Visible Thinking

Lotta Norell describes an approach to promoting engagement, understanding and independence for all learners which is being actively adapted in the Lemshaga Akademi, Stockholm.

The subject is the Viking age. The teacher is busy working with some fourth-graders. After a couple of lessons, the students have gained some basic knowledge about the Vikings. Today's lesson will discuss the extensive travelling by sea which made the Vikings famous (or infamous!). But the students do not know it yet. First they will study a map.

The teacher brings out several copies of a map covering Europe, the Mediterrean and adjacent shores plus a fair bit of Russia, all the way to the Caspian Sea. Some cities, rivers, seas and lakes have been marked with names such as Denmark, Sweden, Lindisfarne, Volga, Birka, Gårdarike, Dublin etc. Several red lines are drawn, stretching from Sweden to the countries concerned, across the seas, via estuaries into rivers. In order to effectively read the map, the teacher will be using what in Visible Thinking is referred to as a thinking routine. This particular routine is called See-Think-Wonder. The teacher hands out the map. The students work in pairs. This time, they are given a worksheet (A4) which they will divide in three columns. At the top of the columns they write: I see, I think, I wonder respectively.

The teacher asks the students to carefully study the map. As they do, the pairs will now write down their observations and reflections in the three columns.

In this class, the students are already experienced users of this routine so the instructions are not necessary. They see it simply as a way to go about their study.

I see, I think, I wonder

This is a three part routine. The first is literally about what they see. The students are likely to write down exactly

what they observe: they see a map, the name Sweden, there are red lines, the red lines begin at different places, blue lines, lines marking coastlines, mountains etc. It says "Särkland" and so on.

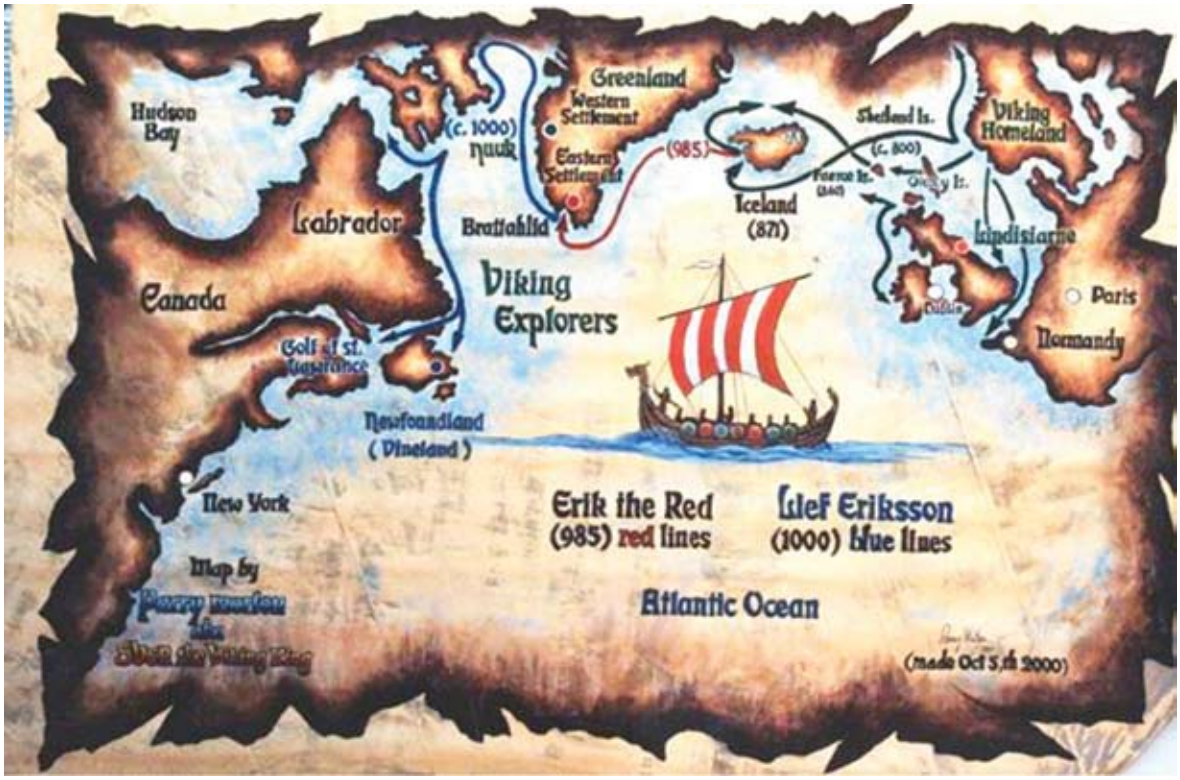
Next column - I think: The students now write down their conclusions based on their observations. The thinking and the conversation together with a fellow student brings to surface many good thoughts, hypotheses and conclusions: it is an old map, there were names in those days which we don't use today, Birka was an important town in Sweden back then. The red lines depict the routes of the Vikings, the routes begin at different locations. The Vikings must have been gone for very long periods as they travelled so far away.....

