Plato, metacognition and philosophy in schools

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Abstract

In this article, I begin by saying something about what metacognition is and why it is desirable within education. I then outline how Plato anticipates this concept in his dialogue *Meno*. This is not just a historical point; by dividing the cognitive self into a three-in-one—a 'learner', a 'teacher' and an 'evaluator'—Plato affords us a neat metaphorical framework for understanding metacognition that, I contend, is valuable today. In addition to aiding our understanding of this concept, Plato's model of metacognition not only provides us with a practical, pedagogical method for developing a metacognitive attitude, but also for doing so through doing philosophy. I conclude by making a case for philosophy's inclusion in our school systems by appeal to those aspects of philosophy (the conceptual, the self-consciousness and the epistemological) that are metacognitive or that are conducive to developing metacognition, as revealed by the insights afforded us by Plato's *Meno* and *Theaetetus*.

Key words

Meno; metacognition; philosophy; Plato; schools; *Theaetetus*

Thinking about thinking: metacognition and its value

The term 'metacognition' was first used by John H Flavell (1979), who described metacognition as 'thinking about thinking'. Though snappy and helpful, this description needs more explanation. Here are some commonly quoted fuller definitions:

- The knowledge and control children have over their thinking and learning activities. (Cross & Paris 1988)

- Awareness of one's own thinking, awareness of the content of one's conceptions, an active monitoring of one's cognitive processes, an attempt to regulate one's cognitive processes in relationship to further learning, and an application of a set of heuristics as an effective device for helping people organise their methods of attack on problems in general. (Hennessey 1999)

- Awareness and management of one's own thought. (Kuhn & Dean 2004)

- The monitoring and control of thought. (Martinez 2006)

- The set of capacities through which an operating cognitive subsystem is evaluated or represented by another subsystem in a context-sensitive way. (Proust 2013)

Printrich (2002) thinks that the important aspects of metacognition are *knowledge* and *control*, but central to both is *awareness*. Purposefulness, self-consciousness and self-awareness are what distinguish metacognition from cognition. Schraw also distinguishes them by saying that 'cognitive skills tend to be encapsulated within domains or subject areas, whereas metacognitive skills span multiple domains, even when those domains have little in common' (Schraw 1998, p. 116). So, if we return to Flavell's soundbite definition 'thinking about thinking' and flesh it out a little, metacognition is consciously *thinking about* our cognitive states, our thoughts, knowledge (factual, conceptual, procedural) and learning, monitoring them and gaining some significant control over them. It is helpful to think of metacognition as having three main components (Lai 2011): (i) *metacognitive knowledge*, which includes knowledge of one's mental states and thoughts, of one's epistemological foundations and outlook, of oneself as a learner and so on; (ii) *metacognitive evaluation* or *regulation*, which includes assessment of task-completion (or *progress towards* task-completion); and (iii) *metacognitive procedures and strategies*, which are tools available to the learner/thinker to help them improve their performance in any given task.

One objection is to deny that metacognition is any different from cognition or 'thinking'. Clearly, both are kinds of thinking just as men and women are kinds of human. A distinction is a proper distinction if it helps to organise ideas about phenomena and where it becomes difficult or impossible to do so without said distinction. So, when thinking about thinking, all examples of metacognition are examples of cognition but not all examples of cognition are examples of metacognition. The thought 'I don't know' or the state of being confused or surprised are not metacognitive thoughts, but in virtue of being thoughts, they do constitute thinking. However, *recognising* that I am in a state of ignorance about something, that I might be able to 'work out' the answer if I apply a certain kind of method to my thinking, or that the frustration that follows being confused might hinder my ability to work it out and so on are examples of cognition that are also metacognitive. It is the object (your thoughts) and direction (self-directed and thought-directed) of one's thinking while thinking about one's thoughts that marks metacognitive thinking out.

