

Institution: King's College London		
Unit of Assessment: 30 Philosophy		
Title of case study: Enhancing the Teaching and Learning of Critical Thinking in Schools		
Period when the underpinning research was undertaken: 2013–2018		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Ellen Fridland	Lecturer in Philosophy	From 01/09/2013 to 31/08/2020
Period when the claimed impact occurred: 2016–2020		
Is this case study continued from a case study submitted in 2014? N		

1. Summary of the impact

Dr Ellen Fridland's research has demonstrably improved the teaching of critical thinking skills to hundreds of children in schools. Critical thinking has been widely identified as one of the key skills for 21st-century learning, and Fridland's research on skill acquisition and refinement reveals the cognitive benefits of a technique-centred, as opposed to outcome-centred, approach to teaching these skills to children. The impact of her research has been achieved in four main ways:

1. Improving the critical thinking skills of schoolchildren through the delivery of lessons based on Fridland's techniques.
2. Transforming the way The Philosophy Foundation – the second largest UK provider of philosophical tuition in schools – delivers educational content to children nationwide.
3. Changing how the Foundation trains teachers, ensuring ongoing year-on-year impact as they deploy to new schools.
4. Raising awareness of technique-centred approaches to teaching critical thinking skills among policymakers at the national level, including within the Department for Education.

2. Underpinning research

Fridland's research, by focusing on the role and concept of technique, has shed new light on how we acquire and refine skills in childhood. Dominant pedagogical approaches tend to place learning outcomes centre stage. However, Fridland's research demonstrates that a technique-centred approach is more effective for teaching children cognitive skills such as critical thinking.

Treating technique as an end

Drawing on evidence from developmental, comparative and evolutionary psychology, Fridland has advanced a position regarding the role of technique in the acquisition and refinement of skill. As skills are learned through practice, Fridland maintains that skill acquisition requires the agent to treat as primary the means by which an end is achieved, rather than the end itself. In this way, Fridland has shown [3] that, in contrast to non-human animals, the development of metacognition in children occurs when subjects take the *means* of a task as *ends*. Sustained improvement of skill requires practice that is aimed at technique rather than outcome. Thus skill refinement aimed at technique, Fridland maintains, may be one important route for the development of full-fledged conceptual thought [2].

Thinking about thinking

Fridland argues that teaching that harnesses this "*technique-centred*", as opposed to outcome-centred, orientation becomes a particularly powerful tool in the development of human cognition [1]. This orientation underpins the propagation of skill learning because it provides learners with a way to reflect on the process by which they exercise their skills, and supports not only their progress with those strategies but also their understanding of them. Moreover, explicitly considering the appropriateness and effectiveness of techniques used in thinking immediately promotes the growth of metacognition. That is, in the pursuit of refining and improving one's own cognitive skills, the focus on technique allows agents to begin thinking about their own thinking.

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On this model, practice aimed at labelling and manipulating the logical moves characteristic of good thinking opens up possibilities for instilling and refining skills of critical thinking in children.

Teaching how to learn

The motivation to reflect on and refine technique in this way appears to be a uniquely human way of developing skill [3]. Fridland's theoretical account of skill and the distinctiveness of skill development in humans can thus be applied practically to pedagogical approaches. Since the technique-centred orientation explains the success and ongoing improvements of skill in the human realm, when we want to develop and improve the skills of children, we should focus on technique or means.

3. References to the research

1. Fridland, E. (2018). Do as I say and as I do: imitation, pedagogy, and cumulative culture. *Mind & Language*, 33(4), 355–377. doi:10.1111/mila.12178. [Article in leading peer-reviewed journal]
2. Fridland, E. & Moore, R. (2015). Imitation reconsidered. *Philosophical Psychology*, 28(6), 856–880. doi:10.1080/09515089.2014.942896. [Article in leading peer-reviewed journal]
3. Fridland, E. (2014). Skill Learning and Conceptual Thought: Making a way through the wilderness. In B. Bashour & H. D. Miller (Eds) *Contemporary Philosophical Naturalism and Its Implications* (pp.87–110). New York/London: London. [QI: Chapter in cutting-edge scholarly collection on developments in philosophical naturalism: Fridland's essay "promises to re-orient the entire discussion about continuity and discontinuity between sapient and non-sapient minds", *Notre Dame Philosophical Reviews*]

4. Details of the impact

Fridland has collaborated with The Philosophy Foundation (TPF) since 2016 to translate her research into pedagogical tools that have demonstrably led to the enhancement of critical thinking (CT) skills in a large cohort of children.

