



Getting critical about education

Professor Marie-France Daniel believes that critical thinking forms the foundation of a solid education. Here, she discusses how her research is helping to better understand how critical thinking manifests in young children



How did you develop an interest in critical and responsible thinking in school pupils, and what motivates you in your research?

Intrigued by the dichotomy between theoretical studies and my observations that students are able to think critically, I began to study pupils' thinking. Are they able to justify their opinions? To imagine viable options? To strive to understand their peers' points of view? Are they open to self-correction? Conducting research projects in this area remains an exciting challenge for me – one that is likely to contribute to the advancement of knowledge in this field and to enrich educational programmes which do not seem, *a priori*, to stimulate pupils' cognitive and social potential.

Why is the transmission of knowledge in and of itself not enough when it comes to educating pupils?

From my perspective, traditional schools standardise pupils, teaching them what to think, rather than how to think. Yet education must go beyond instruction. Providing pupils with too many answers stifles their curiosity and their motivation to think on their own. Moreover, in the present day, knowledge multiplies at an accelerated pace and has a limited lifespan. If schools intend to continue playing a progressive role in social change, they must balance the transmission of a public

heritage with the co-construction of a common culture. They must also favour dialogue among peers, transform classrooms into communities of inquiry and stimulate pupils to think autonomously and critically. When they leave school, pupils would then be better equipped to transform acquired information into knowledge that is innovative and meaningful to society.

Is development of critical thinking an explicit objective in school curricula? How is it articulated?

Development of critical thinking is an objective in a majority of school curricula in Western countries, but this objective seems ancillary. Some school curricula consider a body of knowledge to be a prerequisite to the development of critical thinking, thus the development of critical thinking is regularly deferred to upper grades. In other curricula, teachers are encouraged to stimulate critical thinking in pupils but are given no criteria to evaluate the progress of pupils' development in critical thinking. Some curricula provide a definition and evaluation criteria for critical thinking, but the latter are not directly related to the definition provided, so that teachers do not clearly understand what it is they have to stimulate in pupils. It should also be noted that teacher education programmes do not explicitly look at critical thinking in pupils. Consequently, competencies associated with critical thinking

are not stimulated in youngsters in a sufficiently explicit manner to help them make enlightened and responsible choices.

How could the development of dialogical critical thinking (DCT) in schools improve the quality of pupils' education and social experiences?

Introducing an educational objective focused on the praxis of DCT would be likely to improve the quality of education because it would imply that schools consider young pupils as individuals in their own right, who are able to question, reflect, suggest original and adapted solutions, and make appreciative judgments based on reliable reasons or criteria. In so doing, schools would help pupils develop the habit of thinking critically, as well as the necessary self-confidence to do so in a rigorous and empathic manner. The introduction of an educational objective explicitly associated with DCT, without being a magic wand, would be a significant tool for forming responsible and engaged citizens who are motivated to become involved in the improvement, or implementation, of their democracy.

What are the current strategies for stimulating CT and DCT in schools?

At least three strategies to stimulate CT in pupils are highlighted in the literature. The

Teach a man to fish

Critical thinking is a powerful tool for experiencing the world. Research at the **Université de Montréal**, Canada, aims to understand how critical thinking develops in children so that teaching programmes can be adapted to nurture this competency in young students

IN A COMPLEX world filled with contradictions, to many of life's problems there is neither a single answer nor a single method that can be used to reach meaningful answers or valid solutions. From interpreting the news to choosing which politician to vote for to making sense of scientific claims, the most important tool at an individual's disposal is the ability to think critically.

A critical thought enables one to evaluate a variety of opinions and sources and to reach one's own conclusions. It helps people to move beyond blindly accepting what they are told and allows them to update their worldview to account for novel information. Furthermore, it has been suggested that critical thinking is intertwined with an individual's ability to counter prejudice because the process facilitates empathy and helps the individual to better understand the position of others even when they are not aligned with their own core beliefs.

MOVING BEYOND THE FACTS

Although critical thinking is a highly sought after competency – both at university level and in employment – many education systems fall short when it comes to imparting this competency to students. It is widely accepted that student curiosity tends to decrease with age – and the majority of learning at schools is done by rote, with a focus on monologue teaching and the passive acquisition of 'facts'.

