology in the classroom
- Flexible course construction to facilitate accelerated learning
- Architectural design to support learning: schools as “a meeting place to learn”
- Judgments based on research
- Teacher understanding of the software used
- Production of or access to a bank of still and dynamic images for course developers

The School

- The need to have a well designed school portal, accessed by students, staff and parents
- Portal design should at all stages be student-centred
- In-school course development or the personalization of a course using digital learning objects from a shared repository
- System reliability and stability
- Availability of technology in every teaching context – smart-board or plasma screens in every room, connected to desktop PCs or laptops.
- Flexible staffing formulas that enable teaching and non-teaching staff to work as teams in the creation, production and delivery of online course material
- Staff culture that embraces change, innovation and risk
- Flexible school timetabling
- Attention given to the layout and design of every space within a school
- Broad range of technologies: computers, laptops, screens or smart-boards, digital projectors, programmable equipment, digital cameras, scanners, audio and video imaging, sound systems
- A network of IT support – both on site and off site
- Easy access to a school based repository of resource online curriculum materials
- An ability to access online course content from a range of providers – expansion of school resources
- Immediate access to the web either via whole class screen with digital projector or desktop PCs
- Classroom infrastructure including surround sound systems, teacher-led multimedia presentations and the ability for all students to focus on the one task at a given point in time

The Student Teacher Interface

- School portal should be a student learning system, not school system for teachers
- Students need to enjoy the use of data
- Students with real experience of global platform
- Need to tool up the learner in a new way – personalized learning where the right instruments exist to give the learner the means of control: a need to tool up and focus on the learner
- Innovation brought close to classroom – where a real 4th dimension, a virtual dimension, is part of the traditional paradigm
- Student expectation of learning
- Student understanding of self-paced learning
- Student ownership and enjoyment of independent learning

- Student understanding of general direction of school and learning
- Individual or whole grade interventions as necessary
- Focus on the detail of teaching and learning
- Clear course frameworks for online material
- Blended learning framework with pre-induction meetings if distance education involved
- The development of a real online community in distance delivery
- 24 hour turn around in a distance context for teacher response
- Close teacher knowledge of students, the use of formal assessments in some format and the inclusion of oral tasks to overcome authentication issues
- Self-paced modules to support and reinforce classroom learning
- Distance education that looks the same as face-to-face
- Mentoring programs for all students, whether in a face-to-face context, blended environment or distance students
- Pervasive use of differentiated curriculum
- Use of email and voice mail to support distance interaction
- Creation of class forums to support in-class work
- An understanding of the power of blended technologies and approaches – dramatic pedagogy.
- Recurrent new programs and strategies
- The use of whole class modelled writing using interactive writing tools
- Asynchronous approaches predominant, supported as appropriate by synchronized learning
- Content is chunked with a limited amount of text on each page

2. Other areas of inquiry:

i. Approaches to system management: key factors influencing stability of platforms

- Staff are trained to use technology and solve simple problems
- Each user has access to technical support that is able to quickly resolve issues
- Networks are regularly maintained and upgraded
- Problems are able to be resolved onsite and remotely
- Adequate funding

ii. Strategic decisions necessary for successful implementation of online curriculum

- Clear school vision for the use of IT in the classroom and for the direction and implementation of online curriculum content
- An understanding of blended learning pedagogies
- Choosing a framework to enable data driven improvement
- School network infrastructure
- State and national access to technology
- Clarity in purpose - is the creation of online material as an income stream or education provision or blend?
- Clear and standardized framework for online course material
- Processes to maintain online material – processes to support the maintenance of online content
- Choice of external resources to enhance school based online curriculum content
- School network infrastructure
- State and national access to technology

iii. What implications are there for policy development?

- Goal – income stream or education provision or blend
- Creative partnerships and collaborative partners
- Need for tertiary institutions to create and provide courses in “Instructional Design Theory and Practice” at undergraduate and post graduate levels

- Need for a National Curriculum and year grouping so that there can be common units of work and outcomes that students are working to achieve and teachers are producing digital learning objects for the same outcomes
- Need for a structured repository based on these common subjects and outcomes so that contracted resource writers and teachers can contribute or access resources that can be easily found or added to
- Standards need to be established for these digital learning objects so that teachers and students can access and use these without the need to continually download new applets or applications to use them
- Copyright implications for the use of images and content. Copyright implications for content contributed to the repository
- Access issues of any repository of online curriculum content
- Online school registration and accreditation
- National management of course achievement so that students can complete subjects using a variety of educational service providers
- Implications for future staffing needs of schools to match the ability to create and produce online curriculum content

iv. Implications for teacher work load and preparation

- Curriculum Design
- Curriculum Preparation
- Online Co-ordination
- Salary implications and flexibility
- Student loads – ongoing and cap
- Course maintenance
- Course updates
- Course assessment – Preparation/Marking/Feedback
- Schools allowing for teachers to create a network of employment locations

F Research Summary: Key Factors – Some Conclusions

i. What key factors emerged in relation to the successful use of online curriculum?

1. Highcliffe College, Dorset, UK

- The critical importance of a flexible, student focused database and portal as a framework for the use of online content.
- Supportive school culture
- Having a vision and striving to enact it – ‘the relentless pursuit of excellence’

2. Brooke Weston City Technology College, Corby, UK

- Developing new non-teaching roles to facilitate online curriculum preparation
- Data driven intervention improvement processes
- Policy decisions re business opportunities with online curriculum
- High expectations of success for every student

3. Kings International College, Camberley, Greater London, UK

- Neither the inability to create school based online content or socio-economic disadvantage need to be an impediment to the use of online resources in school – these can be overcome through positive school leadership, cohesive pedagogical practice and the use of bought and/or managed resources
- College wide use of ‘Smartboard’ technology in the classroom – all teaching staff

4. Kemnal Technology College, Sidcup, London, UK

- Raising standards through transformation
- Creative and clearly defined school leadership critical to changing learning culture
- Flexibility in all aspects of school organisation so as to support a culture of change
- Flexibility in content delivery – use of online content to under-gird the operation of the school

5. Kingshurst City Technology College, Birmingham, UK

- Repository of digital objects an intelligent way of course creation: maximum flexibility
- Tailoring senior management roles to annual priorities to support implementation
- Team approach to online curriculum creation
- Teachers creating lesson sequences from digital repository, tailored to school’s LMS

6. National College for School Leadership (NCSL), Nottingham, UK

- Exemplar process and practice possible!
- Need to look carefully at the structure of any online course and tailor the blend of face-to-face, self-paced and facilitated delivery modes
- Online communities can be as effective as real communities, if the right course structures are in place
- Course structures key to success
- Blended learning a very efficient method of course delivery with motivated learners

7. Lycée l’Oiselet, Bourgoin-Jallieu, (near Grenoble), France

- Think big in any digital project
- Develop a team approach to implement and find external partners to support the implementation
- Creative structures can lead to the creation of highly creative and motivating virtual classrooms with global possibilities
- The enthusiasm and vision of an outstanding educator is pivotal to the success of online curriculum and virtual communities

8. Lycée Marie Curie d'échirolles, (Near Grenoble)

- School ethos and culture as important to student success as other factors
- Curriculum needs to be student-centred but teacher directed
- High expectation and clear student goals critical to student motivation

9. Kinnarpsskolan, Falkoping, Sweden

- The role of passionate teachers with a clear pedagogical framework and vision is key to success
- Diverse technologies can be integrated into lesson structures in a variety of ways with ease and to great effect
- Support of school leadership very important
- Pilot programs can inspire other colleagues and lead to changed pedagogical practice
- Student-centred, teacher-led curriculum delivery a key factor
- Technology not the focus of the lesson but its use is integrated with other tasks including dramatic techniques and simulation activities
- Teachers as active developers of content, working from their knowledge of curriculum rather than being passive recipients of publishing company digital modules

10. Värmdö Distans, Stockholm, Sweden

- Success all to do with student motivation
- Flexible staffing arrangements are key to the success of online or distance education
- Teachers can mix traditional class allocations while managing some distant students and courses
- Creative strategies to develop or write curriculum have great potential
- Technology doesn't have to be highly complex to be effective

11. Statens Pædagogiske Forsøgscenter (National Innovative Centre for General Education), Copenhagen, Denmark

- Independent learning should be primary goal in use of online material
- Exemplar models should be shared
- Creative approaches highly effective
- Ongoing and long term government support key to the stability and transfer of innovative programs

12. Fjölbrautaskóli Snæfellinga, Grundarfjörður, Iceland

- Expectation of success is a key factor
- A cohesive school-wide approach key to effective implementation, supported by government policy: constructivist philosophy with consistent implementation
- Flexible delivery and flexible staffing critical to implementation of a consistent pedagogical approach
- Innovation can lead to very positive educational outcomes, improved course completion and retention rates
- Online curriculum can overcome problems of distance
- Online curriculum can foster independent learning
- Online curriculum can provide a clear framework for student learning
- Belief that every student will succeed
- Flexible staffing approaches, including self managed multi-school allocations

13. Fjölbrautaskólinn Armúla, Reykjavik, Iceland

- Large scale online flexible distance education delivery possible
- Clearly defined processes needed to facilitate creation of courses
- Clearly described processes needed to implement flexible distance education
- Specific clear and strong executive leadership important to success
- Better to take risks and start than to speculate and hesitate

14. Distributed Learning - Iceland

Asrun Matthiasdottir, Reykjavik University, Iceland

- Blended learning opens up many educational options that were previously difficult to achieve
- Blended learning needs to be implemented with a clear understanding of the vision, possibilities and direction of online content
- Blended learning opens new possibilities for establishing learning communities with participants who are dispersed in various locations, widening the potential for learning
- Distributed learning as *course enhancement* can make learning less dependent upon time and location
- Close relationships between teacher and students can occur in an online environment

Arnór Guðmundsson and Gunnar Árnason, Menntamálaráðuneytið, (Ministry of Education, Science and Culture), Reykjavik, Iceland

- Risk with responsibility philosophy: 'learning any time, any place at one's own pace'
- Need leaders to foster culture of innovation, support and leadership
- Government policy pivotal to encourage the implementation of online course delivery
- Distributed learning widens the potential for learning and the modes of delivery
- Learning less dependent on time and location and can make education self-paced
- Key issues for consideration: the organisation of teaching and learning; the role of the teacher and the relationship to the school, the technology and students

15. Blended learning – Victoria, BC, Canada

- Online education has enormous potential to improve learning
- Global uptake of online approaches will only increase
- Very feasible for government backed / private providers to supplement resources available to schools engaged in online education
- Self-paced continuous entry possible
- Passionate innovators needed
- Executive school based administrative support
- Give teachers time and choice
- Those teaching online need to experience an online course
- Remember – not teaching a course, but teaching students

16. Greater Vancouver Distance Education School, Vancouver, British Columbia, Canada

- Priority for success is the development of the online community context to support learning
- Flexibility in course structures
- Teacher presence online
- Teamwork to produce content/outcomes
- Having a philosophy and vision for online learning
- Teacher involvement in all processes
- Strategies to overcome isolation of distance learners
- Change traditional paradigms
- Specific staff role to build online community

G What models should be considered?

- (i) What models exist or could exist for the delivery of online content?
- (ii) Is online content best delivered in a removed context, a blended environment or as part of a face-to-face classroom environment?

i. What models exist or could exist for the delivery of online content?

