

### 13 Beyond the lesson plan: open architectures for learning

The normal focus of planning, particularly for newer teachers, is at the level of the individual lesson and its components. This section however presents some ideas for planning which will meet many of the aims of Curriculum for Excellence.

The term *Open Architectures* is used to signify a structure for a set of lessons which has an overall shape, but which offers learners good opportunities (spaces) to exercise voice and agency. Some of the examples below were devised by student teachers (secondary) to demonstrate different ways of exploring the same theme; it is easy to devise new ones, though often better as a team effort so that the various issues below can be planned for (see bullet points and issues for discussion).

These various ‘open architectures’ have many features in common which are strongly motivating, such as:

- engaging learners through a meaningful situation or theme, often grounded in real-life experiences and situations
- integrating broad skills development with a cross-curricular approach to knowledge
- encouraging co-operation, negotiation and planning
- developing key skills (language and literacy, mathematics, ICT, research, visual presentation as well as the above ‘soft skills’)
- providing a common framework whilst giving space for initiative and creativity
- working towards a fulfilling outcome, such as a final performance or presentation, with a sense of product and audience.

It is important to maintain a flow between the research and activity of learning teams and the learning community of the whole class (sometimes extending into a wider audience or field of action).

Although these structures lend themselves to co-operation between teachers, including breaks from timetable for special thematic days or blocks of time, they can also be valuable within a single subject in secondary schools, provided use is made of homework time and a facility is created for learning teams to continue their work in lunchtimes or after school.

### **Project method**

In the 1960s and 70s, it was common to use the word ‘project’ to refer to individuals seeking information from books on a topic of personal choice. This research forms only one component of Project Method.

The method was developed by John Dewey and his colleague W H Kirkpatrick nearly 100 years ago in the USA, and has spread throughout the world. There are variant structures, but the individualistic ‘projects’ practiced in many schools across Britain in the 1970s limited the model by removing the research stage from its wider context and purpose.

The following structure provides a good basic framework. It originated in Denmark in response to the education law which placed great importance on learning for democracy, and on schools preparing pupils ‘for joint decision making, co-responsibility, rights and duties’. It is important not to rush stage 2.

- i) *Stimulus* (whole class). The teacher engages the class’s interest in a common theme or situation, or alternatively focuses on a current issues raised by pupils.
- ii) *Initial discussion* (whole class, with some group time). Interesting aspects and issues emerge, connections with learners’ own lives and experiences, links to prior knowledge. The teacher points to the relevance of particular subject-based concepts and theories. Pupils divide into groups to research an aspect of their choice.
- iii) *Research* (groups; some working individually if preferred).
- iv) *Presentations and final discussion* (whole class). Groups present their findings, if possible not just by sharing information but by designing an activity which stimulates further discussion.

Many projects involve direct involvement in the world outside school. There can be a fifth stage, including presentations or events in the wider community. Alternatively, the problem which generates the project could be a real problem regarding the neighbourhood and its facilities, perhaps brought to the class by a local councilor or official or doctor or community activist.

### *Example*

The project is based on the politics and geography of oil, and it is open to participants to choose which aspect to study. The initial stimulus was a discussion among some pupils about global warming, the Middle East and the price of petrol. Pupils produce mindmaps to explore what they know and the many connections (oil as an energy source, environmental impact, conflict, pollution, oil spills, resources, ownership of the oil industry, the range of oil-derived products). These are joined together and research teams are formed which each study one aspect.

### **Problem-based learning**

This is a variant of project method, more used in Higher Education, which begins with a short scenario. The aim of it is for students to acquire relevant knowledge and then make a clear analysis or diagnosis of what is causing the problem. It was invented in the field of Medicine, where medical students read a short description of an event then research for possible explanations.

### **Design challenges**

These are a core feature of the method promoted in Britain as ‘critical skills’ (in the USA, ‘education by design’). It differs from project method chiefly in pupils being, in effect, pulled forward by the challenge of the final task or product.

The process can begin with various kinds of stimulus, scenario or problem but a clear outcome, with deadline, is announced at the beginning by the teacher.

