

Cultivating Critical and Creative Thinking

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The Australian Curriculum includes seven general capabilities. These are:

* Literacy
* Numeracy
* Information and communication technology capability
* Critical and creative thinking
* Personal and social capability
* Ethical understanding
* Intercultural understanding ([ACARA, 2013](#_ENREF_1))

These general capabilities can be understood as the “new basics” – a foundation for success in learning and in life.

But how can they be cultivated?

In this paper we look at ways in which a sample of government schools in New South Wales, Australia seek to cultivate one of the general capabilities, critical and creative thinking.

The Research Team visited six sites: one primary school and five secondary schools. We also talked to leaders of two film-making programs in schools. These sites employed various approaches to cultivating critical and creative thinking from direct instruction to Socratic Pedagogy involving communities of inquiry and Project Based Learning (including film-making).

# What is critical and creative thinking?

Critical and creative thinking go hand in hand. Creative thinking relates to generating ideas. Critical thinking relates to evaluating these ideas.

This account of the relationship between critical and creative thinking was reflected in the views of our respondents on what critical and creative thinking is. One respondent, a Philosophy teacher at a primary school put it this way. “There is a connection between the critical and creative focus: the creative opens up everything and then the critical brings it back into focus again.” A high school Maths teacher put it even more succinctly “Blurt everything. Write whatever. Then start selecting.” A high school Creative Arts teacher noted “Creativity is not just a free for all. You need to apply critique to select the best creative ideas.”

In the context of a discussion of critical thinking in the film-making/editing process one respondent noted that “Most films are 3.5 minutes in length. That’s a great time spec because you really have to tell the story and cut away the excess. Students are involved in critiquing their own films. Why does it have to stay?”

Matthew Lipman’s account of critical thinking is “thinking that (1) facilitates judgement because it (2) relies on criteria (3) is self-correcting and (4) is sensitive to context” ([Lipman, 2003, pp. 210-211](#_ENREF_8)). Lipman explains that critical thinking employs criteria and can be assessed by appeal to criteria ([Lipman, 2003, p. 213](#_ENREF_8)). This is pertinent to the film making context. One of our respondents discussed the process of reviewing a script. He suggests asking “am I getting engaged, will the audience? Does the character come alive for me? Does the relationship between the characters work?” Each question relates to a possible criterion for selecting content in a film.

Other respondents emphasised reasoning. A high school History teacher suggested “Critical thinking has to do with supporting a conclusion by effective reasoning, and being able to identify strengths and weaknesses in arguments.”

A Philosophy teacher at a secondary school suggested that “A defining feature of critical thinking is the reflection and challenging of one’s own assumptions – holding back from leaping to conclusions. It involves being open to the possibility that others may up-end your way of seeing things. It requires an understanding that you are one thinker among many, that your perspective is *a* perspective not *the* perspective.” This illustrates the implicit social dimensions of critical thinking. We do critical and creative thinking together.

A number of our respondents associated critical and creative thinking with problem solving.

# Cultivating Critical and Creative Thinking

Critical and creative thinking is cultivated through pedagogies. Recognising that teaching and learning is work, for teachers and students alike, and that the education industry involves the division of labour ([Connell, 1985](#_ENREF_2)), allows pedagogies to be seen as tools to achieve the goals of education.

All pedagogies make use of student labour, by assigning to students varying roles in their learning, even if it is reading and listening. Seeing learning as work is to emphasise the relationality and sociality of learning. It also provides a lens for understanding the ways that different pedagogies divide labour between teachers and students to achieve the goals of learning. Differing pedagogies can be seen as differing combinations of labour.

Pedagogies, then, can be understood as a particular combination of labour between teachers, learners and technology in which specialised skills, tools and spaces are combined into an organised system.

Students do not routinely develop the general capabilities such as critical and creative thinking from working on more constrained tasks that emphasise memorisation and call only for responses that demonstrate recall or the application of simple algorithms.

There is compelling evidence that inquiry based pedagogies (that typically include a component of direct instruction) facilitate the cultivation of the general capabilities. The use of digital technologies and flexible, varied learning spaces support the enactment of these pedagogies.

Having said this, there is a range of ways of cultivating critical and creative thinking, involving a combination of direct instruction and inquiry-based/project-based pedagogies.

# Direct Instruction

One approach to cultivating *critical thinking* is Direct Instruction, for example, through providing a largely teacher-led course on reasoning.