Some possible models:

Model 1: Face-to-face course enhancement

Model 2: Hybrid - Blended delivery

Model 3: Virtual Learning Environment:

Model 4: Flexible Options

Model 1: Face-to-face course enhancement

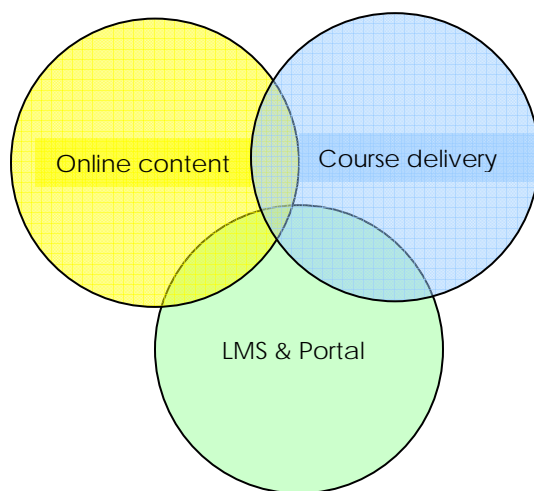
1. Face-to-face, student-centred/teacher-led with online content used within lesson and post lesson
2. Face-to-face, student-centred/teacher-led, with online content as post lesson supplement
3. Face-to-face, student-centred/teacher-led, delivered via LMS and with online content used within lesson

Under this model, learning is less dependent on time and place and allows students to self-pace to a degree, but the content management and delivery confined to one institution

Note: LMS could include LAMS

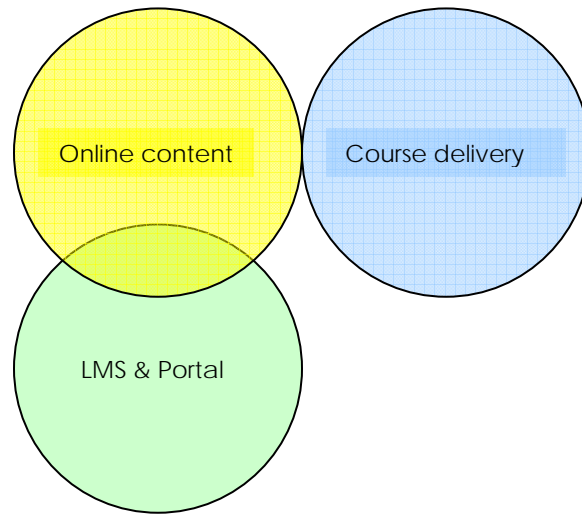
Model 1.1

Face-to-face, student-centred/teacher-led with online content used within lesson and post lesson

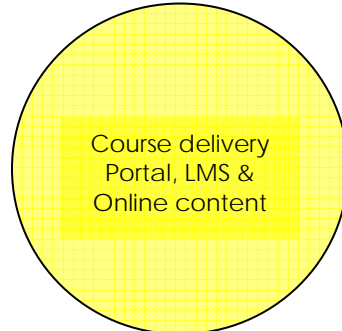


Model 1.2

Face-to-face, student-centred/teacher-led, with online content as post lesson supplement

**Model 1.3**

Face-to-face, student-centred/teacher-led via LMS, with online content used within lesson

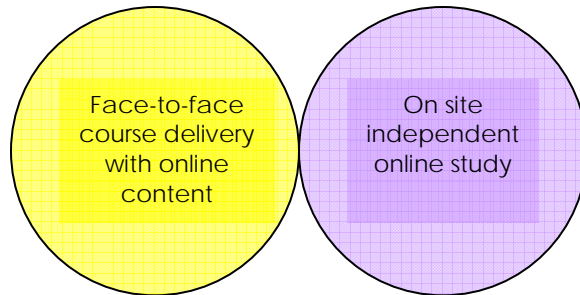
**Model 2: Hybrid - Blended delivery**

1. Some face-to-face; some on site independent study
2. Some face-to-face at reduced ratio; some tutored sessions; some on site independent study
3. Some face-to-face at reduced ratio; some tutored sessions; some off site independent study

Delivery is not necessarily restricted to one institution. More flexible use of time, timetabling and location is made. Students and teachers could be dispersed in different locations, but assumes one central location for learning and teaching.

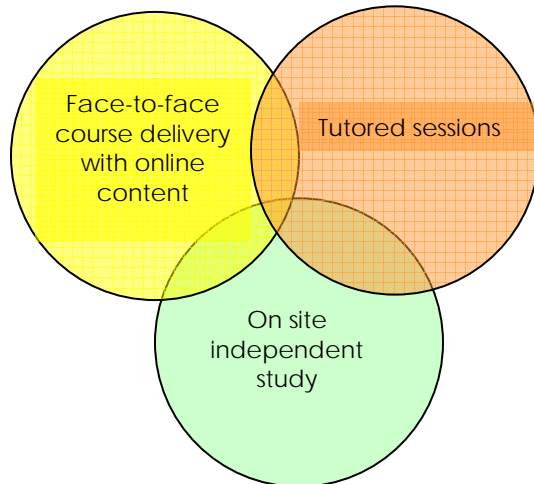
Model 2.1

Some face-to-face; some on site independent study



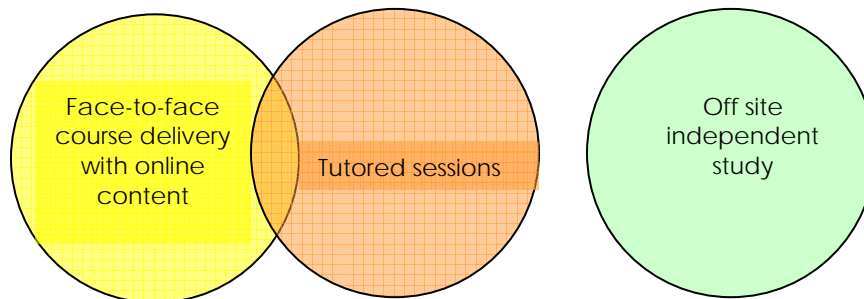
Model 2.2

Some face-to-face at reduced ratio; some tutored sessions; some on site independent study



Model 2.3

Some face-to-face at reduced ratio; some tutored sessions; some off site independent study



Some other possible variants of Model 2

- 2.4 Some face-to-face; some off site facilitated independent study
- 2.5 Some face-to-face; some off site non-facilitated independent study
- 2.6 Block of face-to-face interspersed with facilitated online distributed study, online community
- 2.7 Facilitated independent study interspersed with face-to-face days on a regular basis
- 2.8 Facilitated independent study interspersed with residential blocks

Model 3: Virtual Learning Environment:

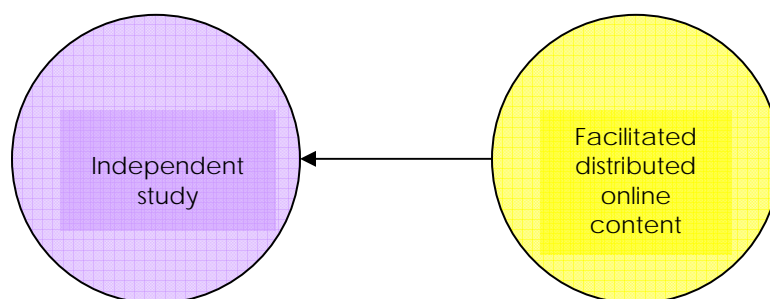
'any time, any place at one's own pace'

1. Facilitated distributed independent study via single institution
2. Facilitated distributed independent study via multiple providers
3. Self-paced distributed independent study: established timeframes
4. Self-paced distributed independent study: individual timeframes

Learning is independent of time and place and students can access the online course from dispersed locations and at different time periods. Online courses mediate the distance between teacher and student.

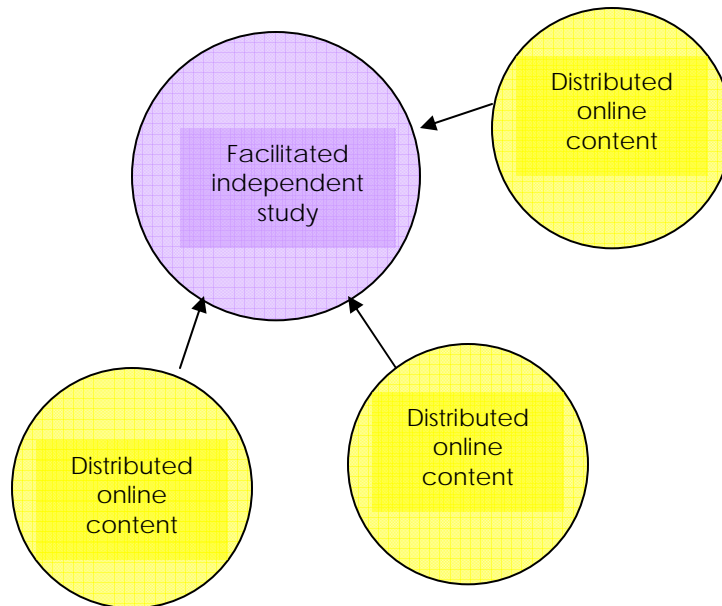
Model 3.1

Facilitated distributed independent study via single institution

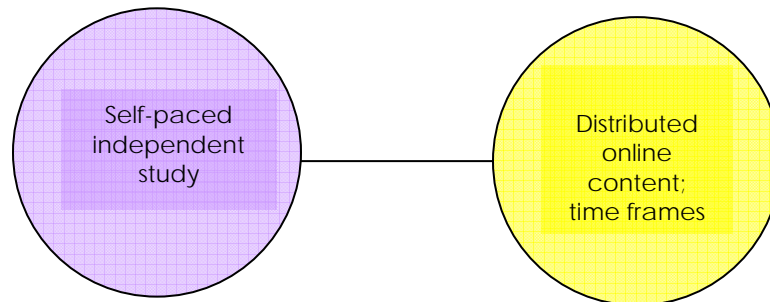


Model 3.2

Facilitated distributed independent study via multiple providers

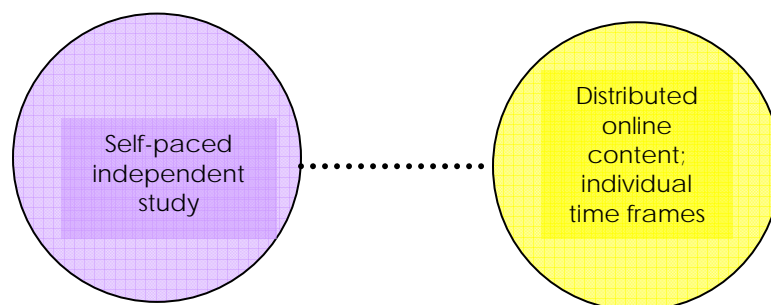
**Model 3.3**

Self-paced distributed independent study: established timeframes



Model 3.4

Self-paced distributed independent study: individual timeframes

**Model 4: Flexible Options**

Some other possible models for flexible delivery:

- (i) Self-paced short courses
- (ii) Facilitated short courses
- (iii) Blended delivery short courses
- (iv) Extra semester: summer courses
- (v) Extra semester: bridging courses
- (vi) Extra semester: extension courses
- (vii) Remedial courses
- (viii) Extension courses
- (ix) Non-award courses
- (x) Home schooling supplements
- (xi) Short courses – online
- (xii) Short courses – blended delivery
- (xiii) Online professional development courses
- (xiv) Online community courses
- (xv) Blended delivery professional development courses
- (xvi) Blended delivery community courses

ii. Is online content best delivered in a removed context, a blended environment or as part of a face-to-face classroom environment?

No one model exists as the best model because the intentions of different models are so diverse. However, a model that involves the teacher:

- as the active developer of lesson specific content and
- operating from a student-centred philosophy and
- catering for personalized and differentiated approaches

supported by:

- comprehensive web-based well developed online content,
- delivered via a student-centred portal and
- within a stable learning management system

would seem to be a highly successful model. Any online content used in this context should be in a format where it could be easily adapted to a blended delivery context or as independent modules for partial or completely distributed (distance) access.

Key factors to consider would include:

- age appropriateness
- access to hardware and related technologies
- stability of platforms and associated support structures
- access to developed curriculum content
- available staffing
- teacher accreditation in the area of online course design and delivery
- building design and classroom layout

H Staffing implications

The use of online content as a core component of learning has significant implications for staffing. It was obvious that the schools or institutions that were most successful in their use of digital material had successfully gone down a few directions:

Teaching Staff

- Enhancing the skills of the existing teaching staff through recurrent professional development
- Employing teachers with strong IT skills as opportunities arise
- Expecting that existing teaching staff can adopt different pedagogical approaches
- Expecting that existing teaching staff will adopt new technology
- Giving teaching staff choice
- Providing new management opportunities for teaching staff
- Expecting that teaching staff can produce the raw content suitable for online delivery
- Not expecting teaching staff to format raw content into the appropriate format
- Allowing additional time within allocations to develop online material for some staff
- Providing teaching staff with new avenues for short term or recurrent additional income as content writers or developers
- Providing teaching staff with new avenues for short term or recurrent additional income as course facilitators of distributed (distance) learning
- Providing stable online environments for teaching staff to use
- Providing teacher friendly digital portals and learning management systems
- Using learning management systems as a daily component of learning
- Enabling teaching staff to directly upload relevant material to a learning management system

- Adopting and promoting whole school approaches to the use of digital material and content management systems
- Providing access to commercially prepared digital materials
- Viewing teachers, not technology as pivotal in leading learning or in content delivery
- Empowering teaching staff to create new job platforms for themselves as contracted providers of distributed learning in multiple institutions
- Enabling teaching staff to create more flexible career paths for themselves
- Stripping back the role of teachers to the core and critical function of teaching, rather than administration
- Transferring responsibility for catering to differentiated learning needs from external remedial staff to classroom teachers

Non-teaching staff

- Changing the status of non-teaching staff within a school
- Using non-teaching staff in significant ways in order to advance the use of online delivery
- Creating new roles for non-teaching staff within a school context
- Opening up more career opportunities for IT graduates within the school context
- Viewing non-teaching staff as potential members of senior management within a school
- Empowering non-teaching staff as being complementary to the role of the teacher
- Creating a strong team of non-teaching staff to take over responsibility for curriculum format once content has been prepared
- Utilizing the skills of remotely located non-teaching staff – off site technicians with an ability to manage network platforms remotely
- Creating new roles for support teachers so as to enable teachers to concentrate on core function
- Transferring as much administrative or supervisory tasks from teachers to support teachers