Students are often not taught to question until they are in the latter stages of their pre-university education, despite the fact that many of the top universities select students based on their ability to reason critically and digest new information. This lack of critical thinking in education, and accompanying overemphasis on learning stock knowledge acquired over the centuries, is problematic, partly because society is accumulating new knowledge at an ever-increasing rate and also because the knowledge acquired by rote has limited use in comparison to the skill of learning

independently. This is neatly conveyed by the old Chinese proverb: 'Give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime'.

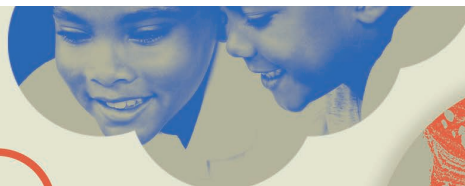
Unfortunately, very little is understood regarding the development of critical thinking skills in very young pupils. Indeed, many scientific studies have suggested that elementary school pupils are unable to think critically. Professor Marie-France Daniel, of the Université de Montréal, disagrees with this notion. Her own research and observations have led her to conclude that critical thinking can, and should, be nurtured from a much younger age than is currently done in practice. "When stimulated with educational approaches such as Philosophy for Children, elementary school pupils are able, while leaning on their concrete experience, to reflect on complex questions such as: 'What is a mystery?' 'What is love?' 'Does God exist?'" she points out.

REACHING UNDERSTANDING THROUGH DIALOGICAL CRITICAL THINKING

Daniel is a proponent of dialogical critical thinking (DCT). DCT is a form of critical thinking elicited through conversation and interaction with peers. Her first empirical study of DCT considered eight groups of children between the ages of nine and 12 from a variety of cultural and linguistic backgrounds – (Quebec) Canada, Mexico and Australia. This preliminary work allowed the team to form an early model of DCT development.

To do this, the researchers established a framework for analysing DCT. They split student interventions during class into four categories of thinking – logical, creative, responsible and metacognitive – depending on the nature of the comments or questions made by the students. In this context, discourse linked to a search for coherence, order, informal logic or uniformity was classed as logical. Meanwhile, the search for meaning, context for points of view and comments reflecting

first strategy is technical – it considers CT as a predefined product and its teaching is associated with learning the rules of formal logic. Thus the disadvantage of this strategy is short-term retention. The second strategy is humanist and considers CT as a reflective practice – the development of which occurs through openness to others, sometimes to the point where the evaluative aim of CT is omitted. The third strategy is socio-constructivist and considers CT as an evaluative praxis that strives for individual and social empowerment. In contrast to a search for a single truth, praxis is a quest for valid meanings that occurs both through and within peer interactions. The implementation of this strategy is not very popular because it implies changes in mentalities, educational programmes and, indeed, the very act of teaching.





original or divergent thoughts, were classed as creative. Interventions attempting to connect behaviour with moral rules and taking into consideration peers and society's ethical values and principles were classed as responsible. Finally, the metacognitive category refers to awareness of thought, comprising comments that reflect consideration of one's own or another's opinions, as well as introspection and self-correction.

Additionally, analysis of the results revealed that the process of moving from relatively simple perspectives to more complex ones is recursive. This means that it does not progress in clear stages, but instead that complex epistemologies are acquired in parallel with simpler ones, and that they interact with one another. Simpler epistemologies then gradually fade as thinking is enriched and transformed.

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The team found that DCT develops in elementary school students through six epistemological perspectives, from simple to complex, manifested as egocentricity in the earliest stages, passing by relativism to inter-subjectivity. In simple terms, this means that students at earlier stages are more likely to view the world through their personal experiences, while a student in the phase of relativism is more likely to appreciate the diversity of different viewpoints. Finally, the later stages tend to involve peer interaction and the co-construction of arguments aiming at a common good.

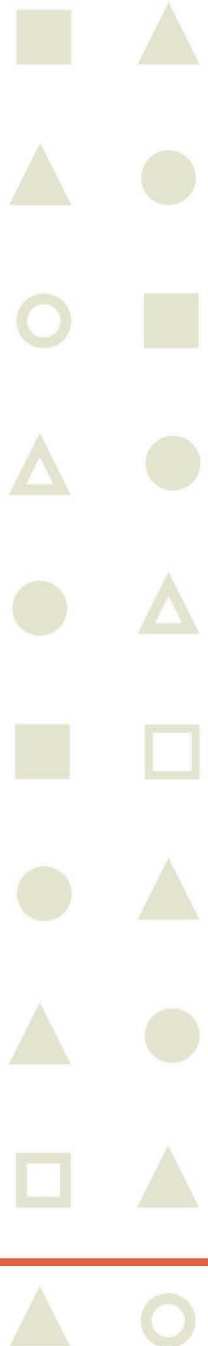
BEYOND RELATIVISM

Daniel and her colleagues also found that the intermediate perspective – relativism – is fundamental to expressing the most complex forms of DCT. However, they suggest that the entire process is dependent on transcending the relativism phase: "If we wish to improve the quality of the individual and democratic experiences, we must help pupils transcend this epistemological perspective and encourage them toward inter-subjectivity, which underpins questioning and a constructive evaluation of viewpoints to enrich and transform the individual and common experience," Daniel explains.