Glyn Davis, former Vice Chancellor, Melbourne University, Victoria, Australia noted that “Much basic teaching [in universities] is still done through lectures, that traditional if not always effective way to speak to large groups of students – lecture from *lectus,* the act of reading.” Davis notes that the best teachers typically do not read aloud from notes. They profess, stimulate, provoke and respond to student interest ([Davis, 2010, p. 13](#_ENREF_3))

Good lectures can *model* general capabilities. For example, a lecture might model critical thinking by having a clear and logical structure. A lecture can also *demonstrate* critical thinking by clearly and explicitly identifying a position, reasons for and against the position and principles pertinent to the argument.

The Direct Instruction approach also involves the teacher providing opportunities for students to practice skills. According to Michael Fullan “Quality instruction requires getting a small number of practices right. These practices involve knowing clearly and specifically what each student can and cannot do, followed by tailored intervention that engages students in that particular learning in question, and then doing the assessment-instruction-correction process on a continuous basis” ([Fullan, 2010, p. 6](#_ENREF_5))

### Combinations of labour

A secondary school we visited adopted direct instruction for teaching critical thinking. The role of the teacher was to present the course. The teacher told us “I do a lot of modelling. Because its skills based. I do present the ideas. I then model examples of how they would look in an exam or be tested and then give them an example to practice those.”

Students are given the opportunity to practice their skills. The teacher told us “Other lessons are purely discussion, getting their ideas out and getting them to think.”

In the words of Davis, the role of the teacher was to profess, stimulate, provoke and respond to student interest.

The teacher instructs students in the skills of “Composing arguments – breaking them down”. “We learn about conclusions, and the reasons behind it. Hidden components of arguments, hypothetical reasoning, assumptions. How effective or credible they are. How to tell whether an argument is bad or not.”

As well as professing and modelling, the teacher also seeks to stimulate students.

The teacher told us “I am always prodding and I am trying to get things out of them.”

The role of the student is to listen to the teacher and to practice the critical thinking skills they learn in class discussion or in small groups. Students have little choice in topics for discussion. This is chosen by the teacher in accordance with the textbook for the course. A student told us “We don’t get much of a say in what we learn. We don’t get a lot of choice in how and what we learn, but it has a potential for a lot of freedom later on.”

### Spatial aspects of direct instruction

The layout of the classroom reinforced this combination of labour. Desks were arranged in a rectangle open to the front of the classroom. Students had a line of sight to the teacher, and the teacher had a line of sight to the students. Two students sat at each desk.

### Challenges of direct instruction

One of the major challenges faced by the Direct Instruction approach to teaching Critical Thinking is to engage students. The teacher told us “The challenge in teaching Critical Thinking is not to get the students to keep quiet but to get them to open their mouth.”

Direct Instruction may be one way to cultivate critical thinking but not so much creative thinking.

## Philosophy for Children

One straightforward approach to teaching critical and creative thinking is to engage students in substantive dialogue on philosophical issues.

This approach has intellectual roots going back to Socrates and to the great American philosopher and educator John Dewey ([Dewey, 1910](#_ENREF_4)).

This was the approach used in three of our case studies.

A primary school we visited conducted Philosophy classes for all students at the school every week. Lessons are stimulated by a question asked by a student, a current news story, a picture book for younger students or a short film clip. Children are invited to say whether anything interested them or puzzled them about the stimulus. From this, a whole class discussion ensues relating to life’s big questions. In the class we observed, a Year 6 student initiated a discussion about time – by offering his question to the class on whether it is possible to buy time. Students learn how to respectfully disagree because the focus is explicitly on taking issue with a claim rather than taking issue with a person. (“I disagree with your argument” rather than “I disagree with you”). ([Jensen & Kennedy-White, 2014](#_ENREF_7)) Students take it in turn to speak and to facilitate an orderly discussion a Speaker’s Ball was used. The person with ball is the speaker and everyone else is a listener. The ball is rolled from person to person, as indicated by a show of hands. The lesson moves from whole class discussion to break out groups and reporting back. The additional talking time made available by small group discussion or working in pairs improves engagement. A primary school teacher told us “The students can move into groups of 4 or groups of 6. They form into groups quickly. There is the need for a lot of small group work to overcome the fact that there are thirty two students and this way they don’t all have the chance to speak in a whole class situation – and to get everyone involved.”