School management

- Flexibility in management positions
- Developing a team management approach
- Developing a flexible mindset and capability within school management
- Creating new management positions
- Changing to a 'portfolio' approach with regard to management responsibilities
- Regularly changing management 'portfolios' or responsibilities to allow fresh vision to target priorities
- Including non-teaching staff in management

Job functions: some variants

Many of these functions could be provided on or off site; as permanent or contracted staff

- Software developers
- Instructional designers
- Educational consultant
- Content writers
- Technical writers: content filters
- Quality assurance against outcomes
- Developers of virtual online communities
- New Executive responsibility
- Technicians
- Technology mentors: staff for staff; students for staff
- Multimedia
- Graphic designers
- Media and marketing
- Network management
- Learning management systems hosting
- Consultants – network; stability; hosting

Effective models exist where schools:

- Have created new units of 3 to 5 people to enable the production of online curriculum within a school
- Have developed processes to handle online content creation largely through the use of existing staff
- Have redirected staffing allocations so as to develop the IT team by reducing education support staff as teachers have understood their ability to provide better differentiated learning within the classroom
- Have included IT oversight as a separate key function within senior management
- Have included coordination of distributed learning as a separate key function within senior management

Staffing and Vision

- Share the vision for the use of technology within a school
- Share the vision for the potential of online curriculum to enhance classroom learning
- Share the vision for online courses to create new career opportunities
- Share the vision for online courses to create greater flexibility in learning for students

Core skills to facilitate the creation and delivery of online content:

- Senior management responsibilities
- Content writers
- Graphic or web designers
- IT oversight: teaching and non-teaching
- Software developers and programmers

I Staff Professional Development

The use of online content as a core component of learning has significant implications for staff professional development. It was obvious that the schools or institutions that were most successful in their use of digital material had successfully gone down a few directions:

'On the shoulder' professional development

- Providing professional development 'on the shoulder' in the classroom
- Providing professional development 'on the shoulder' in the use of specific technologies
- Placing professional development as a priority within budget processes
- Providing in-house professional development teams as a permanent role within a school

School management

- Reducing or removing staff meetings to enable more time for professional development
- Shifting to performance management approaches rather than supervision models
- Developing the skills of school executive
- Developing the skills of middle leaders
- Building relevant business partnerships that enable increased professional development

Teachers as learners

- Providing access to external specialist professional development
- Enrolling staff into online courses as students
- Developing staff skills as online course writers
- Developing staff skills as online course planners
- Developing staff skills as online course facilitators and mentors
- Developing staff abilities to use software packages
- Developing staff abilities to build digital learning objects
- Providing the technology for staff for self-paced professional development
- Providing exemplar models for pedagogical change
- Providing recurrent professional development
- Staff accreditation as online course providers or quality course developers

Teachers as participants

- Staff enrolling in online courses as participants
- Staff professional development via blended learning delivery
- Staff professional development via distributed (distance) delivery
- Staff using portals as an active tool daily
- Staff joining online education communities
- Staff participating in threaded discussions, online forums or blogs
- Staff participating in virtual conferences

J Accreditation Issues

A number of issues arise when online course material is developed for use or delivery in a school or in other schools or other school systems, within or outside Australia.

- Quality assurance processes
- Accuracy of information
- Factual accuracy
- Content linked to outcomes
- Content appropriate for stage
- Independently developed courses

The standard of course content varies significantly. Where schools have established clear frameworks for the outline of any course offered through that school, the standard of course content is more consistent. Nevertheless, it is inevitable that quality assurance accreditation will need to be established for online courses, operating at a state or national level. To do this, course writers or the content itself needs to be certified via an accreditation process.

The Learning Place, developed by Education Queensland and supported by AGQTP project funding, has established an excellent template for course accreditation and quality control. In the Queensland context, teachers can develop their own courses, but the courses have restricted audiences and are not quality assured. Staff must complete one of the 'accredited developer' courses or attain 'recognition of prior learning' status in order to publish or share their course.

Accredited developer courses include:

- Writing online courses
- Planning online courses
- Mentoring online courses
- Building HOT WebQuests

These courses in themselves provide first hand experience in the area of online education. Courses can be undertaken via distributed delivery or as intensive three-day workshops.

K Authentication issues

The use of online courses as an option for flexible delivery in schools opens up the issue of authenticating student work, especially where students enrol and study for a course using distributed or distance modes.

Interestingly, concerns about validating submitted work did not surface as a key issue in the schools or institutions studied. There was a commonality of approach across schools and countries:

- There was a need for the course teacher / facilitator to quickly develop an understanding of the student.
- Teachers need to gain an understanding of student capabilities through enrolment information, previous work samples.
- Even in a totally 'distance' mode, real time conversations, online profiles and community forums can enable a good understanding of a student.
- Pre-induction meetings for course participants are very helpful in establishing awareness of student competencies.
- Regular forum contributions are useful – but with assigned dates for specific contributions e.g. produce 5 reading logs and participate on 5 online discussions by nominated dates
- Carefully framing questions can overcome the ability to use prepared generic material
e.g. 'In your opinion where could you recognize yourself in *Hamlet*?'
- Regular tests are not too effective as a method to ascertain an assessment of real competency: if possible rely more on oral assignments at the middle and later stages of assessment.
- Asynchronous structures enable flexibility in assessing student work.
- Validation of achievement can be readily determined via formal written examinations, with students located in other schools, institutions or embassies and timed for the conclusion of a course.

The key factor common across all schools seemed to be the close knowledge a teacher can have of a student's ability gained through a combination of strategies – and using this as a guide to the likelihood that specific work was completed by that student.

L Social issues

A third consideration connected to the delivery of blended or distributed courses in a non face-to-face context, is that of ensuring that students experience a positive social environment as a component of the learning process. The level of need in this respect is directly linked to the age of the student concerned. Case study schools did not view the need to provide a social context for learning as an area of concern or specific requirement. Where courses were undertaken in an entirely distributed context, the social needs of a student were met within the local environment, rather than via the course provider.

Online Communities

Online communities have the potential to be very effective and real communities. Two case studies were notable for their efforts to develop a strong sense of online community:

- National College for School Leadership (NCSL) – especially the use of pre-induction meetings to develop group community and ensure that any technical problems with the delivery of course materials are solved.
- Greater Vancouver Distance Education School (GVDES) – notably the development and on-going life of a specific online virtual school community associated with the distance learning community, through dedicated personnel.

Pre-induction meetings, developing a distinct online personality profile, online newsletters, emails, chat rooms, forums, threaded discussions, blogs and regular course updates can all be used effectively to enhance a digital learning environment. As activities are selected for use in an online course environment, the aim should be to replicate the classroom context. Routines are just as important to a virtual classroom as they are in real ones. Teachers working in the online context need to understand the parameters of the medium and that their role is still the same as in the classroom – they are employed to teach.

M Financial considerations

The use and development of courses for blended or distributed delivery creates specific budgetary and financial considerations. Different case study schools or institutions approached financial considerations in a variety of ways.

The use of online content to enhance classroom practice or as a mode of delivery in distributed contexts will affect the specific roles required in schools – and so therefore the staffing budget. A range of staffing models seemed to exist:

- Function specific staffing funded via the school's general staffing budget
- Function specific staffing funded via external income sources
- Contracted staff as needed, funded through the school's recurrent staffing budget
- Salary supplementation from local educational authorities supporting a specific project
- Staff costs covered by specific course fees
- Salary supplementation from the national authorities supporting a specific project
- Entire school established as a pilot project funded by the Government
- No specific additional staffing, but with the use of bought online materials, costed on a per student basis
- Providing staff with an avenue for additional income as online course material writers
- Providing staff with an avenue for additional income as online course facilitators, paid on a per student basis and some with an additional loading upon their students' completion of a course

Some schools created a small unit within the wider school to handle the development of courses as an in-house strategy. Generally this seemed to require a team of about 3 or 4 staff, apart from network technicians. Most schools included a person in their senior management with IT responsibilities and oversight. Some schools had managed to fund the necessary staffing through a reduction in other staffing. In the case of Brooke Weston City Technology College (BWCTC), the use of online course material had led to an improved ability by the general teaching staff to cater for differentiated learning needs within their classroom, in turn enabling the re-direction of staffing budgets from remedial education to financing the online instructional development team.

BWCTC had also created a business section, under a separate company structure, *@tain*. That company handled the development and marketing of online course content, purchasing teacher time from the college as necessary.

Some schools chose to develop online materials as an in-house activity, using the allocations of existing staff to provide for course preparation time. In most, some level of hybrid funding existed – using existing staff to facilitate their online programs, but employing additional staff or paying overtime as necessary to help create the online material. In such cases, teachers were paid on a per student basis for the number of students supervised. Värmdö Distans placed a limit on the number of supervised distance students by an otherwise fully allocated staff member at ten additional students.

A number of schools were unable to provide sufficient internal funding to enable the development of school developed course material, so looked to sourcing material externally on a fee per student basis.

The funding models viewed at:

- Värmdö Distans, Stockholm, Sweden
- Fjölbrautaskóli Snæfellinga, Grundarfjörður, Iceland
- Fjölbrautaskólinn Armúla, Reykjavik, Iceland

all used a sustainable costing formula to fund the use of online content in either classroom or distributed contexts.

Critical to budgetary parameters were:

- minimum student numbers for a course to operate
- specifying (and limiting) course preparation time i.e. budgeting 50 hours to prepare and write material for a 120 hour per annum course
- expecting teachers to update online course material as part of their on-going allocation
- funding significant course updates (new syllabus or changing format e.g. from Word to HTML)

Seeding Grants and Pilot Programs

Some schools have received funding from either Government sources or private sponsorship to initiate and/or maintain innovative projects:

- The WKTO project at Lycée l'Oiselet à Bourgoin-Jallieu, France, demonstrates that an effective web-based program can be established without significant infrastructure costs. International schools can join the program at no cost to themselves, as sufficient local funding exists to support the program. Hewlett Packard has identified Lycée l'Oiselet à Bourgoin-Jallieu as an innovative school and provides additional support for the school's ICT infrastructure.
- The French Government established Lycée Marie Curie d'échirolles as a pilot project in the 1990s.
- The local educational authority in Falköping provides recurrent funding for the *ICT in the Classroom of the Future* project for Kinnarpsskolan, Sweden, allowing the core teaching staff involved to allocate a number of days per week to providing on-going professional development activities for other schools in the region.
- Värmdö Distans, in Stockholm, Sweden, was established as a unit located in an existing school, Värmdö Gymnasium, as the Swedish Government's official provider of distance education for its nationals overseas.
- Copenhagen's Statens Pædagogiske Forsøgscenter was established in the 1960s as a result of a specific Government initiative and is dependent on recurrent support for the program.
- The Icelandic Government chose Grundarfjörður, on the Snæfellsnes peninsula as its location for a school to be established around a specific educational approach using blended and distributed course delivery modes. The architecture, staffing and IT infrastructure was all considered as an integral aspect of establishing the school.
- The Greater Vancouver Distance Education School is one of a specified number of schools accredited to provide distance education courses for the Greater Vancouver education authority.

N Online Courses: Development processes

Online courses: professional standards - accredited developer training Planning; designing; writing; implementing; evaluating		
Modes of learning Independent learning: anywhere, any place, anytime; self-paced; minimal interactions Facilitated learning: timeframes, guidance and oversight Blended learning: mixture of online and face-to-face delivery		
Delivery Option: Face-to-face course enhancement synchronous & asynchronous	Delivery Option: Blended learning synchronous & asynchronous	Delivery Option: Virtual: distributed learning synchronous or asynchronous
i. Online Course preparation Initial Course Planning Assessing the learners; content; objectives; desired outcomes; assessment framework Designing a suitable online course structure Suitability for learning management system; virtual learning objects options; flash animations Developing learning objectives that advance content to desired learning outcomes Writing course content Basic course creation; modules of content; clear outcomes Digital design layout Matching learning objectives to media using multiple strategies: individual and group interaction		
ii. Managing online courses: implementing and facilitating online courses Pre-course induction Online community development Course induction Learning options Blended delivery Personalized learning Ongoing assessment Course completion		
iii. Assessment Assessing learning Evaluating course outcomes Blended strategies: online, class based evaluation; oral assessment Validating student learning and outcomes Establishing post course options		

O Case Studies

1. Highcliffe School, Christchurch, Dorset, UK

(Conversation and consultation with Judith Potts, Head Teacher)

Highcliffe School was the first place recipient in the 2004 European Schoolnet eLearning Awards, earning first prize for 'best use of ICT in education'. Their project, 'MyHighcliffe', is a web-based system allowing students and parents access to information about their school life and academic progress.