So, why might metacognition be considered valuable? Broadly speaking, the central concepts we saw emerging from the definitions of metacognition above, concepts such as self-awareness, self-control, self-regulation, are central to the concept of *agency*[1], or, more specifically to this context, *learner-agency*: independent and autonomous learning. If learner-agency is considered important as an educational aim, and if it can be brought about by metacognitive development, then metacognitive interventions should be considered desirable.

Error-detection and confidence

A recurrent concern of Socrates is the move from *thinking one knows when one does not know* to *recognising that one does not know*. Recall Socrates's famous claim in the *Apology*: 'I am wise in this one respect: that, when it comes to knowledge I do not claim to know what I do not know' (29b). Both are forms of ignorance, but the second is *metacognitive knowledge* about one's ignorance, and as such, of much greater value than the first to both Socrates and contemporary educationalists today. Research has suggested that 'people tend to be blissfully unaware of their incompetence' (Dunning, Johnson, Ehrlinger & Kruger 2003, p. 83). Given that both 'error-detection' and 'confidence judgements' are recognised as 'metacognitive evaluations' (Boldt & Yeung 2015; Yeung & Summerfield 2012), this suggests that the development of metacognition would be one way to tackle this problem. For example, Trageskes and Daines's (1989) research into metacognition and reading comprehension showed a significant increase in error-detection in students that had received instruction in metacognitive strategies, supporting earlier research by Paris, Cross and Lipson (1984) and Palinscar and Brown (1984). According to Dunning, Johnson, Ehrlinger and Kruger (2003), people's incompetence is often matched with a corresponding over-confidence. Much has been made of gains in confidence and self-esteem through doing 'philosophy for children' (e.g. Topping & Trickey 2007; Gardner 1998/9; Murris 1992), however, understood Socratically, we might expect confidence in one's opinions to diminish when doing philosophy, not augment. It is, therefore, important to distinguish between two kinds of confidence: *social confidence* (the confidence to speak, to defend oneself before and with one's peers and so on) and *epistemological confidence* (confidence in my beliefs and the reasons I have for holding them). It is, presumably, the former that is reported to increase and that is understood to be desirable, while a decrease in the latter might also be a desirable outcome. If metacognitive strategies improve error-detection and, as

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[1] I would say that Proust's definition is the exception in that she does not contain anything in her definition that suggests self-consciousness, but I think this is where her definition falls short.

Dunning, Johnson, Ehrlinger and Kruger's research seems to show, this results in a decrease in confidence, then, introducing explicit metacognitive strategies to children may achieve two positive outcomes: a decrease in epistemological confidence and improved error-detection. It is also worth noting a recognised growing need to be able to distinguish between information and misinformation within the plethora of information that children today are confronted with through the internet. In a report for the think tank Demos, Bartlett and Miller (2011) list 'critical evaluative techniques' as essential skills for today's children.

Independence from IQ

Studies have suggested that lower ability children can successfully employ metacognitive strategies to improve task-performance (Alexander, Carr & Schwanenflugel 1995; Ackerman 1987; Ericsson, Krampe & Tesch-Romer 1993). Schraw reports that 'Well organised instruction or the use of effective learning strategies may in large part compensate for differences in IQ' (1998, p. 117). The recent, explosive interest in 'Growth Mindset' is connected to this in that it develops those variables in relation to one's learning that are controllable, such as effort and strategy-use (Graham & Weiner 1996; Schunk 1989; Dweck & Leggett 1988; Schraw 1998). Although critical thinking skills may not be metacognitive in and of themselves (this is an arguable point!), they are certainly the kinds of tools one would look to when answering the metacognitive question, 'How might I be able to see what's wrong in what I (or others) have claimed or written and how might I improve what I am claiming or writing?'. Butler, Pentoney and Bong (2017) found that critical thinking ability correlated better than intelligence with a low incidence of negative life events.

