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DIALOGICAL CRITICAL THINKING IN KINDERGARTEN AND ELEMENTARY SCHOOL

Studies on the impact of philosophical praxis in pupils

Marie-France Daniel, Mathieu Gagnon and Emmanuèle Auriac-Slusarczyk

The creator of the Philosophy for Children (P4C) programme, Matthew Lipman, suggests that children are able to mobilize critical thinking (CT), particularly when they are stimulated in this direction through P4C programme, and that they should be encouraged to do so as soon as they start school (Lipman, Sharp & Oscanyan, 1980). From this perspective P4C is a very useful pedagogy that contributes to improving the quality of education (Lipman, 1995, 2005). CT is one component of reasoning activity, and combines fruitfully with logical and creative thinking, and with caring attitudes to stimulate meaningful thinking about the world, as proposed in the P4C programme (Lipman, 1995).

Lipman's thesis remains controversial in the community of academic philosophers and researchers, and continues to fuel debate. To shed light on this controversy, it is essential to evaluate pupils' cognitive and epistemological development in order to, first, investigate the philosophical quality of the exchanges and, as a corollary, to illustrate the positive impact of P4C on learning in schools.

To that end, many philosophers and researchers involved in P4C have studied 'evolution' or 'epistemic progress' manifested within pupils' discourse (among others: Auriac-Slusarczyk & Colletta, 2015; Golding, 2009, 2013; McCall, 2009; Millett & Tapper, 2012; Rondhuis, 2006). Also, since the 1980s, many studies have demonstrated the positive impact of P4C sessions on the development of logical reasoning in elementary and secondary school pupils (for a review: Topping & Trickey, 2007; Trickey & Topping, 2004).

However, a review of the literature relating to P4C shows that the only existing empirical studies on CT are conducted with adolescents in secondary school (among others: Collins, 2004; Gagnon, 2011; Haynes & Haynes, 2000; Lam, 2012; Othman & Hashim, 2006).

This chapter seeks to answer the following questions: Can P4C contribute to the development of CT in kindergarten and elementary school pupils? What elements should be embedded in the definition of CT? First we present the concept of CT as explored by philosophers. Then

we briefly describe the empirical model of the developmental process of CT that emerged from our analyses of pupils' exchanges during P4C praxis. Finally, using this model as an analysis grid, we present the results of research projects we conducted with apprentice philosophers aged five to 12 years. Results show that these pupils did in fact engage in the process of CT, as defined in our model.

Critical thinking

Where does the concept of critical thinking come from? How is it conceptualized in the field of P4C? How is critical thinking studied empirically in the fields of psychology and epistemology? CT seems to have its source in informal or applied logic. At the beginning of the twentieth century, John Dewey, building on the theoretical model of Charles Sanders Peirce, proposed a reflective method in five steps to provide individuals with a tool to evaluate the causes and consequences of their actions (Dewey, 1903/1933). Dewey stressed the importance of teaching/learning to think, in order to help students to reflect in an autonomous and critical manner. His aim was to improve the quality of the individual and of the democratic experience (1916/1983). The movement of informal or applied logic continued to develop during the 1950s with philosophers such as Max Black and Monroe Beardsley, who attempted to make logic accessible to students. Black did so by associating logic with language, and Beardsley by emphasizing the search for meanings (vs. the search for truth). Then in 1962, Robert Ennis proposed a first definition of the concept of CT based on logical reasoning. Later on, Ennis's definition of CT came to include two thinking modes, logical and creative, and the intellectual predispositions associated with these modes. These two modes of thinking are included in Lipman's P4C programme. In the 1980s, the concept of CT was further developed by philosophers such as Richard-Stanley Peters, John Passmore and Michael Scriven, to name only a few. Their works represent a significant contribution to recognition of the importance of thinking in education. Today, the most quoted definitions of CT are those of Ennis (1962, 1985), Lipman (1988), John McPeck (1990), Richard Paul (1990) and Harvey Siegel (1988) (for more information, see Auriac-Slusarczyk, Adami & Daniel, 2011).

Since Lipman is the creator of the P4C programme, with his first collaborator Ann-Margaret Sharp and with Frederick Oscanyan, we succinctly present his definition of CT, inspired by the works of Peirce and Dewey. For Lipman, CT contributes to reinforcing complex thinking, which is mobilized through peer dialogue concerning situations, concepts or principles associated with daily life (Lipman, 1995). CT is a tool to counter non-reflective thinking and action. Individuals need critical thinking in order to think well and to evaluate, among all the information received, the most relevant in accordance with the objectives they pursue. At the core of Lipman's definition is the notion of 'good judgment', that is, judgment that takes into account the central elements of a problem and follows the inquiry steps to solve it. In this sense, CT is governed by criteria, is self-correcting and is sensitive to context (Lipman, 1988, 2003).