Highcliffe has developed MyHighcliffe, which is an MSSQL, database driven, portal that can be accessed by parents, students and staff. MyHighcliffe uses data from a variety of sources: the school management software, the library software (Micro Librarian by MLS) as well as custom made reports. It is an in-house creation that is adjusted to meet the needs, as they arise, for all users.

MyHighcliffe for students and parents provides the following components:

- Attendance data, updated twice daily
- A record of merits
- An achievement log
- A record of library loans
- A list of recently accessed web pages
- Student timetable
- Email
- Activity Group List (what groups they are or have been involved in)
- A Personal Goal Page
- A link to saved items folder
- Record of achievement and a list of tasks yet to complete for the Highcliffe Challenge.
(A School developed academic achievement and encouragement program, similar to the Duke of Edinburgh Award in structure.)
- A log of web sites visited through school internet

Staff can access all of the above pages, modifying where appropriate. They also use MyHighcliffe to generate incident reports, Special Education Needs (SEN) reports and academic reports. Built into the MyHighcliffe database is a feature where emails are automatically sent when certain triggers are set off. Highcliffe School is heading towards using MyHighcliffe in the presentation of courses and content.



Highcliffe School places emphasis on the development of the whole school database, with a goal to enhance personalised learning with students in charge of the process – all aspects of school activity available from the student perspective. One key factor is that students enjoy the data and its use to inform the education and improvement processes. The portal is intended to be a student learning system, not school system for teachers. The development of the database and portal has been a vision driven process – with the goal being the 'relentless pursuit for excellence'.

The School recognises the need to tool up and focus on the learner. This needs to be done in a new way – personalised and independent learners – who need the right instruments as a means of taking responsible ownership of their learning. School will exist where learners want it to be. Students are encouraged to be positively focused and are placed in charge of the merit process – submitting data as appropriate. The database system automatically informs coordinators of merit levels. One intention of the process is to allow teachers to mentor and relate to students – their key professional skills.

Highcliffe has chosen to use ‘SmartBoards’ and plasma screens throughout the school. Highcliffe School uses a dynamic data interface - SQL Database, using an MS ASP server (R.M. Integris).

Highcliffe School specializes in a range of areas – Languages / IT / Science. Students and parents can access reports and assessment information online as continuous concept. Giving feedback is an imperative. Innovation is brought close to classroom – IT has created a real 4th dimension – a virtual dimension. Traditional paradigms have outlived their usefulness.

Senior management encourages team approaches at all stages. In this respect non-teaching staff are critical to the success of the school. There is an evident desire to change any “we can’t” mindsets to “let’s have a go”.

2. Brooke Weston City Technology College (BWCTC), Corby, UK

(Conversations and consultations with Peter Simpson, Head Teacher BWCTC, Chris Stewart, Community Director, CTC Trading and Stuart Williams, Deputy Principal, IT and Statistics, BWCTC)

Brooke Weston College is consistently one of the top five highest achieving comprehensive schools in England. It is located in Corby, a low SES area. High expectations of students are one the keys to the College’s achievements. BWCTC also has an established distance education program.

BWCTC is a City Technology College (CTC). CTCs are independent, non-fee schools. Private sponsors provided significant establishment funds and have an ongoing financial commitment. It was built in 1991 with one quarter private funding. In 1991, only ten students from all the five local high schools were successful in entering university. In 2004, BWCTC accounted for 110 university entrants out of the 185 in the area.

Their success is linked to expectation, work ethic and structure of the school day.

Data driven improvement:

The College significantly utilizes data to drive whole school improvement and staff performance. Judgements are grounded in research and predictive analysis is used.

Some notable features of BWCTC include

- A pervasive belief that ‘you will be successful’. If anything can be attributed to driving whole school improvement, it would be this underlying belief in all students.
- A sense of self worth which leads to an ethos of positive behaviour linked to academic endeavour and success.
- Change is part of the culture: the College seeks to have something ‘fresh’ every year.
- Collaboration with neighbouring schools is part of the College’s culture.

BWCTC has experimented with IT enabled independent learning, but instead had found that making IT materials to provide the core of a course – presented, managed and directed by an experienced teacher has achieved greater levels of achievement. IT has become an embedded tool to learning, where teacher mediation is still crucial.

Structures:

- Timetables structured around five eight-week terms, with a report generated at the end of each term
- The students have 32 hours face-to-face teaching time in comparison to the normal 25 hours
- There is no 'play' time. Students are scheduled to have 15 minutes for breakfast during Period 1 and 30 minutes for lunch from Period 3 on rotation.
- Student progress is formally reviewed every term.
- Year 11 students are interviewed four times per year; both teacher and student predict outcomes
- All 'risk' profile students are picked up, with the Senior Executive taking on the role of mentors; senior level interventions
- Whole school divided into academic mentoring groups
- This schedule is matched with a pastoral philosophy that places mentoring and 'parenting', rather than 'policing', as a high priority.
- Classes operate from 8:35 am until 4:05 pm; catch up periods are offered from 4.05 pm to 6.00 pm
- Core hours for teachers go from 8:30am – 5:00pm
- Learning has to be engaging as students are in rooms the whole day
- The library is open to 8pm
- The College's management system is CMIS

Teaching Staff:

- Teachers play a key role in mediating the pervasive use of online content within the classroom
- Within each subject, each term, the students decide which route they wish to take in their learning: Basic; Standard; Extended or Advanced. These four levels create a differentiated curriculum. It is this choice that puts the students in the centre of the institution. BWCTC allows students to make aspirational choices, in terms of subject level.
- There are no staff rooms and very few staff have an office. Students, not teachers have home rooms; teachers are the ones moving around the campus
- Staff use laptops on a wireless network
- Staff work to an 80% face-to-face allocation and BWCTC has its own salary scales
- The age profile of the college is relatively young – average age around 35
- With no recess or lunch breaks, there are no supervision duties

Executive Management:

There are four Deputy Principals. Their allocated roles change annually, matching college priorities. Currently their job definitions are divided into:

1. Research and Development
2. Student Care
3. Organisation and Management
4. Data and Performance analysis (student and staff)

Business Enterprise:

The school has a subsidiary company - *@tain* - that provides the school with publications, manages the facilities and the renting of these to community groups, as well as selling online course materials to other schools. *@tain* is run as a separate business to the college and pays the college for the use of its facilities.

@tain provides digital content with support materials to be used in schools in a structured way by teachers. *@tain* has sold materials to over 140 schools. The cost for a fully developed two year course is £6000 per subject. As a developer of online materials, *@tain* contracts the time (either college or personal) of teachers to write materials and then has a team to format and market the content:

- business manager
- web developer
- programmer/graphic artist
- writer

The IT staff at BWCTC are available to the College's business arm:

- IT systems manager
- web manager
- Head of ICT faculty
- 2 technicians
- software developer

BWCTC use online course material as a support to the classroom teacher. IT has become an embedded tool to learning, where teacher mediation is still crucial. The College is providing an intranet that has course content for ICT subjects and most 6th Form subjects.

With its emphasis on differentiation at the classroom level, with all teachers catering for the differentiated needs of students in their classes, BWCTC made the decision to reduce the number of education support staff. Ironically the school's achievement levels have risen. This is seen as a correlation with the ownership of all students and their needs by the teaching staff. The ability of the teachers to differentiate is leading to significant improvement in lower ability results; attributed to consistency of programming and implementation because of online programming and course preparation.

Online Courses

Online courses are marketed as complete courses in a range of subjects – increasing per year.

- £3000 p.a. x 2 years
- Complete package resource
- Portfolio based
- BWCTC operates a 'help line' for those schools using their curriculum packages
- Course cost includes four training sessions
- @tain generates a profit for the school

Online curriculum development processes

- Initiated by Deputy Principal or Business Manager
- Teaching staff are content authors
- Web developer creates suitable format (including Flash animations); supported by graphic artist
- The Head of IT formats and finalizes
- Quality assurance process – Including checking against outcomes and syllabus
- Marketing/Sales
- License as against a subscription
- Took 4 staff an 18 month period to create one complete course
- BWCTC happy to have a gradual process implementing online materials for all courses and subjects

School IT Infrastructure

- Cisco switches and hubs
- HP printers / Dell machines
- CMIS is used as the school management software
- Bodington, from Leeds University, open source course structure
- Janus – creates a data file of attendance from the swipe cards which is then imported into CMIS
- Hot Potatoes

3. Kings International College, Camberley, Greater London, UK

(Conversation and consultation with Andrew Davies, Head Teacher)

Kings International College (KIC) is a member of the Kingshurst Federation of schools - privatized government schools in the first UK privately managed federation. These schools work collaboratively via the *DigitalBrain* learning portal. Students are able to access learning modules via individual learning or course portals. KIC is in a lower SES area. It is jointly run by a private business and the government.

Previously it had poor results in national testing and a very high proportion of staff turnover. There have been four principals in the past three years.

The day is structured into four teaching periods with staggered brunch and lunch breaks. There is also a fifty minute activity time, in which there is an assembly, an activity or a tutor group.

The school is in an initial phase of integrating IT learning resources into the classroom. Learning modules have been provided from two sources - *DigitalBrain* and Thomas Telford School. *DigitalBrain* is an infrastructure that provides a framework for the College's Intranet, where information about the College exists and where faculties can upload information. It provides access to web mail for the students and they can access their personal files via the web and commercially developed Science courses. Teachers of Science are using this as a digital textbook, dipping in and out.

Kings International College expands its available resources via buying the necessary online materials. Thomas Telford is a school that sells access to digital content, designed to be used by teachers and students. Though developed to be taught in conjunction with a class environment, the digital content is detailed enough to be used by a motivated student, with minimal teacher guidance. Thomas Telford charges £80 per student for use of their service. Most rooms in the school have smart-boards, digital projector and attached desktop computer.

College Management

- The college has seven Assistant Principals, each with a 40-50% teaching load.
- There are additional allowance points for range of coordinators
- One IT technician only
- One teacher/Assistant Principal who is in charge of the intranet



Key Factors

- The availability of external courses: used as a stepping stone to creating own on-line material.
- Students are familiar with the general directions of the college – convey vision to them and get ownership
- There is immense value in the use of completed on-line curriculum provided that material is in a simple, stable format with links
- The stability of the IT platform is crucial to the effective use of digital content

4. Kemnal Technology College, Sidcup, London, UK

(Conversation and consultation with Vivienne Hughes, Vice Principal)

Kemnal Technology College is a comprehensive boys school, currently capped at 1200. Kemnal is a Department for Education and Skills (DfES) designated "Leading Edge" school.

In 1990, 7% of the students were achieving an A*-C, whereas student results are now well above the national average for boys and their 60% of students achieving five A*-C passes at GCSE, is not only well

above the national average but makes Kemnal one of the most improved schools in the country. This dramatic turn-around has been achieved by focusing on the teaching and learning that occurs and by focusing on the individual needs of students. Interventions are created for individuals, or groups of students. Kemnal Technology College serves as a national training facility in the use of the Macquarie University produced learning activity management system, LAMS. LAMS is a software tool developed to improve cognitive skills.

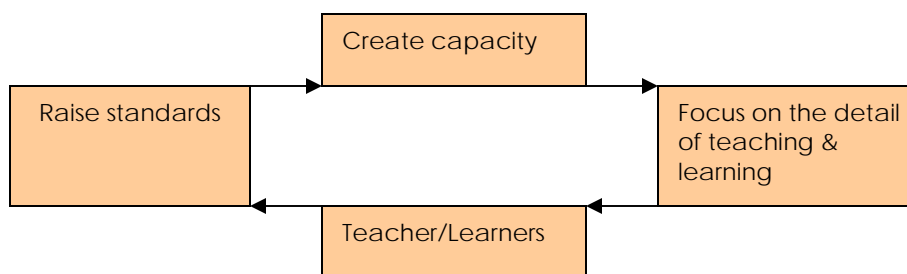
Circumstance and teacher availability has meant that Kemnal Technology College looks to creative and sustainable ways to cover all classes. To achieve that, many non-essential tasks are removed, so that they can focus on teaching and learning. Interventions are commonplace for individuals or groups of students.

In focusing on the teaching and learning, non-core responsibilities have been re-assigned to non-teaching assistants. Paid assistants take responsibility for playground duties, cover for sick teachers as well as providing cover for staff at home in domestic emergencies. Staff attend very few meetings, so as to allow for after school intervention classes. Assistants have also been used in classes where teacher shortages exist – one trained teacher taking a double class, with the help of three non-teaching assistants. This strategy has been useful in areas where the school has been unable to find subject experts to teach a class.

Kemnal conducts data based performance management on both their staff and students. It is this regular data gathering that informs the individual intervention and reviews.