## Spatial features of Philosophy for Children

### Circles

Students at the primary school sit facing each other in a circle – the natural formation for a collaborative community of inquiry. As Lipman notes “Faces are repositories of complex textures of meaning that we constantly try to read and interpret. These meanings are produced by highly animated features of faces that are in close proximity to one another” ([Lipman, 2003, p. 95](#_ENREF_8)).

A primary school teacher told us “The perfect room is just the empty space. Generally we have a dedicated room without desks but with backless benches that two people sit on, legless tables and others sit on the floor.”

At a high school we visited students sat in a “Socratic circle”, with an inner and outer circle. Members of the inner circle critically discussed a text they had read earlier. Members of the outer circle observed the inner circle’s discussion. Students in the outer circle buddy up with someone on the inside. They track conversations, particularly of the buddies in the inner circle, and they track feedback. The relationship between students on the inner and outer circle is analogous to pilot and co-pilot. Buddies discuss in pairs after the wider discussion is complete. In the inner circle is an empty seat – hot seat. If someone from the outer circle wishes to ask a question or contribute to the discussion they can occupy the empty seat.

### Walls

A primary Philosophy teacher explains “with little ones, their ability to communicate by writing is limited, so I have them talk as they draw. There’s a lot of drawing going on. They think as they draw and they think through their drawing. I watch their actual thinking process happen as they draw. So the room would get covered with their drawings. Ideally the room would have blackboard walls so they can write on the walls with chalk if they have a question that they need answered.”

### Hoops

A number of the activities in Philosophy for Children involved students sorting words, images or statements written on cards into concept groups using hoops. The circles might be hoops placed on the floor and labelled “fact” “opinion” and “belief”. Stage one of this activity is for the small groups to discuss and then justify their reason for placing the card in one of the hoops. If they are not sure they may place it between two or even three hoops. After all the cards have been placed, the second stage is for the whole class to offer suggestions and justifications for changing the placement. In the class we observed, students were attempting distinctions between ‘belief’, ‘fact’ and ‘opinion’.

At one school hoops were paced on a table that students stood around. Students were given cards with objects named on them (such as a toothache, the number five, William Shakespeare) and asked to place them in a circle labelled “real” and “not real” and then to give reasons for their choices of their placements. Students discussed whether they agreed or disagreed and why.

### Philosophical Chairs

### At one high school we observed an approach to teaching philosophical ideas called “Philosophical Chairs”. In one Mathematics class students revised work on indexes on a K W L chart.

### What do you know?

### What do you want to know?

### What have we learned?

### Students were asked to write their answers on sticky labels and place them on a chart at the back of the classroom. However the classroom was furnished by desks in rows, so it was difficult for students to walk fluidly to the back of the classroom. They needed to take care not to trip on bags placed between desks.

Students were then asked if x to the power of zero is 1 what is zero to the power of zero? They were first asked to consider their answer and to write it on a sheet of paper along with the reason for the answer. Then they were asked to form groups according to their answer. Those who answered “1” stood against one wall. Those who answered “0” stood against a second wall and those who answered “Indeterminate” stood against a third.

The class fairly evenly divided into the three groups. Each group explained the reasons for the positions and other groups responded. Individuals could move from one group to another as they are swayed by the arguments. Thus they changed their position in the classroom as they changed their position on the answer to the question. In fact few students moved but principally because the room was choked with furniture.

The class concluded with an explanation by the teacher that the three positions the students had taken had been taken by mathematicians over the centuries and the issue is still not resolved.

At another “philosophical Chairs” discussion we observed in another classroom the furniture was stacked against the sides and students could and did shift their position from one side of a debate and the room. The movement and the discussion was more fluid. Interestingly the debate in this lesson was led capably by a student.

While the “Philosophical Chairs” was more debate than dialogue, students were clearly engaged by the discussions.