Like Lipman, many proponents of P4C consider CT to be a meaningful tool for the reconstruction of society, but only to the extent that it is embedded in a non-indoctrinating pedagogy such as the community of inquiry (Fisherman, 2010; Matt, 1985; Tsiplakides, 2011; Weinstein, 1988). Some maintain that CT aims at the rational validation of achievements, structures and values based on criteria (Weinstein, 1988, 1994). Others define CT as thinking that is imaginative (Pritchard, 1987), autonomous and open to differences (Matt, 1985), and

that falls within the scope of inter-relational and dialogical ethics (Boe & Hognestad, 2010). CT is thinking that questions (Scholl, 2005) and searches for meanings (Nowell, 1995) to the extent that the content of discussions among pupils is contextualized based on the pupils' school and family experiences (Weinstein, 1988). Proponents of P4C consider that CT, unlike the problem-solving approach with which it is sometimes confused, cannot be evaluated with standardized tests, which are too restrictive (Gagnon, 2011; Matt, 1985; Pritchard, 1987).

Over the last thirty years, researchers from various fields (i.e. health sciences, developmental psychology, epistemology) have been empirically investigating CT in students (students not involved in P4C). Among these, some establish a correlation between the development of CT and the personal epistemological development of students.

A review of the literature indicates that most studies are conducted with adolescents and particularly with young adults attending college and university (for an overview: Hofer & Pintrich, 2011). To measure the development of CT, most researchers use interviews or individual tests that are primarily associated with applying the rules of formal logic (Kwak, 2007).

Empirical research

Over the past ten years, we have conducted research projects on CT[1] in 28 groups of pupils aged five to 12 years from several countries (Quebec, Ontario, France, Mexico and Australia).[2] Analyses were carried out on transcripts of pupils' exchanges during P4C sessions.[3]

Phase 1. Toward a model of the developmental process of (dialogical) critical thinking

The first research result we obtained was based on the qualitative methodology of Grounded Theory (GT) (Charmaz, 2005). The objective of a GT analysis is to draw out a new understanding of a phenomenon from data collected on the ground. Thus, although we were familiar with the classical definitions associated with CT, we focused on the pupils' manifestations of CT.

A developmental process of dialogical CT emerged from our analyses of pupils' exchanges. In this process, CT is referred to as 'dialogical' CT (DCT) to highlight and clarify that CT mobilized within the P4C community of inquiry emerges from interactions and dialogue among peers. Philosophical dialogue stimulates divergence in points of view, which raises doubts or cognitive conflicts in pupils' minds. The teacher can participate in raising these doubts by asking pupils for counter-examples, different alternatives and so on. These doubts and cognitive conflicts represent the starting point of the reflective and critical process (Dewey, 1903/1933).

The analyses revealed that DCT is not exclusively oriented towards argumentation and conceptualization (logical thinking). DCT also encompasses reflection based on divergent relationships with the intention of transforming perspectives (creative thinking), evaluating behaviours and social/ethical values to improve societal bases for human life (responsible thinking), and reconsidering one's thoughts and perspectives in order to self-correct one's representations of the world and one's relationship to or engagement in the world (meta-cognitive thinking).

The analyses of the transcripts also revealed that the manifestations of these four thinking modes (logical, creative, responsible, meta-cognitive) included in our interpretative model are articulated along a spectrum from the simpler to the more complex. We used the notion

of 'epistemological perspectives' to express the diversity of manifestations inherent in each thinking mode and also to account for the increasingly complex process of DCT in pupils. Here epistemology refers to a relational epistemology (versus an individual one) that situates the development of thinking within a process of social construction: a process of dynamic thought and language construction with others (Thayer-Bacon, 2003). The concept of perspective refers to the groups of pupils' representations of the world (i.e. are their representations of the world centred on the self? Are they open to others' points of view or alternatives? Are they striving towards responsible improvement of society?).

To guide the interpretation of subsequent transcript analyses, six epistemological perspectives that progressively emerged from repeated transcript analyses were named as follows: Egocentricity, Post-Egocentricity, Pre-Relativism, Relativism, Post-Relativism/Pre-Intersubjectivity and Intersubjectivity (examples to illustrate the epistemological perspectives can be found in Daniel & Gagnon, 2011; and Daniel, Pettier & Auriac, 2011). In the perspective of Egocentricity, pupils' representations of the world are personal and concrete, and statements are simple and generally isolated from peers' ideas (vs. relationships). In Post-Egocentricity there is a slight decentring of representations that refer to the specific experience of the pupils' immediate surroundings (i.e. family members). In Pre-Relativism, points of view underlie the beginning of generalized representations but remain rooted in the concrete environment. In Relativism, pupils' statements are issued from reasoning, based on experience; they may present concrete and/or incomplete justifications; and statements imply convergent relationships between points of view. In Post-Relativism/Pre-Intersubjectivity, representations involve conceptualized statements that introduce divergent relationships; they presuppose the beginnings of a constructive evaluation. In Intersubjectivity, statements are conceptualized and justified with criteria; they are not expressed as closed conclusions but rather as questionings; the relationships they underlie are divergent; and they seek correction and transformation of perspectives toward a Common Good (see Daniel & Gagnon, 2016). The operational model (see Appendix) became a meaningful tool for evaluating the pupils' developmental process toward DCT.