Efficiency

Developing learner-agency (independence and autonomy) is likely to require fewer resources (e.g. less of the teacher's time), so, in the long-term, developing metacognition will be time-saving and therefore cost-effective. The Education Endowment Foundation, summarising an extensive body of research into metacognition and self-regulation, reports that metacognitive interventions are low cost and high impact, with 'pupils making an average of eight months' additional progress' (EEF 2017a). Their impact is higher than that of other interventions such as giving homework or reducing class sizes (EEF 2017b).

The 'three-in-one' in Plato's Meno: Learner, teacher, evaluator

> We must then, at all costs, turn our attention to ourselves and find someone who will in some way make us better. (Plato, *Meno* 96d-e[2])

In his dialogue *Meno*, which begins by the eponymous character, Meno, asking Socrates whether virtue can be taught, Plato offers us a metaphorical *model* for understanding metacognition; but he also offers us a *pedagogy*, too. The model is shown to us, in a series of relationships, through a scene in the dialogue (82b-85d) known as 'the demonstration with the slave boy' (henceforth: 'the demonstration'). Socrates is trying to demonstrate a theory (the theory of 'recollection') to his interlocutor, Meno. His claim is that knowledge and learning are 'recollection' of things known in previous lives. He thinks that by setting a slave boy a geometrical problem he will be able to bring the boy from ignorance to knowledge about the problem through questioning alone and that this will prove that the knowledge was already in him. The boy is questioned by Socrates and he does eventually solve the problem set him.

Whatever you think about the theory of 'recollection' and Socrates's success at proving it, the demonstration provides us with a metaphorical model for metacognition. But before I say more about this, I would like to draw the reader's attention to another passage in Plato, *Theaetetus* 189e-190a, in which Socrates characterises *thinking* in terms of *dialogue*. What Socrates describes here has become known as 'the silent dialogue': or, as Socrates puts it, 'the talk that the soul goes through itself with itself about the things it is considering'.[3] Drawing on Socrates, Hannah Arendt characterises thinking as a two-in-one activity, an encounter with oneself: 'Nothing perhaps indicates more strongly that man exists *essentially* in the plural than that his solitude actualizes his merely being conscious of himself … into a duality during the thinking activity. It is this *duality* of myself with myself that makes thinking a true activity, in which I am both the one who asks and the one who answers' (Arendt 1971, p. 185). She also sees *critical* thinking following from this: 'Thinking can become dialectical and critical because it goes through this questioning and answering process' (Arendt 1971, p. 185). The silent dialogue metaphor in the *Theaetetus* invites us to see other exchanges between characters in Plato's dialogues as having a parallel in thought, and looking to the demonstration in the *Meno* as a metaphor we find a way of understanding metacognitive thinking as a *three-in-one* exchange. It is important to understand that the demonstration metaphor is not concerned only with thinking per se, as Arendt is and Plato is in the *Theaetetus* metaphor, but with thinking *as part of a learning process*, and

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[2] Trans. Grube (Cooper 1997). All translations are from Cooper unless otherwise acknowledged.

[3] Translation by MM McCabe (2015)

therefore with pedagogical implications. So, the three-in-one is not here offered as a replacement or improvement of the two-in-one but as a metacognitive, pedagogical development of the idea *in addition* to the two-in-one model.

There are three important cognitive positions in the demonstration. So, here is my *dramatis personae* (the emphasis here is on the *roles* not the *characters*, as more than one character may fulfil a single role):

1) The slave boy represents the *learner* role.

2) Socrates represents the *teacher/facilitator* role.

Already, we may consider this to complete our metacognitive metaphor if, by internalising these two roles, one may become 'a Socrates to oneself'. However, there is a very important third role yet to be identified:

3) Socrates and Meno, together, represent the *evaluator* role.