Key factors

- Raising standards through transformation
- Teachers are the school's most valuable resource, so therefore need to improve the teaching/learning process while at the same time reducing teacher workload
- Remove tasks
- Annual renewal process: new programs for start of year
- Focus on specific detail then standards rise
- Interventions process – global
- Technology has major role in creating capacity
- Staff in teams providing multiple lessons in collaborative process
- Technology actively used to raise standards
- Database – point of entry data creation (CMIS)
- 24/7 Reporting to Parents
- Key Stage Coordinators in high profile roles
- Cover teacher at less cost including Lifestyle Managers
- Financing: Lease money and then use it to create money on the short term money market for equipment purchase
- Performance management ongoing process
- No staff meetings - rather on-going consultation
- Parental consultation meetings - entirely within school hours
- Data driven process: use of baseline data to track performance of students and staff
- Individual academic interventions monitored daily on Excel
- Whole grade timetables collapsed if necessary for whole grade interventions
- Targets created: short-term program for the end user – student
- No staff in-services – professional development comes to the teachers
- Subjects delivered in modules – content becomes clearer to students
- Improvement is all about creating capacity, getting into the detail and raising standards
- Positive performance management (Staff and Students) is the glue that holds it all together
- Give teachers the tools they need
- Pervasive use of written Literacy → Signage in rooms (words, reminders)



Virtual learning Environment – Easylink as Portal

The school uses CMIS as their data management software. CMIS is used for:

- Attendance
- Incident reports
- Academic reports
- Parents can log in to see data
- Homework listing
- Link to the VLE (Visual Learning Objects)

The IT team consists of:

- one network manager
- one head of e-learning
- three data management staff

In 2002 all classrooms were fitted with an *Activboard* with a desktop computer, digital projector and live internet links. All lessons (including periods to be covered for absences) are saved on a common drive, so that all teachers can access them from any classroom.

5. Kingshurst City Technology College, Birmingham, UK

(Conversations and consultations with Alison Ward, Assistant Principal and Richard Parker, Multimedia Development)

Kingshurst is a member school of the 3Es Federation – one of the first private/public education partnerships. Kingshurst City Technology College uses DigitalBrain to manage their e-learning portal 'Kingshurst Knowledge Web'. Kingshurst CTC is in a low SES with a student population of 1400 students.

Management structure

The College has adopted a flat management structure, with seven Deputy Principals and five Senior Tutors. Approximately twelve other staff take on college wide responsibilities, which come with a performance based honorarium, at the end of the year. This bonus ranges from £500 - £5000, the rate determined by the Management Team.

- No faculty heads – all staff with responsibility
- Communication – reliance on emails
- Each department has produced its own development plan and vision:

Key factors

- Database development: data used to inform quality and standards
- Staff who produce online course material earn credits that can be used to get software for their faculty
- Testing used to predict target area of weakness
- Kingshurst Achievement Award
- Differentiation aim – all staff
- Twilight training – Monday meetings for PD
- 20 Non-executive roles annually distributed earning honorarium (performance related) £500 – £5000

- One person per subject is developing and leading online content development.
- Repository of IT 'lesson blocks' per subject that can be sequenced into a program – used collectively or marketed separately.

Kingshurst has a large team of IT staff : Five computer technicians, one audio visual technician

Some IT funding comes from the College's status as a Teacher Training college. In this capacity, the College works with universities providing demonstration lessons in a purpose built classroom or in the placement of multiple student teachers.

The 'demonstration' classroom has an observation room, screened via the use of one-way glass. The classroom is fitted with 15 microphones and 4 video cameras that can be moved remotely. The intention is that the student teachers can view the one lesson, with an ability to discuss it as it is happening. Video footage of the lessons is then used for further analysis.

The College uses DigitalBrain as its intranet backbone. While faculty use of DigitalBrain is not completely consistent, the incentive of faculty based digital credits exist, which a faculty can use for the purchasing of software. The College has smart-boards in about a quarter of its classrooms.

Kingshurst CTC established 3E's Enterprises in 1990 as a commercial arm to the school. Among other areas of development, 3E's Enterprises has created commercial online Science courses, now being used in about two hundred other schools or colleges. The web pages utilize highly motivating flash animations, well supported by lessons plans and other supporting document. The Development Team consists of four multimedia developers, one with an education background.

3E's Enterprises is in the process of deconstructing these courses and repackaging the content in an application named *Click Science*. *Click Science* will allow schools to package the science content (Digital Learning Objects) into a sequence that suits their individual needs. 3E's Enterprises hopes to expand this into other subject areas.

6. National College for School Leadership (NCSL), Nottingham, UK

(Conversation and consultation with Geoff Lee, E-Learning Facilitator, and Matthew Ball, E-Learning Specialist, Online Learning)

The National College for School Leadership (NCSL) was established by the Blair Government to provide career-long learning and development opportunities for the teaching profession. The NCSL was established for over 400 000 teachers working in schools in England, Scotland and Wales, providing professional and practical support for existing and aspiring school leaders. Its goal is to ensure that school leaders have the skills, recognition, capacity and ambition to transform the school education system into the best in the world. It has the task of accrediting approximately 25,000 School Principals and providing professional development and training courses to 250,000 middle managers. To do so, the NCSL uses blended learning methodologies distributed to the points of learning.

There are currently 18,000 teachers participating in courses for aspiring Principals, current Principals and Bursars. To date there have been over 60,000 course participants. The NCSL is currently offering six courses. Courses consist of blended learning. When enrolled participants are engaged in a pre-online activity. Participants then meet together for a few days at the NCSL to create genuine relationships and to assist with technical difficulties. The participants then work on online projects, with extensive use of forums and digital work groups. At the conclusion of a course, participants reconvene to conclude the course and to celebrate the completion.

The NCSL Virtual Learning Environment (VLE) is called Talk To Learn. It uses *Docent* as its Learning Management System and *Sum Total* in the back end. Participants can select a digital persona or actual photo of themselves that then appears next to all contributions they make. Courses are written by NCSL

who then contract British Telecom or the BBC to design the interactivity and presentation of the digital content. Content is significantly chunked down, with text kept to around 300 words per section.

The scope of the online courses offered through the NCSL, together with the sheer size of their target group for training is inspiring. The virtual environment is outstanding. NCSL support teams are very knowledgeable in understanding effective ways to deliver online modules. The strength of the NCSL blended delivery course structures lies in the consistency of format and established and clearly successful delivery modes.

NCSL creates online communities via specific strategies:

- Pre-induction group meeting
- Blended learning
- Face-to-face modules
- Help desk facility
- Some learning sequences are scenario based
- Using self-paced online modules and online assessment

Online content utilizes: Flash/HTML/Shockwave

Online course development a team approach:

- Writers
- Designers
- BT and ISP hosts

Courses have standardized presentation:

- Title
- Course code
- Course Description
- Prerequisites
- Course type
- Units

Courses delivered by established presentation formula:

- Pre-Induction meeting
- Pre-residential session
- Residential sessions
- Feedback
- Planning for action
- Where to next

Pre online course meetings:

- To meet participants
- Pre-online activities
- Resolve any connectivity problems
- Group meetings where all course participants come together – pastoral component

Course organisation:

- Online self-directed modules written as *completion* modules rather than pass or fail
- Courses include a real time presentation
- Carefully constructed modules: 250-300 words (max)
- Forum discussions used (Fronter)
- Hosted hot seats
- Unhosted hot seats
- At all times a summary of:
 1. Online learning activities and progress
 2. History/overview/scope and sequence

Course administration system – to launch units and then track:

- Progression
- Completion

Use of:

- VARK Questionnaire
- Hemisphere Dominance Tests

7. Lycée l'Oiselet à Bourgoin-Jallieu, (near Grenoble), France

(Conversation and consultation with Bernard Garcin, Professeur de Marketing Management, Mary Vernet, WKTO project)

The WKTO (Working Together) project was established by Bernard Garcin, Professeur de Marketing Management at Lycée l'Oiselet to assist in the development of the acquisition of a second language. Lycée l'Oiselet is a state secondary school catering for 15 to 20 year olds. The school has both day pupils and boarders. The school has 1700 students and 160 staff. There are 400 computers on campus in three distinct networks with internet access. WKTO is modelled on successful business collaborations – team based, involving multi-disciplinary projects, often created through global networks and leading to a joint report at the conclusion of the project.

Lycée l'Oiselet initiated and manages the WKTO Digital Workspaces project, an international collaborative mobile learning project now involving in excess of 1200 students. Participating students are drawn from 30 schools in 20 countries: Belgium, Brazil, Czech Republic, Denmark, Finland, France, Germany, Greece, Italy, Japan, Lithuania, Mexico, Norway, Poland, Portugal, Romania, Russia, Slovakia, Singapore, Spain, Sweden and USA. At Lycée l'Oiselet, 10 classes, (260 students), take part every fortnight in the WKTO project. Chosen languages are either English, German, Italian or Spanish. The students are supervised by 45 teachers from around the globe and are divided into 100 virtual classes. The Project seeks to research whether the digital workspaces, with aligned virtual classrooms, will allow teachers to teach differently and to improve their work quality and to organize new activities.

The WKTO (Working Together) project was established to assist in the development of the acquisition of a second language, through the linking of students from schools around the world, who are both learning the same second language. The project is generally used asynchronously. Students within a class are split into virtual classes with other students from participating countries. These virtual classes have 6–10 students in them, contributing in the common language to a shared survey based project. Participating schools have reported that the standard of work presented and the acquisition of another language have both improved significantly. Teachers supervise and moderate the projects.



WKTO uses the French based Cartable Electronique (Electronic Schoolbag) as the platform for project access. It doesn't require a high-speed connection and the second version of the software allows for an English language selector, overcoming language barriers. As a result of considered construction, WKTO projects promote improved work habits and a higher level of engagement.

Projects operate around an established formula, fine-tuned through practice:

- Teachers introduce a common Good Conduct Charter
- Students have an induction session with digital workspaces and submit a test entry
- Students introduce themselves in a short text
- Students commence collaborative project
- Project presentation
- Project conclusion

The WKTO website has received significant awards:

- First prize in Nets d'Or@l'Ecole
- Swedish National Agency for School Improvement awarded the Multilingual award and is a Netd@ys labeled project, European Commission, Brussels.

8. Lycée Marie Curie d'échirolles, (near Grenoble) France

(Conversation and consultation with Mostefa Nasra, Proviseur)

The high school of Marie Curie was created in 1990. It was considered from the outset as experimental in ICT and pedagogy. 12 million French francs were invested by the region at the outset of the project and 3 million francs reinvested to the update. With exceptional funding for such a project, the pilot project has evolved from the experimental stages. The school has a very strong academic reputation in the region, with a success rate of 80% in the Baccaalaureate.

The *projet de l'établissement* is not the centre of new technology but rather a tool towards achieving new pedagogical objectives. The process of innovation is to an extent left to individuals and faculties to experiment with the availability of technology within their subject area. At all stages, whilst a student-centred approach is adopted, classes are very much teacher directed.

Students and teachers utilize the extensive IT framework that surrounds all aspects of the physical layout:

- Multiple computers
- Multiple computer equipped classrooms
- Multimedia language laboratory
- Audio-visual studios



The school has an intranet used for online content and instruction. The uptake of ICT in the classroom context has been left to follow a natural path – following the competencies and interests of the staff. Research at Lycée Marie Curie suggests that IT enhancement of course delivery benefits two types of students:

- The engaged students who are competent even without IT access
- The less able students who would normally lack motivation

9. Kinnarpsskolan, Falkoping, Sweden: ICT in the Classroom of the Future

(Conversation and consultation with Johan Lindwert and Fredrik Gustavsson, Project Leaders, ICT in the Classroom of the Future)

Johan Lindwert and Fredrik Gustavsson of Kinnarpsskolan, Falkoping, Sweden, with the assistance of some recurrent funding from their local education authority, have created an exemplar program to assist teachers worldwide to become the active designers of tailor-made ICT enhanced curriculum delivery, rather than the passive recipients of resources from commercial sources. The purpose of their work is to encourage other teachers to use ICT as a natural tool in teaching. The result is an innovative project entitled *ICT in the Classroom of the Future* – created to encourage staff to actively embrace the use of technology, distributed to the point of learning.

***ICT in the Classroom of the Future* seeks to use new and existing technologies:**

- Desktop computers
- Laptops
- Data projectors
- Screens
- Video tuner (although these could be replaced by digital TV cards)
- Streamed news broadcasts
- Wireless keyboard and mouse
- Surround sound amplification with 6 speakers
- PowerPoint as shareware – interactive writing tool
- Encarta
- Use of direct modelled writing
- Immediate copy/save to teacher or class homepage
- Tablet PCs and screens (instead of interactive whiteboard)
- Student Net Op, allowing student work to be displayed to mainstream

Using these tools, Johan Lindwert and Fredrik Gustavsson have created a series of cross-curricula lesson presentations that combine drama, audio, video footage, images, maps, music (internet based veteran recordings) and web-links to engage students in learning via the use of highly dramatic and interactive pedagogy, together with easily managed technology. Existing websites such as www.bbc.co.uk provide a wealth of resources that can be readily incorporated into a range of learning areas.