The Critical Skills organization places a strong emphasis on working to a tight deadline, and on division of tasks within each group, though these may be seen as peripheral to the method and can lead to working at an accelerated pace to the detriment of reflection and negotiation.

### *Example*

The class is presented with a doctored BBC News webpage announcing that the world’s oil supplies ran out earlier in the day. The problem has been concealed for several years. The Prime Minister has asked the army to defend the final supply depot.

Pupils are given 4 hours to prepare a presentation on how the world can cope and should adjust to this situation. They work in groups which each research one aspect, e.g. the impact on agriculture, tourism, law and order, foreign policy, climate change, or to look at alternatives (renewable energy, organic farming).

## **Storyline**

Storyline is a form of thematic work structured by a narrative. This can be based on a written narrative such as a novel, but generally the bare outline of a story forms the skeleton.

- i) It typically begins with a situation or location, proposed by the teacher.
- i) Then participants invent roles for themselves – hotel staff or families in a town, for example.
- i) The teacher's plans move the story forward, perhaps by the teacher announcing an event, perhaps through a planned intervention by a visitor in role. Each such event is the stimulus for a type of learner activity: research; fictional or formal writing; improvised drama or art; discussion or debate.

Storyline is strongly experiential, using graphic and dramatic representation. Pupils situate themselves within the narrative, often by playing the characters they have invented. The learning activities follow a narrative sequence, and are triggered by dramatic turns written into the story. Each of these moments stimulates a particular genre of activity, e.g. painting, drama, debate, research, writing, calculation. However it is up to each pupil or group how to respond within that genre or medium.

The Storyline method was first invented in Scotland as an appropriate form of thematic interdisciplinary work for younger children, but in Scandinavia is widely used for all ages.

### *Example*

Kilgallon is a small coastal town, main occupations fishing and tourism. The events in the Storyline involve the discovery of oil, an oil company wanting to lay a pipeline across the school field, new jobs going mainly to outsiders, a sudden rise in housing costs, falling tourist numbers, and finally the discovery that the oil reserves are less than originally thought. Pupils take on roles such as fishermen, environmentalists, unemployed youth, surfers and oil executives.

## **Other 'open architectures'**

Other models which share some features and advantages of the above 'open architectures' include

- Enquiry (see section 11)
- Exploration of an area (geography fieldwork or archeology)
- Large-scale simulations, including virtual worlds
- Video production
- Collective and socially oriented Design and Technology projects (see section 9)

They have a clear structure, including stages, which holds the activity together but with ample scope for pupils to exercise agency and initiative. They involve an activity which connects with real life, and results in

a product or presentation to an audience. They develop a range of skills and draw on various forms of knowledge.

### **Assessment: 'rich tasks'**

Open architectures of learning can be linked to different forms of assessment, which are more appropriate, broader and often more challenging than pen and paper exams.

The term 'rich tasks' was used in Queensland, Australia, to denote the use of various models similar to 'open architectures' to assess a range of applied knowledge and skills. This assessment was termed 'authentic' because the task itself could be seen as worth carrying out in its own right, not simply as an assessment exercise. Other adults are invited to the final presentations alongside teachers, and pupils can be assessed in groups if appropriate.

### **Issues for discussion and evaluation**

- A. Are pupils aware of the overall structure, and of the opportunities to show initiative?
- B. Do they become committed to the theme or problem? Do they see its significance or relevance?
- C. Do pupils have access to a range of resources?
- D. Is the process developing skills of communication, research and presentation?
- E. Is the teacher able to point out the benefits of knowledge and processes belonging to academic disciplines? Is the process developing or strengthening academic knowledge?
- F. Is there sufficient time for more independent learning and decision making, or conversely a clear enough agreement on deadlines to avoid drift?
- G. To what extent is this activity connecting up various aspects of learning, sometimes expressed as 'head, heart and hand' or cognitive, affective, aesthetic, ethical, and social (responsible citizens)?
- H. Are pupils motivated and rewarded by working towards a product or presenting to an audience?