This evaluator role is instantiated by three meta-discussions that Socrates has with Meno about Socrates's exchanges with the slave boy and the progress he undergoes: at 82e-83a, 84a-d and 85b-d. In the meta-discussions, Socrates and Meno explicitly identify several cognitive stages that the slave boy moves through: firstly, *not knowing* but *thinking* that he knows (82e-83a); secondly, *not knowing* and *not thinking that he knows* (83e-84d); and thirdly, *knowing* (in the weaker sense of holding a true belief) when he says that 'his knowledge … will be as accurate as anyone's' (85d). A possible fourth position is posited at 85c-d; it is suggested that the slave boy would arrive at *knowledge* (in the stronger sense, that will emerge later in the dialogue at 97e-98a, of holding a 'true belief *with an account*' that can be defended) through further questioning and enquiry in the manner that Socrates has already demonstrated. However, he is not thought to have reached that stage by the end of the demonstration.

Here are the various relationships that are instantiated by fulfilment of the roles:

relation 1 = slave boy to problem (learner to problem)

relation 2 = Socrates to slave-boy-and-problem (teacher to relation 1)

relation 3 = Socrates and Meno to Socrates-to-slave-boy-and-problem (evaluator to relations 1 and 2)

So that we can understand the demonstration as a metaphor for metacognition, we need to see these roles as parts of a *divided cognitive self*, where these roles and relationships are housed within the same individual. This is something Socrates invites us to do with the silent dialogue metaphor. It is also interesting to note how the model moves from an *internal* starting place to *external* expression, then inviting *re-internalisation*. To see what I

mean, first of all, there is Plato's own *internal cognitive drama* that is played out in the form of supposed external dialogues through the activation of a catalytic 'Socrates' figure (relation 2), presumably inspired by the man, Socrates, whom Plato had known. Secondly, the reader is invited, by the way the ideas are presented (i.e. dialogically and often aporetically[4]), to critically evaluate these exchanges at a remove (relation 3). This is done informally by the general reader and systematically by academic students of Plato. If Plato's dialogues between (usually) Socrates, his interlocutors and the problem being considered instantiate relation 1 and relation 2, then it is the reader or readers who instantiate relation 3. So, whereas Arendt describes the Socratic notion of a divided thinking self as the two-in-one, I might say that, when engaged in true dialectical, philosophical method, the two in the two-in-one are watched and evaluated, making the dialogue now a three-in-one. And this is the metacognitive element at the heart of Plato's Menonic, dialectical[5], philosophical method. The third role, the evaluator, is necessary to ensure that any exchange between two, whether two individuals or two voices in one individual, is evaluated synoptically, from without, at a remove. The three-in-one is not a replacement but a specific development of the two-in-one thinking model. But why make this development? With the quote from the *Meno* at the start of this section in mind (96d-e), the idea is that an exchange between a pupil and a teacher can be improved if observed critically from the outside, so we may aim to improve ourselves by assimilating both a student and teacher role, but in addition, by cultivating an outside, critical observer within ourselves. This way, in the context of learning, Plato provides us with a framework to develop a pedagogy to do this.

The pedagogical implication is that this Menonic model modifies the two-in-one of the *Theaetetus* so that it is not an exchange between equals, but an exchange between a learner and a teacher. The outcome is that Plato wants the reader/student to practise, either internally (by oneself) or externally (in a community of philosophical inquiry) what Plato has modelled for us in his dialogues: i.e. *how to (and how not to) philosophise*. It is in this respect that the Menonic model of doing dialectical philosophy is more than just a model for thinking but also a pedagogy for how to practise thinking well:

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[4] *Aporia* (literally, 'being without a path or a way') is the ancient Greek word for the perplexity (a psychological state) that often follows when doing philosophy. But it can also be used to describe the general inconclusiveness and ambiguity that characterises a philosophical enquiry. It was also later used by Aristotle as a noun to denote a particular philosophical problem. Many of Plato's dialogues, particularly the 'Socratic' dialogues, end inconclusively and often in frustration for at least one of the characters. The *Meno* dialogue is a good example of an *aporetic* dialogue.