Teachers maintain the direction of the curriculum, while students are engaged in active learning, with an obvious focus on literacy. Presentations easily provide for individual preferences in a range of modes: visual, auditory, kinesthetic and technological, relevant to a range of learning styles. Teachers who seek to cater for *multiple intelligences* in preparing and presenting learning experiences would also find the *ICT in the Classroom of the Future* project an encouragement, especially in terms of creating an easily sustained methodology that incorporates new technologies into the ordinary classroom environment.

Johan Lindwert and Fredrik Gustavsson have created simulations and experiences to which the students can respond. They see these tools, plus the video recorder, as a means to bringing the world to the

classroom. Other software used in the project includes Microsoft Encarta Premium Suite, Audacity (for audio editing) and Student Net Op.

Lindwert and Gustavsson's real contribution lies in the simplicity of presentation. *ICT in the Classroom of the Future* doesn't require more expensive technology such as smart-boards or plasma screens. By paying attention to the details of classroom layout and a well-positioned computer for teacher use during a lesson, Lindwert and Gustavsson believe that the same can be achieved with reduced expense. Wireless keyboards operating in conjunction with a PowerPoint text box, projected on to a large screen, can create a medium for student contribution that immediately strengthens literacy skills and fosters a desire for spelling and grammatical competency.

Lindwert and Gustavsson are keen to see a repository for what they have labelled, 'Smart Overheads' - simple PowerPoint presentations with imbedded images that teachers can share with other teachers. Also, they have looked to the development of a repository of MP3 files that could be downloaded for students who have special needs in reading. Looking to the future, such files, together with other related presentations could be downloaded to student mobile phones.

The strength of the ICT project at Kinnarpsskolan was the exemplary use of seamlessly integrated technology and a very well-considered pedagogy to support the practical interpretation. Both Fredrik Gustavsson and Johan Lindwert present as passionate educators who fully understand their professional craft and objective, delivering professional development of an outstanding nature. *ICT in the Classroom of the Future* has relevance across international education contexts, as well as providing a workable template for the ordinary classroom to incorporate online curriculum in new, powerful and engaging ways. The key to further incorporation of ICT in the classroom is to facilitate the use of diverse technologies as a natural tool, where the teacher becomes both the active role model and motivator for improved learning.

10. Värmdö Distans, Stockholm, Sweden

(Conversation and consultation with Åke Lindgren, Distanschef and Ville Sjogren, Coordinator, Värmdö Distans)

Värmdö Distans is part of Värmdö Gymnasium, an upper secondary school in Stockholm. Värmdö Distans provides online distance education to students located in at least 22 countries around the world, under the auspices of the Swedish National Agency for Education. E-Learning at Värmdö Distans is in most respects like studying at Värmdö Gymnasium - the courses, books, and the teachers are the same. The main difference is that all communication is through digital means: web-based multimedia modules and email, rather than direct classroom contact.

Värmdö Distans is staffed by a combination of fulltime permanent staff, supplemented by teaching staff from Värmdö Gymnasium, who have a component of distance students as part of their allocation. Some staff take on supervision of distance students on a paid overtime basis.

Key Strategies

- Good course material and preparation
- Immediate feedback – within 24 hours
- Regular assessments – net trial examinations
- The aim to make distance teaching look the same as for face-to-face classes
- Timetabled structure
- Pastoral: Students assigned to 'tutor' who has mentor-like focus, not to teach or assess (20 students to 1 mentor)
- Student failure derived from: Social/family issues; Lack of friendship base; Immaturity; Lack of independent study skills
- Parent information is also important and parent information on child
- Good formula is to have motivated students and interested parents

- Pre-course discussion/induction important (harder in a significantly 'distant' context)
- Success all to do with student motivation – clear indications usually within 1-2 months
- Younger students: use instructive films/CDs and paper-based course material to support
- Use voicemail to support interaction between student/teacher
- Use of marking rubrics and speaking/reading tasks
- Track the number of forum contributions
- Programming using 'Guide and Tips' <www.guideandtips.nu/support/portal/default.tools.asp>

Course Development

- To create new courses: additional payment for a 100pt course (1 year 2 unit course equivalent)
 - o 100 pt = 4 hours X 34 weeks
- Takes 50 hours to develop course.
- Paid at 150 Swedish Krona
 - o Minor refinements part of ordinary teacher workload
 - o If major revision, e.g. Word to html/ revision of material, then additional payment
 - o So, in 100 pt course each student is costed at 10 hours of teaching per 34 weeks.
 - o Teachers should spend 10 hours of teaching time per student to be effective
 - o Therefore, 100 hours = 10 students of 34 weeks teaching.

Teacher Workload

Teaching all subjects to specific formulae – teachers need to spend 1761 hours per year teaching: need 45 hours per week to complete hours in a working year of which:

- o 10 hours preparation
- o 35 hours school teaching

Example workload for one teacher:

Unit	Subject	Students
100	English A	25
100	English B	20
100	English C	5
50	Business English	4
100	Project Work (Independent research work)	8
100	German Step 1	5
100	German Step 2	3
100	German Step 3	2
100	German Step 4	3

71 x 100 hour students)

4 x 50 hour students) translates to 73 (equivalent)

Teaching time in this example load would be 73 x 10 hours per year = 730 hours per year

The average face-to-face teaching time in Sweden is 504 hours of actual time per year – the rest of the 1761 hours is taken up with conferences, meetings, study days (including 13 full days at courses) plus normal preparation time.

Course material (online):

- Written explanation
- Embedded video
- Embedded audio
- Links to web
- Links to document
- Reference to texts
- Reference to grammar texts
- Links to sample assignments
- Some self-marked assessments and assignments

Variation and combination of skills important:

- Coherent structure
- Experience in writing online materials
- Simplicity
- Variety

Student feedback important:

- Student Journal
- 5 reading logs
- Participate in 5 discussions (spread)
- Written assignment

Student forums – aim to replicate the class room

Important:

- Routine/routines
- Teachers understanding parameters
- Teachers employed to teach

11. Statens Pædagogiske Forsøgscenter (SPF)**(National Innovative Centre for General Education), Copenhagen, Denmark**

(Conversation and consultation with Poul Erik Christoffersen, Leader of the *Youth Town* and Director of SPF)

The National Innovative Centre for General Education (SPF) is a state demonstration/experimental school that develops new strategies and programs, testing the methods and passing on the results to the Danish education system. The initial concept for SPF originated in the 1960s, when the compulsory age of schooling was increased beyond Year 7. The school was to develop, trial, evaluate and circulate pedagogical approaches to support extended compulsory schooling.

The school is a "folkeskole" (Danish comprehensive school) given the task of developing innovative educational ideas. SPF is engaged in theories on multiple intelligences, modern brain research, learning principles and ways of perception. As a separate enterprise, SPF hosts *Youth Town* where courses for 8th to 10th year pupils are held. The *Youth Town* has around 25,000 visitors a year – consisting of pupils and teachers from different municipalities attending one- or two- day courses. Students from upper secondary and students from Danish teacher training colleges also take courses here.

The school component of the National Innovative Centre for General Education is for Years 8 to 10 only, with 48 students per year – 144 maximum.

SPF operates as a selective school, with a quota of students from prescribed ranges:

- All intellectual levels
- Behavioural spectrum
- Mixed gender

Teachers

- Exemplar teachers
- Expected to do more/paid more
- Teachers in SPF are expected to create their own unique mix of pedagogical development

The school has two classes for each of Years 8, 9 and 10. There is a clear focus on verbal literacy, small group work and the use of IT skills and web-based work. The open plan Resource Centre is at the heart of the school's philosophy and operation, providing spaces for independent study and also adjacent to an

easily accessed and open plan staff work area. There are no physical barriers shielding staff areas from students. Student work is regularly presented to parents, by the students, in the form of a presentation or as web-based documents.

SPF is supported by the *Youth Town* project on the same site –

Youth Town provides 1 or 2 day courses for students from across Denmark in multiple areas:

- o Career related e.g. bank/army
- o Life skills related e.g. conflict resolution and mediation
- o Employment related e.g. business skills
- o Problem solving related e.g. international relations
- o Spiritually related e.g. church

The *Youth Town* and School are independent yet closely linked. Students from all over Denmark attend *Youth Town* with their teachers for one or two day seminars hosted and led by one of the *Youth Town* business or community partners e.g. the Post Office, the Ministry of Defence, a local bank, a church etc. The seminars are run by educators from the businesses or government agencies. The seminar focus is on career options within that industry as well as educating the visitors about related topics, e.g. the economy, role of peacekeepers. The business sponsors maintain building infrastructure. The school provides educational support for the business and government agencies, as well as staffing one specific course on peer mediation, anti-harassment and conflict resolution skills for adolescents.

The National Innovative Centre for General Education and *Youth Town* project are as the title suggests, very innovative and interactive, providing an excellent resource and service to the Danish Education system and a model well worth emulating elsewhere.

12. Fjölbrautaskóli Snæfellinga, Grundarfjörður, Iceland

(Conversation and consultation with Guðbjörg Aðalbergisdóttir, Principal, Fjölbrautaskóli Snæfellinga)

Fjölbrautaskóli Snæfellinga is a new school in a small fishing village located on the Snæfellsnes peninsula, a couple of hours north of Reykjavik. As a school catering for upper secondary, Fjölbrautaskóli Snæfellinga, offers a diverse choice of studies in a small rural school environment, with the potential to draw from national and global learning resources. It commenced operation in September 2004 as a result of a Government decision to initiate and develop a cohesive educational institution based around distributed learning pedagogy somewhere in the country.

Fjölbrautaskóli Snæfellinga has 120 full time students and 20 part time students (some adults). The school has only two traditional classrooms – for science and art. All other classes are conducted simultaneously in one open area, with only marginal physical separation provided by the use of non-continuous partitions. In this room there can be as many as eight classes being conducted at the time.



Individual learning needs are met using teaching methods drawn from a range of educational theories and pedagogical approaches, although largely associated with social constructivism and distributed

learning. There is a strong emphasis on student-focused and individual independent learning, using ICT and all coursework is delivered in conjunction with a school-wide content management system. To a degree, students self pace. Accelerated courses available – students can opt to complete courses in three years, rather than four and the approach to school timetabling has to cater for continual flexibility. All work is completed at school – no homework.

Within the vision for the school there is a primary goal to create a new learning environment that meets the learning needs of all students in the region. The new building for this new upper secondary school has been designed to create a supportive and flexible physical learning environment. The architectural design followed the educational concepts, matching the delivery of courses with a largely open plan approach, as well as multiple areas for self-paced and independent distributed learning coursework. Contracted architect, Susan Strebing, summed up the design as 'a meeting place to learn'.

The school engages in nontraditional models for learning and delivery. A diverse curriculum has been developed to meet the choices and needs of traditional students, 16-20 years of age, as well as a returning adult cohort who may not have previously completed their studies to this level. A distributed approach affords support for individual learning. Students are responsible for their own unique learning agenda.

Fjölbrautaskóli Snæfellinga has a wireless network, with over 90% of the students using their own computer. All courses have content available online. This content is managed within a content management system (Angel - Mind Process Technologies).

Subjects have four hours of course time allocated each week and teachers would conduct compulsory face-to-face classes for 50% of this time, enhanced by the use of online content. Students then have the option of either attending subject tutorials or choosing to work independently on site for the remaining scheduled class time per week in that subject.

Students have a combination of face-to-face classes and project classes. In these times the students work independently, though they may use the teacher as a resource, to complete a major project as part of each course. The aim of these projects is for the students to develop independence, application to task and some real life skills.

The work of the teaching staff is varied:

- Teaching assigned classes
- Preparing course material in an appropriate format for the content management system
- Supervising the progress of a core group
- Meeting with students in relation to their projects
- Assessing student work

Teachers teach 50% face-to-face per week, with 24 teaching periods (of 40 minutes) plus providing subject tutorials, assessment feedback and content preparation. Teachers are also assigned a Home Room class. Home Room teachers check the INNA (database) summary once per week before Home Room period. There are no formal regular teacher meetings. Some teachers have moved into flexible staffing approaches and construct workloads out of multiple schools and self managed time within each.

Fjölbrautaskóli Snæfellinga does not attempt to offer all subjects on site and many students take some subjects via a blended distance education model (distributed learning.) Under this model, students are enrolled in courses offered through schools located removed from the region. Students enrolled in distributed courses work independently on site.

Two to four times per semester, the school's normal timetable is de-constructed for a day and the external teachers responsible for course delivery attend Fjölbrautaskóli Snæfellinga for intensive one-day workshops with their external students (typically between 2-5 hours each time per subject). All other communication in the blended course delivery occurs via the content management system (Angel), email or video conferencing. The students who are studying a subject in this way also have an onsite mentor to monitor progress.