Then in the last column – I wonder, the students will formulate questions. Some may write: If the red lines are how the Vikings sailed away, how do you know this? How did they find their way back? Who was allowed to go? How did they first think of sailing to far away places? Why? How about food? It must have been cold, what kind of clothes did they use? Could they understand the people they met? How?

When all of the pairs have finished we all meet together again and discuss what has been written on the work sheets. It is really exciting to find out what the different groups have found. Several notes will be the same, in essence, although written with some variation in both I see, I think, I wonder.

What makes you say so?

The conversation now will build on the different observations and thoughts and reflections. The teacher



asks some students to talk about what they have written. In this, another of the basic routines of Visible Thinking will be used. It is called What makes you say so? The teacher will ask for reasons and argumentation.

Student: I see a map.
Teacher: Interesting, how do you know it is a map?
Student: Well, I see countries, names of places, Konstantinopel, Birka and so on.

T: What else do you see on the map?
S: There are red and blue lines drawn between places.
T: So what are you thinking about them?
S: The red lines could perahaps be showing how the Vikings sailed?
T: What makes you say so?
S: Well, Kalle and I talked about that we know the Vikings were gone for months or years so they must have been travelling very far. Plus every red line has an arrow so we believe this shows how they travelled.
T: And the blue lines?
S: The blue lines could be rivers. There are names marked for some of them and they are drawn on what is not sea but land.
T: Hmm, okay, now let's move on to another couple to hear what they have seen and thought of the picture.

In this way, the conversation continues and is then summarized when the teacher asks the students to talk about what they wonder about the map. All the questions and reflections that come up here form a very useful basis for the continued studies of the topic in the coming weeks.

All notes from the worksheets are then transferred to larger paper (flipchart size) and hung on the walls, all the initial observation, questions and conclusions will be available to all for as long as they continue the work on the Vikings.

As shown by this example, the routine See/think/wonder helps the students to make thorough observations and thoughtful interpretations. It stimulates curiosity and brings out questions.

What makes you say so? This routine is useful in all contexts when you want the students to describe what they see and hear or know and to give an explanation. It stimulates sound and logic argumentation with which students can share their thoughts, assumptions and interpretations with the class. Furthermore, everyone gets a better understanding of the importance of seeing and understanding the topic from alternative perspectives.

Both routines lead to improved social interaction in the class. You make a habit of listening carefully to what your neighbour says and then build on that.

The two thinking routines showed here are examples of a set of routines which is the core of an approach that came to be called "Visible Thinking".

- With financial backing of the Carpe Vitam foundation, members of the Project Zero team at Harvard Graduate School of Education explored how to cultivate thinking dispositions in school settings. The project which was called "Innovating with Intelligence" unfolded at

Lemshaga Akademi in Sweden during 2000-2005. The efforts were documented as a set of initial routines via a website: www.pz.harvard.edu/vt.

Visible Thinking is a flexible and systematic research-based approach to integrating the development of students' thinking with content learning across subject matters. An extensive and adaptable collection of practices, Visible Thinking has a double goal: on the one hand, to cultivate students' thinking skills and dispositions, and, on the other, to deepen content learning. By thinking dispositions, we mean curiosity, concern for truth and understanding, a creative mindset, not just being skilled but also alert to thinking and learning opportunities and eager to take them.

The next level

The use of these routines help make students' thinking visible. As educators, we then better understand not only what our students understand but how they understand it. Based on this insight we can then plan how to bring students to the next level. The routines help students in their thinking process and stimulate active thinking. And they are easy to use. Like many rules and procedures which govern the everyday business of a school, the routines become a habit with the students. They have only a few steps, they are clear and focused, they can be used again and again, are easy to learn and to teach, can be used individually as well as in groups.

Visible Thinking also introduces so called Thinking Ideals: Understanding, Truth, Fairness and Creativity. These ideals are easily accessed concepts which naturally catch goals, endeavours or interests, which usually drive our thinking. All students know them and have come in touch with them. We want to understand, things should be fair and just, it matters if something is true or not. The creativity of man has led us to where we are now. Several thinking routines have been developed for each of the four thinking ideals plus other activities which help deepen students' understanding of the ideals. You simply explore how to improve understanding, how to explore if something is true or false, what fairness is and how you can demonstrate why or why not something is fair, what creativity is and how I can use my own creativity.

Interacting in the class-room is important. We make our thinking visible to each other and learn from each others strategies, reflections, the framing of a question, reasoning, associations, contexts, problem solving, explanations etc.