Indeed, relativism is a particularly important aspect in the process of DCT because it reflects openness regarding the plurality of possible conflicting viewpoints. The problem arises when one reaches the conclusion that all viewpoints are equally valid – a postulate of absolute relativism: "Absolute relativism can therefore lead to acceptance of everything – even the unacceptable – without questioning and without prioritising. Absolute relativism is an increasing phenomenon within contemporary societies, bearing foreseeable consequences on social impoverishment," says Daniel.

YOUNG AND CRITICAL?

Using a similar framework for analysing DCT



development, Daniel's team has since focused on the development of critical thinking in 17 groups of children between the ages of four and 12 years old from diverse cultural and socioeconomic backgrounds in Quebec, Ontario and France. These groups of children studied Philosophy for Children (P4C) once a week for one year in order to facilitate the development of DCT. The researchers found that the thinking of pupils aged between five and eight was situated predominantly in the pre-relativist perspective, and that the thinking of pupils aged between eight and 12 was situated predominantly in the relativist perspective.

Additionally, preliminary results from an ongoing study of students between the ages of 12 and 16 showed that the thinking of adolescents in a typical school curriculum, not including a DCT praxis, is situated predominantly in pre-relativism. Daniel and her colleagues argue that this demonstrates that insufficient attention is being given to developing DCT in many schools, and that such competencies must be nurtured from an early age.

WHAT ABOUT DISCURSIVE AND LANGUAGE COMPETENCIES?

Moreover Daniel's team decided to explore whether P4C was capable of influencing the school success of students at different plans. They studied the effects of philosophical praxis on discursive and language competencies in four year olds, comparing two groups.

The first group consisted of four year olds who received a four-month philosophical praxis and the second control group consisted of five year olds who had not received any philosophical praxis. Daniel's team then considered the typology of exchanges of the two groups and additionally compared the usage of different types of language markers – 'I', 'we' 'he', 'they', 'you'. Interestingly, the team found that the group receiving the philosophical praxis engaged in three types of exchange:

anecdotal, monological and dialogical, and the children most often used the language marker 'they'. In contrast, the group not receiving any philosophical training stuck to anecdotal exchanges and predominant usage of 'I'.

This appears to suggest that the discursive and language competencies of students are strongly affected by even a relatively brief exposure to a praxis such as P4C. By improving fundamental and generic competences such as DCT, and by helping students to better express their ideas, students will be able to take far more from their studies.

ADVANCING UNDERSTANDING

Daniel's current project is set to continue until 2018-19, and, in this time, she and her team hope to forge a better understanding of the development of DCT in different age groups – for example, in 10-19 year olds. The team will also investigate the possible effects of cultural background, using (Quebec) Canada, France and Morocco as examples.

Additionally, the researchers plan to analyse the importance of critical thinking in secondary schools, taking into consideration the infrastructure of schools. After this, Daniel hopes to focus on introducing DCT into teacher education programmes and to build a deeper knowledge of how teachers can stimulate DCT in their students. Ultimately, the hope is that her continued endeavours in this area will lead to the effective and appropriate integration of DCT into educational systems.

TOOLS FOR LEARNING

'Give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime':

To Professor Marie-France Daniel, the latter half of the Chinese proverb corresponds to: teach children how to think critically to help them construct their world.

UNDERSTANDING, STIMULATING AND DEVELOPING DIALOGICAL CRITICAL THINKING IN ELEMENTARY SCHOOL PUPILS

OBJECTIVE

To investigate the development of dialogical critical thinking in elementary school pupils with an emphasis on improving quality of education.

KEY COLLABORATORS

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MARIE-FRANCE DANIEL is a full professor at Université de Montréal. She has focused on teaching critical argumentation and professional ethics at the Département de kinésiologie for nearly 20 years. In parallel, her research projects, subsidised by SSHRC, deal with concepts of dialogical critical thinking and critical dialogue. Her works are published in Canada, Europe and the US.