Students attend for 4 hours per week per course offered. Most students are motivated by the system and want to move through their courses at a faster pace. Each student is placed in a mentor group of 12 students and mentor teachers monitor progress, contact parents or a counsellor. One teacher works as mentor for problematic students who are all placed in one group.

Project Classes

All students work on research projects: 6 X 60 minutes independent work per week; 36 – 40 weeks per year
The intention of the project classes is to:

- Train students into problem solving for the contemporary context
- Teach students to 'do' rather than 'listen'
- Teach team approaches
- Train to independence and ownership of responsibility

System considerations

Four schools operate in a collective agreement with Mind Process Technologies, the provider of the content management system, ANGEL. This brings cost benefits. It currently costs 400 Krona (Icelandic) per student per semester. ANGEL is managed off site and powered by MindClick. As a content management system it uses:

- Learning Objects
- Forums
- Chat Rooms
- Email
- Short answer quizzes
- Continuous curriculum

Fjölbrautaskóli Snæfellinga uses INNA (Oracle) database, providing administrative support to timetabling; continuous assessment information for students and parents, as well as reports for parents two or three times per semester - until the student turns 18.

Management of the school's computer system is largely provided through the use of contracted technical support – located approximately four hours away from the school. This off site support structure operates as a regular maintenance process and demonstrates that daily technical support does not have to be provided on site, provided the initial infrastructure of a school's ICT network is well designed and stable. The only ICT infrastructure with on site support is the email and wireless network system.

Financial considerations

Salary Structure: Teachers paid by number of students in a course and the completion rate of students

Fulltime = 4 courses X 16 Students (average)

Teachers choose whether face-to-face staff or distributed learning provider

Courses

- 'Distributed' course delivery far more successful than straight external 'distance' delivery
- Some courses require face-to-face sessions at the start of the course
- The teacher is one key to success
- Regional Principals meet to liaise about which courses should be taught via distributed delivery

Authentication Issues

- The school relies on the professional judgement of teachers with respect to authentication of student work
- Teachers recognise the need to establish strategies to understand student capabilities as soon as possible once a course commences

Pastoral Issues

- Teachers work to establish an online community
- Students need a face-to-face mentor onsite daily
- Distance students have to report in to the Assistant Principal daily

Key Factors to Success

Expectation is the key factor to success – the belief that ‘every student can improve and the school expects them to do so’. The Principal of Fjölbrautaskóli Snæfellinga also highlighted:

- Excellent staff
- The importance of personal contact with the teacher and the onsite mentor
- Supportive community and Government policies
- Student support for the learning delivery - understanding and ownership of the processes
- Stability of the ICT network
- The structure of the content management system (ANGEL)
- The cohesive philosophy behind the operation and structure of the school

The accessibility and flexibility of delivery seems to be motivating mature age students to complete secondary education – notably adult workers in the local fishing industry who attend classes once or twice per week and then complete the rest of the course off site.

13. Fjölbrautaskólinn við Armúla, Reykjavik, Iceland

(Conversation and consultation with Sigurlaug Kristmannsdóttir, Chief Co-ordinator of Distance Studies Program of Fjölbrautaskólinn við Armúla)

Fjölbrautaskólinn við Armúla is a comprehensive High School at Ármúli in Reykjavik. The school offers vocational subjects as well as general education courses as a preparation for academic studies. The school is one of the leading secondary schools in information technology in Iceland and a leading school among the vocational training-schools for those working in the health care system. General education units are in either languages, Natural Sciences or Social Sciences. Fjölbrautaskólinn við Armúla took part in a 3-year pilot project under the auspices of the Ministry of Culture and Education from 1999 to 2002, with the intention of being able to offer distance education in most of their courses.

The school has the largest student population of any high school in Iceland. It has 1000 students on site and 1200 distance education students, with another 1,500 pre-enrolled for 2006 and 2007. The onsite students are post-compulsory school age (16–20) as well as mature age students. Some day students (700) also study via distance education to speed up the completion of high school or to overcome timetable clashes. The school is organized on unit credit basis. The day school has two semesters a year and the distance education has three.

Most of the teachers who teach in the distance education program are full time teachers at the school and teach the distance education courses for extra remuneration. There are currently 45 teachers with allocations in the distance education section of the school, 5 of these from schools other than Fjölbrautaskólinn við Armúla. The program is led by a Coordinator of Distance Studies, supported by administrators and office staff.

Teachers prepare a learning environment with:

- Study plans
- Course guidelines
- Course materials
- Assignments and exercises
- Forums

Financial Considerations

(1000 Icelandic Krona = \$20.50 AUD approx.)

Teachers are paid – per student per course, plus preparation, plus exam retention rate, plus preparation and marking of exams.

The distance education teachers' salaries are calculated using the following formulae:

Calculation one : to pay for general communications

The number of students in the course x the number of units the course is x 2480 Krona

Calculation two : to pay for course material preparation

The number of units x 5000 Krona

Calculation three: to pay for exam marking

The number of students x the number of units x 1/3 (of an hour) x 2480 Krona

Calculation four : exam writing time

4 (hours) x number of exams (usually two) x 2480 Krona

Students pay 12,250 Krona per course: 4250 Krona to register, 2000 Krona for Web CT use and a further 2000 Krona per unit per semester. Ten students are required as a minimum in order for a course to run, costed out on a per student per unit basis.

Students receive course news, updated each week:

- study plans
- goal setting exercises
- course reading
- forums (as online community builders)
- previous exams and sample answers



The average age of distance education students is 25.6 years, 68% of which are women. The distance education program uses Web CT as its basis, though it also uses Word, Excel, Powerpoint, HTML, Front Page, Dreamweaver, PHP, Photoshop, FX Draw, Respondus (respondus.com – an exam writer), Quiz Parser and Hot Potatoes. Distance education staff undertake courses in the pedagogy of using computers in local and distance education. All teachers are provided with a laptop. A wireless network was set up in 2001, with access to both the local net and internet. In 2004 all teachers were provided with wireless ADSL from home so as to be able to connect to the school network.

In addition to various assignments, most distance courses end with a final exam at the end of term. Students sit their exam at either a school or an Icelandic Embassy. In 2004 exams were conducted at 55 centres in 10 countries on 3 different continents.

Key Factors

- In order to successfully initiate such a program, a '*do then think*' philosophy is required.
- Refine courses annually: the Armúla courses are Web CT based, but now a number are formatted as web pages because the quality is better and the added pressure of the public domain leads to a better course product.

- Courses are prepared using a standard format, but each year staff are encouraged to give a fresh feel to their courses. This may be achieved by changing photographs or animations.
- The goal is to offer distance delivery modes in most courses, even in courses where this presents difficulties e.g. Practical Science

14. Distributed Learning, Iceland



- (i) The Educational System in Iceland
- (ii) Asrun Matthiasdottir, Reykjavik University, Iceland
- (iii) Arnór Guðmundsson and Gunnar Árnason, Menntamálaráðuneytið, Reykjavik, Iceland (Ministry of Education, Science and Culture),

i. The Educational System in Iceland

The Icelandic Education System serving a general population of under 300,000 people, has five main parts: Preschool (ages 2 – 6, not compulsory); Compulsory (ages 6 – 16); High School (ages 16 – 20); Vocational Training (ages 16+) and University (ages 20+). There about 200 compulsory schools, 35 high schools and 8 universities. Pre Schools and compulsory schooling are managed by municipalities, with the Ministry of Education, Science, Culture, Youth and Sports managing the High Schools and Universities. A fibre-optic network links all High schools.

All High School students matriculate into further education, with their achievement level determining course options. To complete High School and matriculate, students must pass exams in 8 subjects. To be eligible for university entrance, they must complete 140 units of work. Courses are usually worth three units, though some are 4 or 5. The average time to complete these 140 points is 4 years, though it is possible to complete them within 3 – or spread over a far longer period of time. It is a very flexible system, with capable students able to complete High School units while they are in compulsory school, via distance education. The student subject choice will determine what ‘major’ will appear on their University Entrance Certificate, e.g. languages, social sciences, natural sciences. Each course has an exam and there is national testing in Years 4, 7 and 10.

All High Schools use the same management system (Inna – by Oracle), with the database being stored at the Ministry, so that credits obtained by distance education or within a school are registered on the same database. Parents can access information about their children (until they are 18) via Inna. Information about academic achievement, behaviour and attendance can be seen.

Students study Icelandic, English, Danish, Maths plus four more subjects from one major strand (Natural Sciences, Social Sciences or Languages). Courses are offered at 2 levels, an academic level or as a ‘commercial’ course.

ii. Ásrún Matthíasdóttir, Reykjavik University, Iceland

(Conversation and consultation with Ásrún Matthíasdóttir, Assistant Professor School of Computer Science, Reykjavik University, Iceland)

Ásrún Matthíasdóttir's current professional interest lies in the area of emerging distributed education models in various northern hemisphere countries. In late 2004 Ásrún Matthíasdóttir published a paper on distributed learning in conjunction with Arnór Guðmundsson of the Icelandic Ministry of Education, Science and Culture, in The European Journal of Open and Distance Learning (<http://www.eurodl.org>). In that article, distributed learning is defined as learning that makes use of distributed resources and the breaking down of traditional boundaries between face-to-face and open and distance learning. They suggest that ICT opens new possibilities for establishing learning communities with participants who are dispersed in various locations and makes use of distributed resources. In distributed learning an emphasis is placed on extensive use of the ICT and the Internet with the focus on the student, not on the teacher. Additionally, the focus is on communication, promising to change traditional teaching with a variety of e-material, multimedia and interactive material and connects the learning experience to the world outside the classroom.

Ásrún Matthíasdóttir suggests that the distributed education model can be used in combination with traditional classroom-based courses with traditional distance learning courses, or it can be used to create a wholly virtual learning environment. In the distributed learning environment the student is at the centre, with flexible access to teachers and resources. The teacher is not confined to one institution, but can make use of learning management systems and communicate with students and other teachers in different locations through the Internet.

Key issues in blended/distributed learning:

- Access to computers
- Viable financial framework
- Suitable program leadership
- Teacher/student familiarity with the distributed course environment
- Teacher/student relationship
- Preparation time for course modules
- Choice of platform
- Teacher/student familiarity with distributed course environment
- Government policy and direction in area

iii. Arnór Guðmundsson and Gunnar Árnason, Menntamálaráðuneytið, Reykjavik, Iceland (Ministry of Education, Science and Culture)

(Conversation and consultation with Arnór Guðmundsson, Director of ICT Development, Ministry of Education, Science and Culture; together with Gunnar Árnason, Adviser, Office of ICT Development)

The Ministry of Education, Science and Culture is committed to supporting the use of technology to improve the quality and outcomes of education in Iceland. Certain key factors underscore the approach to the successful implementation of distributed education pedagogies:

- A 'risk with responsibility' philosophy
- The need for leaders to foster culture of innovation, support and leadership
- An integrated policy within Ministry areas at the government level
- e-Literacy access
- Having a comprehensive national ICT infrastructure
- Innovative practice
- Organisational change needed in education: integrated policies
- Working through copyright, ethics and safety issues
- Success occurs where practical needs are being met

Policy directions and educational priorities:

- Infrastructure development
- Teacher training
- Pedagogical vision to lead the way
- Curriculum organisation
- Developing a digital mindset in teaching profession
- Focus on mentor style teacher professional development: school based, very practical
- Promote organizational change
- Invest in content/learning resources in connection with digital TV and mobile technology
- Broaden the roles for para-educators in schools
- Develop student input into resource development
- Focus and motivation needs to come from teacher understanding of personalised learning
- National access to online journals (Proquest/Blackwell/National Library)
- Develop policies on authentication issues

15. Blended Online learning, Victoria, BC, Canada

- (i) Blended learning, Victoria, BC, Canada
- (ii) Open School BC

i. Blended Learning, Victoria, BC, Canada

(Conversation and consultation with Gerry Fraser, Education Consultant)

Gerry Fraser is a freelance educational consultant located in Victoria, British Columbia, Canada. He is currently working on developing e-learning projects for China as well as for the Open School, BC. Gerry Fraser's main professional interests lie in e-learning, instructional design and professional development. In the e-learning field he has been involved in action research and is committed to bringing the world of technology to traditional classrooms. He has presented at different conferences on research he has done with the K-12 student population and encouraging teachers to move into the e-learning arena through professional development.

Content development process

- Project management approach for instructional design at the school based level – one person willing to take on leadership of the process, as well as project guidance and management
- Use of teacher specialists: but teachers join program voluntarily
- Teachers need time to develop content, working with technology teachers as mentors: this may be as part of allocation or for an additional stipend, if fully allocated
- Content is then filtered through the relevant specialist framework (e.g. ESL)
- Multimedia enhancement phase: content developed via multimedia specialists

Course Development: Time Allocation

For 120 hour courses

Module Preparation time: 16 – 20 hours per module
6 modules per course

Class structure: 30 Students per class

Why use a blended delivery model?