# Project Based Learning

An alternative approach to cultivating critical and creative thinking that we observed is Project Based Learning. A form of Project Based Learning was used to cultivate Critical and Creative thinking in a number of sites we visited

The Buck Institute, US based advocates for Project Based Learning, note that Project Based Learningis a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging and complex question, problem, or challenge. The Buck Institute identifies seven Essential Project Design Elements:

* **Key Knowledge, Understanding, and Success Skills**- The project is focused on student learning goals, including standards-based content and skills such as critical thinking/problem solving, communication, collaboration, and self-management.
* **Challenging Problem or Question** - The project is framed by a meaningful problem to solve or a question to answer, at the appropriate level of challenge.
* **Sustained Inquiry** - Students engage in a rigorous, extended process of asking questions, finding resources, and applying information.
* **Authenticity** - The project features real-world context, tasks and tools, quality standards, or impact – or speaks to students’ personal concerns, interests, and issues in their lives.
* **Student Voice & Choice** - Students make some decisions about the project, including how they work and what they create.
* **Reflection** - Students and teachers reflect on learning, the effectiveness of their inquiry and project activities, the quality of student work, obstacles and how to overcome them.
* **Critique & Revision** - Students give, receive, and use feedback to improve their process and products.
* **Public Product** -Students make their project work public by explaining, displaying and/or presenting it to people beyond the classroom.

<http://www.bie.org/about/what_pbl>

A number of these design elements involve critical and creative thinking, specifically: success skills; sustained inquiry; reflection; critique and revision.

In common with Philosophy for Children, PBL involves a Community of Inquiry.

A high school teacher described the process of how PBL fosters Critical and Creative Thinking.

Critical thinking is built into in the design of a project. In particular, students have to:

* talk about how the ideas are authentic to the world
* create a driving question that’s open-ended and doesn’t have an easy answer
* think critically about the ways of navigating that research, using meta-cognitive skills of directing their own learning
* think about the way that they connect to the community beyond teachers, so they are thinking critically about their place in society
* think about the way they go about research, the way they plan and design their learning and the way they reflect on their abilities to do that successfully.

Creative thinking is integrated throughout the whole process, but especially at the end point, where they’re synthesising information into something engaging for an audience.

A teacher told us “We want kids to be able to critique the world around them. We want them to be able to move into society with lots of ways of seeing the world. By teaching them how to look beyond what they’re told by one person, I think it makes them more valuable contributors to the world. It’s going to be a better base for them in a world that we don’t really know how it’s going to look.”

## Film Making Projects

Film-making projects combine creative thinking, in generating ideas of what to include in a film at the script writing and storyboarding stage, and critical thinking at the editing stage.

The pedagogy of film-making in the cases we considered was (or shared much in common with) Project Based Learning. The pedagogy is highly student centred with teachers providing support. The students were responsible for all aspects of making the films. Teams divided their labour amongst members.

Hewes and Hewes note that PBL sees teachers and students inquire into a particular topic (discover) and create a product (create) to be shared with an audience (share). This is a fair description of the film-making process.

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| Characteristics of PBL | Stage of film-making |
| Key Knowledge, Understanding, and Success Skills | All stages |
| Challenging Problem or Question | Initial story or idea |
| Sustained Inquiry | All stages – especially research, storyboarding, script writing, shooting, editing |
| Authenticity | Film making involves developing an authentic public product |
| Student Voice & Choice | All stages |
| Reflection | All stages, particularly editing |
| Critique & Revision | All stages, particularly editing |
| Public Product | Screening |

An organiser of a film-making program in government schools across NSW told us that some children make the films from the beginning and teachers just have a look at the edits. The editing crew generally consists entirely of students. Film makers cannot hire a film crew. In a class they’ll divide up roles of the children based on their skills. Girls as directors are encouraged. “This is one area that we are actively looking at addressing - making kids aware of gender bias. We want to get girls to make a documentary about women in film.”

The program organiser’s role is to provide knowledge and resources to a greater or lesser extent, depending on the school. The key question is how can you make engaging professional-looking video films that will engage an audience in a school environment? How do you make the most of the collaborative aspects?

The teacher’s role is to: link the videos with their unit of work/program; help teach, guide and observe students; assisting students with the technical aspects, when necessary; arranging appropriate groups. The students’ role is to make the films. They: come up with the idea, characters, dialogue, engage in filming process (crew) share the roles, through to editing where they decide on which particular scenes should be included. Students are responsible for titling, sourcing music, rough cut, and final edit.

One program organiser told us that one issue was that while students were engaged in writing and filming they were not able to edit their films. The technology available at that time was an inhibitor for primary school students. After 2011, with greater access to smart phones and tablets, students took control of that part of the process.