Phase 2. Some empirical results

The model of the developmental process of DCT was used as a grid to analyse pupils' exchanges during one full school year, and thus to identify which thinking modes and epistemological perspectives are mobilized when pupils philosophize (see Daniel et al., 2005; Daniel & Gagnon, 2011, 2012; Daniel, Pettier & Auriac, 2011). In this chapter, we limit the presentation of results to the epistemological perspectives without differentiating the thinking modes.

For kindergarten pupils, results reveal that in most groups, at the end of the school year, the epistemological perspective of Pre-Relativism predominates, no matter what the subject, and no matter who acted as facilitator.

A comparative study was conducted with two groups of kindergarten pupils (experimental and control groups) who shared the same socio-economic and school conditions. The experimental group of apprentice philosophers tried to answer the question: 'Are we free?', whereas the control group asked themselves: 'What is love?' By grouping results linked to Egocentric (Egocentricity and Post-Egocentricity) and Relativist (Pre-Relativism and Relativism) perspectives, we obtain the following results (see Table 27.1): 35 percent of pupils' interventions in the experimental group were manifested in an Egocentric manner and 65 percent in a Relativist manner, whereas in the control group, 60 percent of interventions were manifested in an Egocentric manner and 40 percent in a Relativist manner.

Table 27.1 Comparison between two kindergarten classrooms

	Group with P4C		*Group without P4C*	
Egocentricity	11%	35%	35%	60%
Post-Egocentricity	24%		25%	
Pre-Relativism	54%	65%	36%	40%
Relativism	11%		4%	

Is Pre-Relativism a simple or complex perspective for kindergarten pupils? To find out, we compared results from the kindergarten experimental group with a group of fifth graders who had no experience of philosophical praxis, and who were participating for the first time in an exchange on a question related to the same theme as the kindergarten group: 'What does it mean to be free?' Results (see Table 27.2) indicate that a greater percentage of kindergarten pupils' interventions was situated in Egocentricity in comparison to fifth graders (11% vs. 1%); a greater percentage of fifth graders' interventions was situated in Relativism (17% vs. 11%) and in Post-Relativism (1% vs. 0%) compared to those of kindergarten pupils; in both groups of pupils the predominant epistemological perspective was Pre-Relativism (54% and 53%). From this latter data, we might infer that Pre-Relativism is a complex epistemological perspective for kindergarten children.

We compiled results on epistemological mobilization in other groups of elementary school pupils who participated in the research (pupils from different countries who had different discussion themes and whose teachers had different facilitating styles). These results show that after one year of philosophical praxis with P4C, the groups from the first cycle of elementary school were generally situated in a Pre-Relativist epistemology with a tendency toward Relativism, and that the groups from the second cycle of elementary school were generally situated in Relativist epistemology with a tendency toward Post-Relativism. A single group from the second cycle of elementary school that had more than two years of P4C praxis mobilized DCT consistent with Intersubjectivity.

Again, we can ask: is Relativism a complex perspective for pupils at the end of elementary school? Results from two distinct studies, using the developmental process model of DCT as an analysis grid, and conducted among undergraduate university students, indicate that the epistemology of these young adults fluctuates between Egocentricity and Relativism (Forges, 2013; Lechasseur, 2015). Given these results, Relativism would appear to be a complex epistemological perspective for pupils at the end of elementary school.

Table 27.2 Comparison between two groups of different ages

	Kindergarten with P4C	*Fifth grade without P4C*
Egocentricity	11%	1%
Post-egocentricity	24%	28%
Pre-relativism	54%	53%
Relativism	11%	17%
Post-Relativism	0%	1%

Discussion

From a theoretical point of view DCT differs from CT, as the components of DCT were not 'inferred' from existing definitions, but rather 'emerged' from the analyses of philosophical exchanges among pupils. As a result, DCT comprises four thinking modes and six epistemological perspectives. It is essential that these components be included in a definition of CT because they better illustrate the complexity of pupils' thinking and its progress following P4C praxis.