- Increases interaction with students
- Enhances existing communications
- Technology has opened up new vehicle
- Students feel more comfortable to contribute
- Students feel less judged; they can become empowered to learn

- Teachers more able to differentiate
- Outcomes improved
- Personalized learning
- Virtual dimension is an additional dimension: more visual, less sequential

Developing Online Community

- Wise to test delivery processes for online content in a blended delivery format prior to moving to a more 'distance' mode
- Video technology can be used to assist in authentication issues connected to validating student work
- Formal exams should be integrated into the course structure as another means to overcome authentication issues
- Experiment with the digital medium - schools can look to the development of web based Web Council (e.g. Lambrick Park, Secondary School)
- Students can become teacher mentors in the area of new technology
- Developing a student IT team with real responsibilities and accountabilities: can take on tasks such as the upload of material
- Model for training students into responsibility with ICT is to empower student IT team: open up the technology, develop trust, give trust, use trust

Key Factors

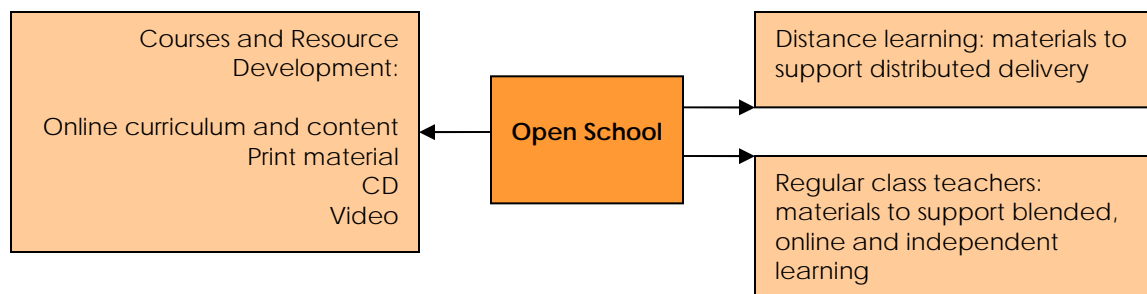
- Passionate people
- Innovators
- Executive administrative support
- Give teachers time
- Give teachers choice
- Those teaching online need to experience an online course
- Remember – not teaching a course, but teaching students

Teachers need to observe and develop relationships with the end user of content. Unlike the emerging generation, adults are not native digital thinkers, having in essence an accent: need to be aware of this in curriculum preparation.

ii. Open School BC

(Conversation and consultation with Eleanor Liddy, Coordinator Content Development and Graham Duncan, Operations Manager, Open School BC)

Open School BC is British Columbia's foremost provider of online educational materials, Kindergarten to Grade 12. The organization has a long history that dates back to 1919 when the Department of Education opened the Provincial Correspondence School. As distance education de-regulated, the organisation was re-named Open School BC, specializing in publishing, content development, curriculum development operating as a privatized Open Learning Agency. In 2003 Open School joined the Queen's Printer (Ministry of Management Services) as a not-for-profit organisation to provide online and printed materials to support over 25,000 learners across the province with K-12 content, courses and resources that meet the BC Ministry of Education curriculum standards and requirements. Operating under a managed partnership between the New Westminster School District and the Queen's Printer of British Columbia, Open School BC draws on its understanding of innovative practice in education to improve accessibility to learners. Curriculum material is available in print or online formats.



Assumptions:

- Many schools are searching for a completed product that teachers can pick up and use
- Technology can be used to create relationship
- Content is delivered in distributed environments
- Content is both online and print
- Content comes as individual course components or complete courses
- Content addresses *outcomes* through associated integrated resource packages
- Content developed through collaboration with teachers and team based approaches

Team Approach

- Multi-teacher focus in course development
- Learning Design team: 6 people X 3 days per course = 18 Days
- Teachers paid for release days for course creation: 10 – 15 days for normal course creation process
- Multimedia specialists, copyright specialists
- First draft process is key to success

Instructional Design team

- Teachers
- Writers
- Media technology specialists
- Copyright knowledge

Content Cost

- Course Cost \$699 (CAD) for server version for 90 users

Key Factors

- Structured Curriculum
- Quality of programs and content
- Self-paced – Continuous entry
- Maintenance of course material

16. Greater Vancouver Distance Education School (GVDES), BC, Canada

(Discussion consultation with Cindy Gauthier, Principal)

The British Columbian Government has de-regulated the provision of correspondence courses within the province and now over 45 schools offer distance education courses to any student. GVDES provides K-12 coursework free of charge to students of any age who haven't graduated. The distance program is self-paced for those who cannot accommodate face-to-face classes. GVDES also offers the K-12 Vancouver *Connect* Program. This is a full-time, teacher-led program; primarily intended for school age students who are looking for a more interactive approach to learning. Students on this program take many of their courses online. *Connect* students may also be taking a course or two face-to-face in their local high school, or be logging into classes from other countries. GVDES is also the new home of the Vancouver Learning Network. This is a school district program that allows students registered in Vancouver high schools to take an online course as part of their day school timetable.

GVDES offers a variety of programs to suit many different learners and learning styles. These programs range from paper-based, correspondence education to online activities, discussions and group projects. Students initially select from one of four types of course delivery: teacher-led online delivered courses using blended pedagogies (including face-to-face classes); paper-based distance courses, assessed by external markers; summer or year round online courses and courses for those undertaking home schooling.

Program overview

- Distance Education opened up by Government
- Distance Education has replaced rural/older format correspondence model
- Students funded as per normal funding processes (including individual home schools)
- Online students from K-12
- Multimedia assisted, not 100% online
- Students can register in different courses with different providers

GVDES

- 120 Elementary students K-7
- 375 High School students 8-12 (including high numbers for Physics/Maths)
- 8000 single course registrations
- Contracted Markers
- Blended model important
- Standardised appearance of course content
- Online class size 30-32 students
- Network hosted on 'Desire to Learn' platform
- Students need to be in same software environment
- Parent meetings held online as well
- Concurrent development paid to the creation of online community
- Emphasis placed on developing strong individual yet online relationships with students
- Emphasis placed on creating a very evident virtual school presence

GVDES Instructional Designers: Development Team

1. Education Consultant
 - Work with teachers
 - Check course outcomes
 - Check standards meet outcomes
 - Online Support
2. Instructional Design (non teaching staff) plus technical person supporting research development
3. Multimedia (supports Educational Consultant)
4. Technician (supports 'Desire to Learn' pivotal function)

Key Factors in Success

1. Teacher presence online
 - Regular communication
 - Teachers updating information
2. Teamwork to produce content/outcomes
3. Philosophy/Vision for online learning
4. Teacher involvement in process
5. Strategies to overcome isolation of distance learners
 - Creation of socializing aspects
 - Creating online personality
6. Change traditional paradigms: create more flexible approaches and flexible length of delivery (from 6 months to 18 months)
7. Specific staff role to build online community
8. Retention rate impacted by work of instructional designers

P Pilot Project Proposals

(i) Northern Beaches Christian School plus collaborative partners

- Establish a collaborative national pilot project with partner schools (apply for funding via DEST) to create online content and curriculum for secondary school curriculum through a cooperative process. Partner pilot schools could freely use created content; non-partner schools could access material via a DEST process.

(ii) Collaborative educational or business partnerships

- Establish and develop educational, business or enterprise links with relevant institutions or companies
- Develop research programs through collaboration with tertiary partners
- Sponsorship of business enterprise to facilitate or trial the use of specific hardware, software or platforms

(iii) Conference

- Working through the Macquarie University Partner Schools' Program, organise and hold a Sydney based conference on developing online course programs .

Contact

Sydney Centre for Innovation in Learning, NBCS
Stephen Harris, Northern Beaches Christian School

online@scil.nsw.edu.au
sharris@nbcs.nsw.edu.au

Q Appendix 1: Case Study Web Links

i. Case Studies: Websites

1. Highcliffe College, Christchurch, Dorset, UK

<https://station1.highcliffe.dorset.sch.uk/myparent/static/>

www.elearningawards.eun.org/www/en/pub/elearningawards2004/news/project/congratulations.htm

2. Brooke Weston City Technology College, Corby, UK

www.bwctc.northants.sch.uk/

3. Kings International College, Camberley, Greater London, UK

<http://kingsinternational.digitalbrain.com/kingsinternational/web/mystart.htm>

(Thomas Telford) www.ttsonline.net

4. Kemnal Technology College, Sidcup, London, UK

www.ktc.bromley.sch.uk/

www.lamsinternational.com

5. Kingshurst City Technology College, Birmingham, UK

www.kingshurst.ac.uk/

www.3es.com/

www.sciencelessons.co.uk/

www.mymaths.co.uk

6. National College for School Leadership (NCSL), Nottingham, UK

www.ncsl.org.uk

7. Lycée l'Oiselet, Bourgoin-Jallieu, (near Grenoble), France

www.ac-grenoble.fr/oiselet/btsfv/WKTOSINGAPORE2004.htm

8. Lycée Marie Curie d'échirolles, (near Grenoble), France

www.ac-grenoble.fr/webcurie/index.php3

9. Kinnarpsskolan, Falköping, Sweden

www.edu.falkoping.se/pedagog/english.htm

www.edu.falkoping.se/pedagog/sydney.htm

10. Värmdö Distans, Stockholm, Sweden

www.distans.gy.varmdo.se/English.pdf

www.guideandtips.nu/support/portal/default.tools.asp

11. Statens Pædagogiske Forsøgscenter, Copenhagen, Denmark

www.inet-spf.dk/Skolen_chr/english.htm

12. Fjölbrautaskóli Snæfellinga, Grundarfjörður, Iceland

<http://www.menntagatt.is/Uploads/FileGallery/Fjolbrautaskoli%20Snaefellinga/Report%2016%20jan.pdf>

13. Fjölbrautaskólinn Armúla, Reykjavík, Iceland

www.fa.is

<http://fa.is/fjarnam>

14. Distributed Learning – Iceland

www.eurodl.org/materials/contrib/2004/Arnor_Gudmundsson.htm

www.menntamalaraduneyti.is

www.menntagatt.is/default.aspx?pageid=151

www.intralearn.com/

<http://eng.menntamalaraduneyti.is/education-in-iceland/>

15. Blended learning – Victoria, BC, Canada

www.openschool.bc.ca/about.html

www.openschool.bc.ca/online_login.html

16. Greater Vancouver Distance Education School, Vancouver, BC, Canada

www.gvdes.com/programs/secondary.htm

ii. Learning Management Software (as used by Case Study schools or institutions)

- Bodington (Leeds University) <http://bodington.org>
- Angel <http://www.angellearning.com/>
- Web CT <http://www.webct.com/>
- Digital Brain <http://www.digitalbrain.com/>
- Talk2Learn https://www.ncsl.org.uk/UAAlogon_t2!.cfm?service=9
- Moodle <http://moodle.com/>; <http://moodle.com.au/>
- LAMS / Moodle integration <http://lamsfoundation.org/integration/moodle/>
- LAMS <http://ww.lamsinternational.com>
- Desire2Learn <http://www.desire2learn.com/welcome.html>

iii. School Management software (as used by Case Study schools or institutions)

- CMIS <http://www.ccmsoftware.com>
- Inna – by Oracle (Custom Made) - Other Oracle Solutions <http://www.oracle.com/industries/education/k12.html>
- RM Integris <http://www.rm.com>
- NCSL uses Docent 6.5 technology

iv. Other useful sites

BBC Learning <http://www.bbc.co.uk/learning/subjects/schools.shtml>

Canada's SchoolNet Network of Innovative Schools <http://www.schoolnet.ca/nis-rei/e/>

Comenius: Partner finding forum <http://comenius.eun.org/ww/en/pub/comenius/pforum.cfm>

E-Learning Awards 2004	http://www.elearningawards.eun.org/ww/en/pub/elearningawards2004/showcase/top_100.htm
e-Twinning	http://www.etwinning.net/ww/en/pub/etwinning/index.htm
European Commission	http://82.194.71.130/index.php?page=default&int=1
European Distance and E-Learning Network	http://www.eden-online.org/eden.php?menuId=1
European Network of Innovative Schools	http://enis.eun.org/eun.org2/eun/en/enis2/sub_area.cfm?sa=339
LAMS	www.lamsinternational.com
The Learning Federation	www.thelearningfederation.edu.au
The Learning Place	www.education.qld.gov.au/learningplace

R Appendix 2: Establishing an online portal

Infrastructure requirements:

- Powerful portal server(s)
- LDAP Authentication Server
- Fast Internet and network connections
- Adequate backup
- Uninterrupted Power Supply (UPS)
- Learning Management Software
- Other software as required