The Potential for Thinking Skills and Personal Capabilities to Enhance Pupil Project/Topic Work

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Abstract
This paper seeks to highlight the potential benefits and drawbacks of the introduction of the Thinking Skills and Personal Capabilities Framework into the Northern Ireland Curriculum (2007), specifically as a tool to enhance pupil project and topic work. Consideration of research combined with first hand experience in Northern Irish Primary classrooms led the writer to conclude that an 'infusion' approach of teaching both subject knowledge and critical thinking simultaneously has the most potential to enhance primary pupils' learning experiences.

What are thinking skills and personal capabilities?
One of the aims of the revised Northern Ireland Curriculum (2007) was to place an explicit emphasis on the development of pupils' skills and capabilities for lifelong learning and for operating effectively in society. This aim manifested itself in the introduction and implementation of the Thinking Skills and Personal Capabilities (TSPCs) framework as part of the curriculum. These thinking skills are laid out as tools that allow pupils to go beyond the mere acquisition of topic or subject knowledge and are categorised into five areas as outlined by CCEA (2007b): Managing Information, involving asking, accessing, selecting, recording, integrating and communicating; Thinking, Problem Solving and Decision Making, involving searching for meaning, deepening understanding and coping with challenge; Being Creative, involving imagining, generating, inventing and taking risks for learning; Working With Others, involving being collaborative, being sensitive to others' feelings and being fair and responsible; and Self Management, involving evaluating strengths and weaknesses, setting goals and targets and managing and regulating self.

What are the benefits of developing TSPCs?
Costa (2008) argues that as educators, we should not be preparing our students for a life of tests, but rather for the test of life, and this view is supported by Benjamin et al. (2013), who believe that placing a greater emphasis on critical thinking in education is essential in order to equip tomorrow's workforce with the necessary skills and abilities they need to meet the demands of modern careers. McGuinness (1999) argues that the implementation of the TSPCs into the NIC (2007) achieves exactly that by allowing pupils to become more skillful learners who are more adaptable and flexible, who consider all options before jumping to conclusions and who can transfer their learning to other situations. She also states that focusing on thinking skills in the classroom supports active cognitive processing and enables pupils to engage more meaningfully with the topic or subject content by teaching them to adopt a critical attitude to information and argument as well as to communicate effectively.

Thinking about thinking within the classroom can also help teachers to create a more inclusive learning environment (Clark, 2007), and the TSPCs framework is laid out in such a way that it

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allows pupils to progress at different rates and succeed in different areas according to their own strengths and abilities. The activities promoted by CCEA (2007a) as a means of integrating the TSPCs into pupils' learning also lend themselves to creating a more inclusive environment, as they can be completed by any pupils within mixed ability groupings, and provide an opportunity for all learners regardless of ability to have a positive learning experience.

Implementing a thinking skills approach in the classroom

Thinking skills can be taught and implemented in the classroom through a variety of approaches. These include direct instruction of thinking in non-curricular contexts as outlined by Lipman (2003) and use of methods to promote thinking within and across the curriculum (McGuinness, 2006). CCEA (2007b) advocate an 'infusion' approach, which means that topic or subject knowledge and critical thinking are taught simultaneously (McGuinness, 2006). An infusion approach not only results in the parallel development of topic knowledge and thinking skills, but also allows pupils to more ably apply or transfer the thinking skills they have acquired to other areas of learning both within and beyond the curriculum. This is achieved by using subject content to provide a rich context within which pupils can deepen their understanding of the skills concepts. CCEA (2007b) argues that the key idea behind developing thinking skills is that they are easily transferable, and this approach is therefore more suited than others to meeting both the curriculum criteria and the pupils' needs, which set out to develop pupils' metacognition skills in a vacuum.

Practically, achieving an infusion approach in the classroom requires teachers to focus on making thinking important; by giving plenty of opportunities and time for pupils to develop their thinking skills, and making thinking explicit; by helping pupils to recognise the processes and steps within their thinking during tasks and activities (Swartz and McGuinness, 2014). Some useful activities teachers can use to make thinking important and explicit in the classroom are outlined in the CCEA (2007a) Active Learning and Teaching Methods document. They include ideas such as 'think, pair, share,' which provides time for pupils to consider their responses to questions, and 'card ranking,' which develops thinking and decision making abilities by asking pupils to sort and rank information and ideas.

Another widely used strategy to make thinking explicit within an infused approach is through the use of De Bono's six thinking hats. Jeeson (2012) outlines how using the different 'thinking hats' to consider a problem from a number of different angles in turn (for example, using the white hat to look at the facts, yellow hat to explore positives, black hat to consider potential difficulties, red hat to express emotions and feelings, green hat to focus on possibilities and new ideas and blue hat to organise and make decisions) encourages creative thinking about any topic or problem and promotes higher order thinking skills, including analysis, synthesis and evaluation.