From an empirical point of view, results compiled from the literature show the impact of P4C on the development of logical reasoning in elementary and secondary school students, and they showed the mobilization of CT in adolescents. The results of the research presented in this chapter demonstrate for the first time that P4C has a significant impact on the mobilization of DCT among pupils in kindergarten and elementary school.

Moreover, most of the results compiled on logical reasoning relied on a quantitative paradigm, that is, they issued from standardized tests. The appropriateness of using standardized tests is regularly questioned in the study of CT and P4C. Conversely, the results on DCT issued from observing classroom interactions and analysing transcripts of exchanges among pupils. The qualitative methodology employed not only supports the quantitative results concerning the impact of P4C on the pupils' cognitive development, but also, and mainly, provides indications of the thinking modes and epistemological perspectives that are involved in DCT. In that sense, the qualitative method allows us to widen and increase our comprehension of the processes of mobilization and development of DCT when children engage in philosophical dialogue.

Conclusion

Can P4C contribute to the development of CT in kindergarten and elementary school pupils? Innovative and exploratory results corroborate Lipman's thesis insofar as the results show that apprentice philosophers from kindergarten and elementary school are able to engage in the co-construction of DCT when they are stimulated by an approach such as P4C. These results do not indicate that children mobilize an accomplished DCT, one that is anchored in Intersubjectivity, but the results do indicate that children's representations of the concepts discussed transcend the simple perspectives associated with Egocentricity, being situating within more complex epistemologies.

In addition, the developmental model of DCT provides researchers and teachers with a tool for systematically evaluating pupils' cognitive and epistemological evolution and progress when they are engaged in P4C praxis, and thus for assessing the value of the philosophical quality of their exchanges.

It would be appropriate to conduct further empirical research in other groups of pupils, of different cultural, socio-economic and educational backgrounds to verify/complete the current results. It would be relevant to examine, for example, the components inherent in DCT and their interactions. It would also be useful to examine the influence of educational policy on the developmental process of DCT; to study the impact of the adults' teaching style on pupils cognitive and epistemological development; and to verify whether pupils can mobilize DCT on their own without the intervention of a teacher, and whether DCT is retained as a competency in the long term, when philosophical praxis is no longer present.

Appendix: Operational model of the developmental process of DCT

Mode/ Epistemological perspective	*Logical*	*Creative*	*Responsible*	*Meta-cognitive*
Egocentricity	Statement based on the perceptual experience of a specific and personal fact.	Statement that gives meaning to a personal and concrete point of view.	Statement that is related to a personal and specific behaviour tied to a social or moral belief.	Retrospective statement about a personal and specific task, point of view, feeling, etc.
Post-Egocentricity	Statement based on experience (personal or someone close) + reasoning.	Statement that gives meaning to a personal point of view (but distanced from self).	Particular/concrete statement tied to a moral or social rule (learnt). Not contextualized.	Retrospective statement about a personal task, point of view, feeling, etc. (distanced from self).
Pre-Relativism	Somewhat generalized statement that is not justified, or has an implicit, circular or false justification.	Statement that is new, divergent or that presents different situations/ solutions/ hypotheses (units) in relation to a personal idea or to someone else's idea (peer or text).	Statement linked to a somewhat generalized action in a moral or social perspective.	Descriptive retrospective of a personal task, point of view, feeling, etc. (distanced from self).
Relativism	Incomplete or concrete justification (explanation)/ reasoning based on experience.	Relationship that gives meaning to a peer's point of view (by completing it or adding a nuance).	Statement that explains a will to understand/ include others (from the immediate environment). (contextualized).	Descriptive/ explanatory retrospective of another person's task, thought, etc. (immediate environment).
Post-Relativism/ Pre-Intersubjectivity	Justification based on 'good reasons'/simple reasoning.	Relationship that presents a different context that takes into account the group's perspective.	Statement that justifies a desire to understand/ include others (distant environment) (contextualized).	Descriptive/ explanatory retrospective of another person's task, thought, etc. (distant environment).

Intersubjectivity	Justification based on criteria. Conceptualization based on evaluative reasoning. *Conceptualization*	Evaluative relationship that provides a different meaning and transforms the perspective. *Transformation*	Doubt that underlies the evaluation of categories (rules, principles, social/moral values). *Categorization*	Evaluative statement that expresses a change in perspective following the integration of criticism. *Correction*

Notes

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2 Principal investigator: Marie-France Daniel. Collaborators: Louise Lafortune, Richard Pallascio, Teresa de la Garza, Christina Slade, Laurance Splitter (Project 1). Mathieu Gagnon, Emmanuèle Auriac-Slusarczyk (Project 2).
3 For methodological details, see Daniel et al., 2005; Daniel & Gagnon, 2011.

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