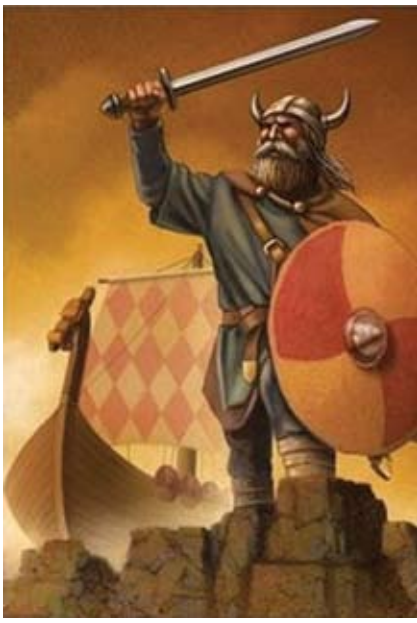
Thinking should be made visible. We document and illustrate by putting notes on the walls, on pictures, videos etc. Thus, the thoughts and ideas from the work with a routine (as above with the Vikings) are displayed for everyone to see and remember. This makes it easy to go back again and again. Perhaps to revise misunderstandings and misinterpretations, to go to further depth in something or to discuss a change or a connection.

The teacher's role

The educator plays an important role working with the visible thinking approach: students don't do what we say but what we do. So here, it matters if you as educator demonstrates that you too are motivated to think, that you see the possibilities and effects of thinking and use strategies for your thinking.

The way you express yourself is of course important. Even for quite young children it is easy to understand words such as hypothesis, strategy, argument, proof etc. as long as you give good examples and use the terms often and in varying contexts.

An important component of Visible Thinking is the Teachers' Study Group. This part of the Visible Thinking approach has the objective to secure the establishment of a great thinking culture throughout the entire school. At these meetings the teachers reflect together over students' work or the documentation which was produced after a lesson making use of routines or thinking ideals. It can be a short video, a documented conversation, notes from the use of some routine, something that the students have written etc.



In this conversation, the group will follow a detailed protocol called LAST, which is another part of Visible Thinking. The letters stand for Looking At Students' Thinking. The method helps the group to focus on the thinking shown by the student in his or her work. This will be new to some educators perhaps more used to judging whether set targets have been met when looking at work done by the students. LAST is a tool geared at helping the teacher discover the thinking put in the work in different phases of the work. Now, LAST also is helpful in leading the discussion how the training or teaching should best continued and how to further the efforts to make thinking visible in and around school.

The development of Visible thinking is a result of several years research in the field of childrens' thinking and learning in combination with a considerable effort in class-room environment. All parts of Visible Thinking were developed in a class-room enviroment, initially in Sweden and later in many countries. The approach is constantly revised by its pracitioners and ideas constantly exchanged in a network like cooperation, user conferences etc. In so doing it is ascertained that the routines are easy to use, available and effective in order to give nourishment to rich thinking and that both teachers and students are engaged in a thorough manner.

Visible Thinking today, is being used in education of all levels from pre-school to university and around the world. Also museums and the professional world are beginning

to see the advantages of the Visible Thinking approach to increased effectiveness in its educational processes.

So, what happened to the students working with the Vikings? Well, after weeks of work, the students had gained good understanding and knowledge of the subject. The period was rounded off by using the routine I used to think – but now I think. A routine meant to help review ones studies – excellent way to examine and explain how and why the thinking and ideas changed which in turn enhances the students' ability to reason while demonstrating cause and effect.

Lotta Norell has over 40 years experience as educator in Sweden. She joined Lemshaga Akademi in Stockholm (Varmdo) in 1996 and was coordinator for a project conducted by Project Zero at Harvard Graduate School of Education 2000-2005 at Lemshaga exploring how to cultivate thinking dispositions in school settings and presenting what was called "Visible Thinking". In 2010 she organized an international conference within the network for users of Visible Thinking at Lemshaga. She was a presenter at the International Conference on Thinking (ICOT), latest in Belfast in June 2011.

Ref: www.pz.harvard.edu/vt and Ritchhart/Church/Morrison: Making Thinking Visible, (Jossey Bass 2011)

MUST SEE ARTICLES

Visible Thinking handbook
http://www.kasa.org/professional_development/documents/ThinkingClassroomResourceGuide.pdf

Thinking Routines
http://pzweb.harvard.edu/research/AERA06ThinkingRoutines.pdf

Thinking Schools
http://library.teachingtimes.com/articles/thinking-ahead.htm

Project Zero research
http://pzweb.harvard.edu/Research/Research.htm

Resources to develop Thinking Skills
http://www.sparkyteaching.com/resources/index.php