McGuinness (1999) reports that teaching from a thinking skills perspective is increasingly evident in history and geography lessons, and it is easy to see how these strategies may be applied within such topic based subjects to deepen pupils' understanding of the information they are learning. Examples of thinking skills lessons designed to allow pupils to engage further with topic content, while also developing and extracting the process of specific thinking skills, were shared with the writer during a visit by Carol Weatherall from the Education Authority in Northern Ireland. She is an expert in thinking based learning, and she demonstrated ideas such as a 'Choices' thinking diagram, used to develop decision making surrounding the issue of

evacuees as part of a World War II history topic, and a 'Compare and Contrast' thinking diagram that could be used to deepen understanding of certain climates or habitats as part of a geography topic. These types of activities within lessons are extremely useful in topic or project work, as children cannot become better thinkers solely by learning a content based curriculum (McGuinness, 2006); however, participating in thinking skills activities while developing history and geography topic knowledge makes learning more relevant to pupils, as they are learning for real reasons in a highly motivating environment (Benjamin et al. 2013).

Benefits of using thinking skills strategies in the classroom

A study by Higgins et al. (2005) into the impact of the implementation of thinking skills approaches found that when used in schools, thinking skills activities, such as those outlined above, were effective in improving pupils' performance on a range of tested outcomes. McGuinness (2006) also reports positive findings from a study which looked at ways in which teachers can emphasise thinking skills within curriculum topics. Participants reported substantial changes in the quantity and quality of group work, increases in talking and listening and quality of questioning, and overall more pupil involvement and independence in their own learning.

However, McGuinness (2006) also noted that the positive effects of thinking strategies were small in comparison to other known background factors affecting attainment, such as social-economic circumstances and age-in-class, and some variation in the impact of developing thinking skills was found between subjects; Higgins et al. (2005) reported that there were more perceived benefits in subjects such as science compared with reading. Despite this, research shows that participating in thinking skills development programmes has a statistically significant positive effect on how both pupils and teachers regard their use of cognitive strategies, and the importance of this must not be overlooked.

Drawbacks of thinking skills?

Despite the growing evidence to prove its worth in the classroom, critical thinking does have its critics, and Johnston (in Johnston and Siegel, 2010) goes into lengthy detail outlining the drawbacks of a thinking skills approach to education. He argues that the infusion method of teaching thinking appears to use subject content merely as convenient hooks on which to hang general thinking skills, and the primacy of process rather than content is the first step in the devaluing of knowledge. In his advocacy of content, Johnston (2010) would argue that appropriate, detailed, subject specific knowledge renders thinking skills redundant. McGuinness (1999) herself is also aware of the danger of downplaying subject specific knowledge, stating that teachers' existing craft knowledge can be threatened as they struggle to implement a more constructivist thinking environment. However, she goes on to resolve this by advising that a balanced approach between the development of thinking skills and teaching about detailed content can be achieved if teachers allocate sufficient time for planning lessons in a way that considers their own learning intentions with regard to higher order thinking, and for designing appropriate tasks and activities that explore topic content alongside developing skills (McGuinness, 2006). Siegel (in Johnston and Siegel, 2010) also challenges Johnston's (2010) view, reasoning that advocates of critical thinking do not, in general, reject subject matter content knowledge, but see skills and knowledge working together.

Another argument against thinking skills put forward by Johnston (2010) concerns the view that they should be explicitly 'taught'. He ponders how competent thinkers of the past managed to develop without this explicit teaching, and asks if direct methods are essential in developing

thinking skills in pupils. This disparagement of making thinking processes explicit can be answered by CCEA (2007b), which states that most of our thinking does happen naturally and informally, but developing thinking skills explicitly means designing learning so that pupils can reflect upon what processes they went through during thinking, and store these procedures to allow them to think more skillfully in the future.

Conclusion

Higgins et al. (2005) state that a thinking skills approach to teaching topic and project work within a classroom not only specifies what is to be taught, but also how it is taught, in order to draw out learning of both content and metacognitive skills. In order to achieve this, teachers must provide classrooms with 'thinking atmospheres' where explicitly talking about thinking, and well planned activities that marry the development of content knowledge and thinking skills, are not only tolerated but actively pursued (McGuinness 1999). As Dewey (1916, p. 169) so aptly puts it:

> the quality of the mental process, not the production of correct answers, is the measure of educative growth.

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