[5] By 'dialectical' I mean *the systematic investigation and evaluation of opinions by the use of questioning and reasoning through conversation*. Note the 'noble Sophistry' of Socrates spoken of in Plato's *Sophist* when 'the visitor' states an aim of dialectic to purge false beliefs, not reinforce them (231b). This is explicitly evaluative and eliminative.

role 1 - engaging in critical dialogue about X (either with oneself or with others)

role 2 - fulfilling a Socratic teacher/facilitator role (either in oneself or in a group)

role 3 - critically evaluating the dialogue (either in oneself or in a group)

The first of these (role 1) may be done in any critical discussion and this may take place in the playground, around a dinner table, in a classroom, or even in the pub – broadly speaking, what Arendt (1971) calls 'the marketplace'. There are a variety of ways in which the Socratic role (role 2) may be fulfilled in a group: it may be done by a professional, or simply by a member of the group; it may involve participating in the discussion or just managing it; the facilitator may know or not know the answer to the question being discussed. Whether in a group or within an individual, the Socratic role tends to be forensic and focused, whereas the evaluator role (role 3) is 'synoptic' (McCabe 2006) and 'at a remove' (McCabe 2008) from the conversation as a whole. Crucially, role 1 is first-order ('I think X is wrong because …' / 'I disagree with X because …') and role 3 is second-order ('Was I right to think that X is wrong?' / 'Was I right to disagree with X?'). The conditions for the first-order role 1 are merely that one must think, say or argue for X. However, drawing upon the *Meno*-model in the demonstration and the three components of metacognition identified above, the conditions for the second-order role 3 are that one must *know* one thinks, says or argues for X, must *evaluate* one's thinking, saying or arguing for X, and must *strategise how* to think, say or argue for X *better*.

Philosophy and metacognition

Both philosophy and metacognition have been described as 'thinking about thinking'. So, what exactly is philosophy's relationship to metacognition? Is there anything special about it? Either (1) philosophy is *best-placed* to develop metacognition—that is, it develops metacognition better than any other subject; or (2) it is *well-placed*—that is, it develops metacognition effectively, among other subjects and interventions. I think a case can be made that appeals to both claims. Whether philosophy is well-placed, or even best-placed, to develop metacognition will depend on three aspects of philosophical practice: the *conceptual* aspect, the *self-consciousness* aspect and the *epistemological* aspect.

The conceptual aspect

If philosophy is best-placed—which is the stronger claim—to develop metacognitive thinking then it will be so in the *conceptual domain*, given its unique dedication to conceptual considerations. However, other subjects have conceptual considerations. So, what's special about philosophy's treatment of these? Firstly, it is *especially* concerned with concepts and thinking about concepts in the abstract, systematically. What's more, it is no coincidence that philosophy and metacognition are both described as 'thinking about thinking', so not only is philosophy especially concerned with conceptual considerations ('What is X?' 'How are X and Y related?' and so on), it is concerned with them to the extent that those conceptual considerations are related to *what we think*, *how we think* and *why we think what we do*; and these considerations are in relation to oneself as a thinking subject and to other thinking subjects. This aspect of philosophy's concern with conceptual considerations shares with metacognition that it is self-directed and self-conscious. Moment-to-moment philosophy is not always metacognitive, but given its overall aim to approach the conceptual aspect of what we think and why we think it, then I would argue that it is *implicitly*, though not explicitly, always metacognitive: its aims include metacognitive considerations. In other words, if during a philosophical project we do not, either as participants or as teachers/facilitators, have an eye on our own thinking, or that of the group, then we would be failing in our philosophical duties to ourselves or to the group.

The self-consciousness aspect

Philosophy is also well-placed because, as Arendt observes, it recognises and allows for the encounter we have with ourselves in thought (which is pre-philosophical) and allows this relationship to develop and flourish, to become reflective, critical and systematic. So, though the two-in-one (and by extension, the three-in-one) is not in and of itself a philosophical phenomenon, the 'permission' for this relationship to be developed through doing philosophy, and the fostering of a systematic attitude (reflective, reasoned and re-evaluative) towards this relationship, are both philosophical phenomena. In the classroom with young children the systematic approach to developing this relationship is first begun externally, in a way analogous to the external representation of philosophical conversations we find in Plato's dialogues. This can be seen in the standard set-up for philosophy in the classroom: the children often sit in a circle, or similar shape, and begin by responding to a stimulus, out loud, with each other. However, by observing good philosophical practice between each other as separate individuals, the children taking part in philosophy are presented with a model