The introduction and greater accessibility of the iPad solved a number of problems. Editing could be done at the same time on the same device. This improved the engagement process. Also a greenscreen app was developed that would do GS in real time. Now students could do it themselves. Schools invested heavily in iPads from 2014. Since then, the technology keeps improving in terms of speed, quality, and flexibility. Programs have become more popular. A course *Greenscreen Across the Curriculum* has been accredited by NESA. Teachers will be able to do this with their class. Editing was a challenge which was overcome through new technology. The popup kit studio made film making logistically easier. With a pop-up green screen, a tripod for an ipad and a microphone, film-making becomes low cost and easy to use. Star Time focussed on professional learning so that teachers could utilise it.

### Spatial aspects

In large part films are developed in a regular classroom. The classroom is not adapted at all. It is completely integrated into the classroom. For example the pin board in the classroom could be used for story boarding – taking photos and moving images around. The only time you go out is to film, but all the story boarding and editing is done out in the classroom. Films can also be made in the classroom. We encourage kids to get out and film outside. There is no need for sophisticated equipment. Lots can be done on a mobile phone. Adobe film editing software is readily available. All the iPads and Macs have iMovie. Storyboarding can just use pieces of paper in the classroom.

A film can be made in 3 weeks: One week for storyboarding and pitching, 1 week for filming, and 1 week for editing.

## Combinations of Labour in Project Based Learning

One site we visited made extensive use of Project Based Learning to cultivate critical and creative thinking. The success of PBL depends on achieving a well-balanced, finely-tuned combination of labour between teachers, students and an ‘expert’ audience. A teacher told us “Your work is about opening up the space for the exchange to happen between you and them and then giving away the ownership of the space and having the students think of it as their idea and their vision.”

A teacher stated “At start of the semester *we* give them a box of stuff, and *they* prototype and solve the driving question” (emphasis added). “Teachers are drivers and supervisors. *We* set the lesson up, the expectations, everything in their digital portfolio is projected and *they* work collaboratively in groups to achieve the outcomes required of that lesson. The *teachers* go around to each of the groups to troubleshoot. For *students* - Once it’s set up at the start of the lesson they work on it and throughout the lesson in partnerships but quite autonomously. Each group reports back at the end of a lesson” (emphasis added)

The extent of teacher direction is dependent on the project. A Deputy Principal told us an entrepreneurial learning course “will be a bit more teacher driven because it will be a smaller class and it’s about driving an online designer market, running it in conjunction with a more commercial side and more business side.”

Within teams students combined their labour. PBL students told us “We really learned our strengths and effective ways to work as a team. The team members specialised and played to their strengths. The whole process would have not worked if we were all working on the same thing.” Alternatively, “Using computers and Google docs, sharing, collaborating, you can work on it all at the same time.”

Some students expressed ambivalence about the level of teacher direction. “It is difficult to make recommendations about how to improve the project because a lot of the struggle [work] that goes into it is a part of the learning process. If it gets refined too much and if risks are averted, it may become less valuable.”

These students stressed the merit of “having a teacher not to supervise, but guide, maybe check in one of the 3 lessons to make sure they’re on-task and some content is being created. You do not want too much teacher control. Maybe nudging them [students] slightly – do you think this will work in the long run? Asking questions rather than telling them what to do. Also, if they give us time goals, that helps. Things happen when you get more done that way. A current problem can lead to a bigger problem down the line.”

These students also told us “Students need deadlines – so they are on track. Deadlines are important. One deadline after another is important.” These students suggested that teachers should set deadlines.

Reflecting on the major challenges with PBL a teacher told us “Probably the biggest challenge was learning as a teacher to ‘let go’ a bit and give kids the freedom and space to take risks as well as allow them to make mistakes and teach them the value of making those mistakes. We had to learn to let go of that a little bit and value the process the kids went through, more than that final outcome, even though we have an exhibition for parents and teachers.”

A teacher told us “The thing we came to in the end was making sure we had a really good balance between explicit teacher directed instruction, teaching the skills for learning and having that balance between student-directed because, especially with our first cohort, when they were told they could do an elective where they could learn anything they wanted, they were super excited, but then we had to say but we still have to do a little bit of teaching. You can’t just go totally wild, because we want to give you the skills to be successful. So finding that balance was challenging, but I think we did it well from the sense that we decided to divide every semester up, each project they did into three distinct phases. So in that first: initiation phase; development stage; exhibition stage, different skills were taught along the way. So once we got that structure in place and the kids knew there was going to be time for them to work completely independently and freely and there would be times where we intervened and did some explicit teaching.”

# Evidence of Success

We asked our respondents what they thought counted as evidence for the success of their approaches to cultivating critical and creative thinking.

