DEVELOPING CRITICAL THINKING

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WHAT DOES CRITICAL THINKING MEAN?

CRITICAL THINKING IN THE PERCEPTION OF THE STUDENT TEACHERS

'Critical thinking...the awakening of the intellect to the study of itself'[1]

Critical thinking as a concept is probably not new to most teachers, and everybody has a definition and explanation of his or her own. However, there is a question about the extent and the scope to which it is known. To illustrate this better, we conducted an interview with each of the student teachers of the project. We asked them whether they had known what exactly 'critical thinking' meant, before they participated in the project. None of the interviewees gave a negative answer. However, ten out of 20 said they had known it but they needed more explanation about what it is and how it can be applied to the EVE classes. In contrast, the remaining ten student teachers said they had already known about it before and they did not need any further information. Aiming to get to know the general picture of this concept that they had in mind, we asked the latter group to define it. The definitions included key words like questioning, reasoning, discussing, synthesising, taking a closer look at things, comparing, matching new information to things already known and coming to logical conclusions. However, the statements differed in tone from some very abstract ones like 'It is like a mirror but you have to have a lot behind the mirror' to outright definitions like 'It is first

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1 Source: http://www.criticalthinking.org/aboutCT/define_critical_thinking.cfm (2/2/2011).

questioning your own ideas or opinions in the light of new information and then trying to compare, match and fit the new information into your understanding of a particular topic.' In order to avoid great differences, to include the whole content of this concept and to be on the safe side both in theory and in practice, we find it essential to come up with a comprehensive explanation of what critical thinking really is.

CRITICAL THINKING AS DEFINED BY EVE AND OTHER AUTHORS

According to the EVE framework each lesson has to have four desirable outcomes – one of them is critical thinking. It is necessary to develop a critical perspective because the expression of individual values and attitudes reflects a complex web of ideas and beliefs, which can be difficult to unscramble. Therefore, critical thinking helps to identify the messages within the data and pupils are able to comprehend its subjectivity and to question the assumptions that may underpin it. This is just one dimension of the EVE lesson. In combination with the other stages the pupils will develop a critical understanding of each individual's responsibilities in a diverse society and society's responsibility for the individual. They will also develop a growing sense of what it means to be part of Europe's future.

To achieve this aim in school education, it is necessary to take a closer look at critical thinking as a process. Furthermore, you have to determine how pupils can benefit from it. Cottrell (2005) defines critical thinking as a 'complex process of deliberation which involves a wide range of skills and attitudes' (Cottrell, 2005). According to Cottrell critical thinking as a process means:

>   » *Identifying other people's positions, arguments, conclusions.*
>   » *Evaluating the evidence for alternative points of view.*
>   » *Weighing up opposing arguments and evidence fairly.*
>   » *Being able to read between the lines, looking beneath the surfaces, and identifying false and unfair assumptions.*
>   » *Recognizing techniques used to make certain positions more appealing than others, such as false logic and persuasive devices.*
>   » *Reflecting on issues in a structured way.*
>   » *Drawing conclusions whether arguments are valid and justifiable.*
>   » *Presenting a point of view in a structured, clear, well-reasoned way that convinces others.*

Furthermore, Cottrell formulates numerous benefits of improving critical thinking skills in school. Pupils develop a better attention and observation and they are more focused while reading. That may be described as the ability to identify key points in a text and to respond to appropriate points in a message. Moreover, they gain knowledge of how to get their own point across more easily. In addition, critical

thinking provides analysing skills which pupils can use in a variety of situations (Cottrell, 2005). On developing critical thinking in school, Elaine Jackson (2002) goes on to say that pupils come to 'know how to learn as well as to know what to learn'. According to her, 'effective teaching is not about covering the content', but about 'uncovering the learning' (Jackson, 2002). That again emphasizes the importance of critical thinking for the future.