for their own thinking process to imitate and, over time, habituate internally. This kind of internalisation of what they witness externally becomes evident when children say things like, 'I'm going to disagree with myself', as if they themselves have become another member of the class, separate to themselves. This relational transformation (from the-subject-to-the-other to the-subject-to-the-self), that we might call 'Theaetetic' after the silent dialogue metaphor, is a metacognitive transformation and one that philosophy, done well, is particularly conducive to. Other indicators that the children are beginning to develop a metacognitive attitude towards themselves are exclamations like 'My head hurts!' or 'I'm confused!' or 'I don't know!', which can show that they have recognised a problem that provides them with a good reason to be confused[6]. The pedagogy for doing philosophy in schools, where the children sit in a circle and respond to a stimulus with a facilitator present, provides a pedagogical framework through which the Menonic three-in-one can be developed. The children fulfil the learner role by encountering and responding to a philosophical problem that they must discover and recognise as a problem for themselves. The facilitator fulfils the teacher role by providing a structural/questioning/strategical model for the children. And the children are encouraged to take on the evaluator role through two means. Firstly, they are invited, and given opportunities, to evaluate exchanges between their peers, and between their peers and the facilitator. Secondly, they are provided with explicit metacognitive opportunities, structures, strategies and tools. The metacognitive dimension that Menonic philosophy provides is a move towards a Theaetetic internalisation of these three roles and the corresponding relationships between them: the learner, the teacher and the evaluator. I have already explained how the learner and evaluator roles might be internalised; I should also make clear how the teacher role is internalised. This happens both informally, by children witnessing and emulating good facilitation, and formally, by children being invited to analyse the facilitator's role and to try it out for themselves, with coaching from the facilitator and observations from their peers.

The epistemological aspect

In the literature, metacognitive knowledge is sometimes broken into different kinds: one may recognise that one is in a certain mental state (attributive knowledge: Proust 2013); one may know something about a task (task knowledge: Flavell 1979); one may know

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[6] I distinguish between genuine aporetic confusion/ignorance and general confusion/ignorance. The former is marked by a confusion that follows from *some* understanding, the latter by a *lack of* or *no* understanding.

something about procedures and strategies that can be followed to move forward with a task (procedural/strategy knowledge: Cross & Paris 1988, Kuhn & Dean 2004; Schraw et al. 2006); or one may have some idea about *when* different procedures and strategies should be used (conditional knowledge: Schraw et al. 2006). However, it has been suggested that metacognitive knowledge also includes knowledge of the *epistemological conditions* surrounding a task or subject (How can I come *to know* in this task or subject?), and this will include ideas about one's own epistemological conditions as a learner (e.g. 'I think that you can only know something if you have seen it with your own eyes'). In addition to this, one may be able to articulate what ones knows in these respects and one's own epistemological outlook can then be tested or challenged in discussion. This has been called *epistemological knowledge/understanding* (Kuhn & Dean 2004) and *declarative knowledge* (Cross & Paris 1988; Schraw, Crippen & Hartley 2006; Schraw & Moshman 1995). If the aim is to develop these aspects of children's understanding, then philosophy is best-placed to help them begin approaching the epistemological dimension of metacognition in the subjects they study at school and of themselves as a learner. An example of this might be the way in which Theory of Knowledge (ToK) is a foundational subject threaded throughout the International Baccalaureate. It isn't labelled as 'philosophy' but much of what is looked at and studied in the ToK is irreducibly philosophical. Bartlett and Miller (2011) identify an important epistemological aspect to the problem of digital literacy that they also identify as philosophical. To be clear, I am not suggesting that studying epistemology is, in and of itself, sufficient to be described as metacognitive thinking, though it is sufficient for being philosophical. I am, however, suggesting that if one does address epistemology in an explicit attempt to understand the epistemological conditions of the study of a subject, in order to improve one's knowledge or performance in the subject as a result of self-aware reflection on one's knowledge or performance, *then* this epistemological study can be considered metacognitive.