Our respondents cited a range of evidence (both quantitative and qualitative) to evaluate the effectiveness of approaches to cultivate critical and creative thinking.

At one primary school the introduction of an intervention to cultivate critical and creative thinking coincided with the exponential rise in NAPLAN persuasive writing and numeracy. At a secondary school we visited one of the staff reported conducting a systematic Philosophy for Children innovation in teaching English. Pre-assessment and post-assessment data were collected for a unit on protest in Year 9 English. There was a significant and large transformation in writing achievement.

Success in national competitions such as the Philosothon can provide evidence of success for a program.

Feedback from teachers from other schools was also cited as evidence for success. A Primary School Principal told us “We get a lot of anecdotal reports when kids go to high school that students are really ready for high school. Even when kids go on excursions, we have comments about them being absorbed. They are aware of their thinking (their use of metacognition language): there’s a consciousness about what they’re saying.”

Perhaps the most significant evidence for the success of an approach to cultivate critical and creative thinking is feedback from the students. Our experience was that the engagement of students we observed in Philosophy classes and in Project Based Learning was palpable. Also the quality of dialogue in most of the classes we observed was of a very high standard.

A teacher told us “we learned a lot from getting feedback from the kids as well, like ‘what is working’, ‘what is not’ and we had to be quite humble in receiving their feedback”. Feedback from students is the key to Hattie’s dictum of “Know thy impact”. ([Hattie, 2012, p. ix](#_ENREF_6))

Following is some feedback from our interviews with students reflective of the success of programs to cultivate critical and creative thinking.

### Evidence of critical thinking

“I really like Philosophy because it lets you think about everything that people say. When you are just walking past you don’t really think about it, you just go with it. But in Philosophy you can talk and think about it.”

“It helps me to think in relation to my views, what evidence do I have?”

“In Philosophy it is good how you or somebody comes out with an idea, and you make a statement and someone will disagree with you, and then you can improve your idea, and you can think about and you can change what you say.”

### Evidence of Creative thinking

“I like Philosophy because no one criticises you for your ideas, so when you are saying something and you are not sure about it, well, you just say it.” (Year 5 student)

“Philosophy teaches you to think outside the box. There are many ways to do fractions in Maths, so you can think outside of the box to solve fractions. In Maths I use some of Philosophy’s techniques.” (Year 6 student)

“Philosophy helps you think outside the box. As you go on in studying Philosophy – you notice that it helps you.”

“Some of Philosophy’s skills are useful in school and in life, such as having good arguments, listening to others’ ideas, talking in a way that you gather all your thoughts and put it out in a way that is done well – so there are lots of skills that help.”

“Outside of school I like writing songs, writing lyrics. I like writing lyrics where you have to figure out the whole point of it. I get ideas from the discussions we have in Philosophy. I do not write about particular topics but rather open-minded questions.” (Year 6 student)

“At the beginning of the lesson the teacher gets us to ask our questions – I have done this a few times – and it is great to see what comes out of your question – how it sprouts and grows like a little plant.” (Year 5 student)

An indication of students’ engagement with Philosophy is reflected in this comment:

“Philosophy is great but sometimes the conversations go on a bit too long and you do not get to the next lesson on time, and the teacher of the next lesson gets annoyed.”

# Conclusion

Just as there are many paths to the top of the mountain but the view is always the same, there are many paths to cultivating critical and creative thinking, and the capability is somewhat the same.

We have seen two broad paths to critical and creative thinking: the Philosophy for Children path and the Project Based Learning path – and along these paths are different by-ways. Engagement in Philosophy is an obvious way of cultivating critical and creative thinking – after all Philosophy is critical and creative thinking *per excellence*. Project Based Learning is an alternative path, also involving communities of inquiry. Direct instruction is a path to achieving critical thinking

In their recent book *The Enigma of Reason* Mercier and Sperber argue that human reason is first and foremost a social competence. Reason can bring huge intellectual benefits but it does this through interaction with others ([Mercier, 2017](#_ENREF_9)). Critical and Creative Thinking is at the heart of human reasoning. Philosophy for Children and Project Based Learning engages students in critical and creative thinking in interaction with others – in a community of inquiry. It is the explicitly social context of these pedagogies that contributes to their effectiveness in cultivating critical and creative thinking. The practice of critical and creative thinking is deeply embedded in these pedagogies.

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