ANALYSING AND EVALUATING THE QUESTIONNAIRE

ABOUT THE QUESTIONNAIRE

In order to analyse how critical thinking was developed in the classes of this project, we collected the data we needed from the student teachers with the help of a questionnaire, which we developed. We asked the student teachers (a total of 20) to fill in the five-item questionnaire as detailed as it was possible. While analysing and evaluating the data, we used graphs to illustrate the data resulting from yes/no questions. Furthermore, we categorised or compared and contrasted the answers we got from the open questions, and then depending on these data we tried to come up with further information and explanations.

DEVELOPING CRITICAL THINKING IN CLASS

While analysing graph 1, it was obvious that almost everyone used critical thinking in their lessons, except for a mere 9 %, who did not prefer it. The results from the questionnaire also reveal that a few students worked with critical thinking only in the second lesson and not in the first one. All student groups, except two, used critical thinking. However, a few of them reported that they could not achieve the aim of developing critical thinking because the pupils' level of English was not high enough to express their opinions.
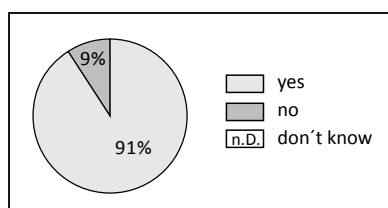
Graph 1: Developing critical thinking skills

In general, all of the student teacher groups used critical thinking in nearly similar ways. Most of them used critical thinking in combination with the strategies they had chosen before, which was not very difficult, since the critical thinking process is already included in the project's strategies or it is very easy to adopt. It is important though to consider how well each strategy is used. Furthermore, one has to consider how the teaching is done and how the communication is carried out.

The majority started the lesson by asking general questions which led the class into the theme. During their strategies most of them applied critical thinking

in combination with different methods. There were some groups which tried to ask deeper questions and replied questions with questions. Additionally, as they reported, they encouraged the pupils to justify their opinions and to give evidence for their results. Furthermore, they mentioned that they told the pupils to compare their opinions with the ones of their classmates and the pupils should think about changing their minds.

Finally it has to be noticed, that most of the groups developed critical thinking by either saving this process to the end of the class or working with it from the beginning. The fact that the student teachers thought that most of the pupils were familiar with critical thinking processes might have played a role in this.

But as graph 2 illustrates, only 25 % of the pupils knew how to think or work critically in a lesson, which means they asked many critical questions and they had lively group discussions in their lessons, while 75 % of the pupils were only partly used to performing critical thinking. This conclusion might stem from the difficulty of getting to know the pupils' thoughts in only 40–45 minutes. Moreover, developing critical thinking and providing something useful in such a short time seems to be very difficult for many students.
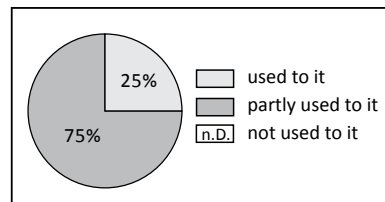
Graph 2: Pupils' confidence regarding critical thinking

DEVELOPING CRITICAL THINKING WITH THE STRATEGIES

In order to find out what the most useful way to develop critical thinking is, we asked the student teachers to name the strategies they used during the lesson. Afterwards, they should explain in what ways these strategies were useful to develop critical thinking in school. The student teachers mentioned the following strategies and reasons:

Intelligent guesswork is a strategy which enables pupils to estimate what things could be like, and in relation to their own knowledge they could find explanations and discuss them. While performing the activities of the strategy odd one out, the pupils needed to delete some statements through thinking in a critical way and they had to explain and discuss why they thought this way. In order to extend the thoughts and ideas of the pupils the strategies silent debate and brain writing were regarded as very useful. These two strategies also helped pupils to develop their own arguments and the arguments of others. With the strategy living map, pupils were encouraged to ask questions about the map, in order to compare their opinions and to discuss the facts shown on the map. In addition, living map was identified as a good strategy to evoke the assumptions of pupils. On the other hand, since the strategy picture frame requires going beyond the image of the picture, the student teachers mentioned that the strategy let the pupils analyse the