To conclude, I have said something about metacognition, defining it in terms of self-awareness, knowledge and control. I have also made a case for metacognition being understood as an intelligible and necessary concept, distinguishing it from mere cognition. I have shown how metacognition is a desirable component of education if we value learner-agency in our children, that it has a role to play in the development of confidence and error-detection, that it provides lower ability children with ways to progress in tasks, and that it is an efficient addition to current educational interventions. Drawing upon the demonstration in Plato's *Meno* and the silent dialogue metaphor in his *Theaetetus*, I have identified and outlined a model for understanding metacognition—the three-in-one (learner, teacher and evaluator)—and derived a

Menonic pedagogy for bringing about and developing metacognition in philosophical inquiries. Finally, I have made a case for the role philosophy has in education for developing metacognition by appeal to three aspects of philosophical practice: the conceptual, the self-consciousness and the epistemological. Although I have conceded that many metacognitive interventions may be applied independently from doing philosophy, I have argued that philosophy is at least well-placed for the development of metacognition in children, and in certain respects perhaps best-placed to do so.

Some practical suggestions

So, how does one do philosophy with children so that it preserves the metacognitive condition identified in the Menonic method? Here are some suggestions. During a philosophical enquiry (using any of the methods currently available, for example, Pierce/Dewey/Lipman-based Community of Inquiry, Lipman/Sharp's Philosophy for Children, SAPERE/Cam/Murris and Haynes's Philosophy with Children, Worley's Philosophical Enquiry, McCall's Community of Philosophical Inquiry), try to include the following. It should be pointed out that many of these techniques and procedures are independent of philosophy and can be used more widely; but when they are employed within a philosophy session, where the emphasis is conceptual, towards self-consciousness and self-relation, and epistemological, they are particularly effective strategies for developing metacognition:

1) Children can be explicitly taught critical thinking skills (such as counter-examples, distinction-drawing, identifying inconsistency, inference-making). These are the tools of metacognition that can be made available to students. See, for instance, Philip Cam's *Twenty Thinking Tools* (2006).

2) Metacognitive moves made by children can be highlighted and, if necessary, explained, such as providing reasons, asking peers what they mean by X, or challenging peers.

3) Children can be asked progress-directed metacognitive questions such as 'Have we answered the question/solved the problem today?' and 'If not, have we got any closer to answering the question/solving the problem?' and 'What tools or strategies could we use to make progress with answering the question/solving the problem?'.

4) Socratic Circle methods can be used to have members of the group step out of the discussion and make written notes and participate from an outer circle, or a position of remove. They may be 'tasked' to listen out for reasons that they

either agree or disagree with, or to ask questions, or to note when they change their mind and so on.

5) An evaluative emphasis can be made during enquiries so that children are able to begin to eliminate ideas according to reasonable criteria (e.g. if a successful counter-example can be produced).

6) Certain children can be given the job of concept-mapping the discussion and occasionally summarising the discussion thus far. This helps them and the others attain a synoptic view of the discussion.

7) The children can be taught and coached to self-facilitate philosophy sessions, so that they begin to take on the Socratic teacher/facilitator role normally performed by a teacher or other adult.

8) During talk-time, rather than the usual pair-share approach, the children could be routinely split into 'listening triads' (Zwozdiak-Myers 2012)—threes instead of twos—and ascribed a letter A, B or C. As and Bs might then hold a discussion while Cs first listen critically, then give feedback to As and Bs on their discussion.

9) A similar triadic division can be used when writing. Different coloured pens could be used for the different voices, A, B and C.

10) Children can be presented with a transcript or recording of themselves during a discussion and encouraged to critique it as if they are critiquing another class, treating themselves objectively as another member of the group.

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