information shown on the picture in more depth. The strategy international press conference allowed the students to have concrete and permanent outcomes and to think about possible reasons for differences and similarities. Besides, it gave the pupils a chance to argue from a different point of view. Open fish bowl is a strategy which helped the pupils to reflect their own thoughts about similarities and differences and to compare them with the group. The what-would-happen-if-strategy should also be added to the list because it leads the pupils to look at things from a different point of view and reflect their thoughts. The chessboard-strategy was useful to think in different ways because it included a discussion about the matter. In order to find and explain patterns for similarities and differences the four corner method is also a good choice.

According to the results of this evaluation, it is possible to formulate three conclusions. First, to develop critical thinking in school, many strategies are useful, especially the ones which leave room for discussions in class, in groups or with a partner. This includes thinking about one's own point of view, the opinions of others and related theories to explain the matter. If the strategy allows students to look from a different point of view, it is even more useful to develop critical thinking. Secondly, this should not create the impression that every method automatically develops critical thinking in school. It also depends on the teacher and his/her critical thinking skills as well as on the pupils and their critical thinking level. Furthermore, the questions, which are asked during a lesson, are important, because they encourage the pupils to think in a critical way according to their skills. And finally, it can be said that it is not possible to reach this aim in one lesson and with one strategy. Developing critical thinking is a process which needs a variety of strategies and time according to the knowledge of the pupils.

PROBLEMS AND SOLUTIONS WHILE DEVELOPING CRITICAL THINKING

Although the pupils were used to performing critical thinking and the student teachers expressed that they developed critical thinking in their classes, some problems occurred. These problems can be investigated in three categories as pupil-related, teacher-related and strategy-related. All in all, they are generally easy to handle.

Under the title of pupil-related problems, there are many types of problems that occur as individual or class problems. For example, in one class, there was a student who interrupted the others all the time and distracted the class. Neither specific questions nor warnings nor encouragement worked. Maybe this requires a longer period of time to handle. On the other hand, in another class, there was a group of similar pupils, but when they received a task like presenting the group poster, they felt more responsible and contributed more to the lesson. In some classes, some pupils were not motivated enough and could not concentrate on thinking critically; therefore, the student teachers talked to them individually and gave

instructions in the native language to gather more attention. Actually, both ways worked. To motivate the tired and sleepy pupils in the class, some student teachers used greeting games as energizers and the class became livelier. In another class, there were some shy pupils and the student teachers commented that they needed more time to get to know each other. Nevertheless, they achieved breaking the ice by going straight to the activity groups to guide them. The pupils' lack of knowledge was another problem area, which impeded the process from the very beginning. Hence, the student teachers gave them hints and asked directed and rhetorical questions such as 'Don't you think ...?' When the pupils were very silent after seeing a map, when they could not find questions to ask or could not come to the point, or when they were not used to performing critical thinking, the solution was always to ask various types of questions (leading questions, why-questions, example questions etc.). When the pupils tended to stick to their opinions, three things worked: stirring a class discussion, mentioning other opinions and asking questions about them. Time limitation of just one lesson sometimes produced difficulties for both pupils and student teachers. The pupils either could not come up with explanations or wanted to go on with their discussions while the student teachers sometimes needed more time to prepare deeper questions or answers to the questions. A better organisation of the lesson plan, more experience of the teachers and better acquaintance with the class might be helpful. Another problem related to the student teachers was that they could not always find satisfactory answers to the why-questions of the pupils. Although they dealt with these by saying that there were multiple reasons and that there were only 1000 people in the survey for those maps, more background information on different countries and more experience could have been helpful. There was only one strategy-driven problem: The four-corner-method seemed not to be motivating enough on its own, but when a role play was added, the problem was solved.