TPF is one of the most influential UK organisations delivering philosophy in schools, with a special focus on disadvantaged children. It conducts philosophy sessions in 40 schools in and around London, reaching 97 classes per week, impacting over 9,000 beneficiaries per year: 6,000 directly through these sessions, and another 3,000 through TPF's teacher-training programme. The significance of the impact lies in equipping young people with skills that "help [them] deal with propaganda and fake news, help them see things from different perspectives and learn to think independently" [A].

TPF conducted controlled classroom trials, based on Fridland's research and planned in collaboration with her, which demonstrated a marked improvement in the CT skills of children who were taught using these methods (Impact 1). This led to the transformation of TPF's own teaching practice (Impact 2) and the introduction of widespread changes in the way TPF trains teachers (Impact 3). TPF's work on CT skills that draws on Fridland's research then attracted interest from the UK's Department for Education (DfE) in TPF's approach to the teaching of such skills (Impact 4).

1. Improving the critical thinking skills of schoolchildren through the delivery of lessons based on Fridland's techniques

Critical thinking is a necessary element to doing philosophy, and improvement of CT skills has benefits, extending well beyond the classroom, in nurturing active and engaged citizens. TPF identified the development of CT skills as a priority area for its programme, which was founded on the dominant 'community of enquiry method' for doing philosophy with children. To address the need for explicit teaching of CT skills within philosophical enquiry, Fridland collaborated with TPF to develop a novel set of teaching tools and methods based on her research on skill acquisition and refinement. Drawing on Fridland's research on technique [1,2,3], TPF implemented a technique-centred approach to teaching critical thinking in schools, developing sessions where pupils learn to identify and label key thinking skills such as counterexample, distinction-drawing and inference-making, and to notice and evaluate their use during enquiry-based discussion.

TPF decided to test the impact of these innovations in a pair of controlled trials. The first was an exploratory study, carried out in 2017, which informed a second trial carried out in 2018. These

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studies involved 540 children, aged 8–11, in 10 schools in London, in cohorts that included an above-average number of children from disadvantaged backgrounds.

1a. Fridland’s research underpinned a trial in 2017 which showed a greater increase in the use of critical thinking skills in classes which used a skills-based approach

The 2017 study [B.1] aimed to measure the impact of Fridland’s approach on pupils’ ability to use CT skills when compared with the standard community of enquiry method of teaching philosophy. The trial studied 10 classes comprising approximately 300 children from the Gipsy Hill Federation (GHF) of schools, most of whom had not been taught philosophy before. The GHF encompasses seven London schools across Southwark and Lambeth. They have more than double the average number of pupils on Pupil Premium (free school meals), with a wide mix of children from across different socio-economic backgrounds. A significant number of pupils are unable to access enriching extra-curricular activities outside of school due to family pressures. A significant number also experience social and emotional barriers to learning.

Over the course of one term, the children received 12 or 13 hour-long sessions of philosophy each week. In week 1 the baseline use of CT skills was measured in all classes. The ten classes were divided into five controls given standard teaching in philosophy, and five intervention classes taught using Fridland’s skills-based approach to teaching philosophy. Their use of CT skills was measured again in week 12. The intervention classes showed a greater increase in the use of CT skills than the controls, and a greater absolute use of CT skills at the end of the study.

1b. The application of Fridland’s research showed that technique-centred orientation significantly improves children’s ability to successfully reason compared with just using philosophical enquiry

Based on the outcomes and feedback from the 2017 study, a second study was undertaken in 2018, with refinements to the intervention and looking at pupils who had previously studied philosophy [B.2]. This study worked with 240 children in Year 6 (ages 10–11) in eight classes from three primary schools in Lewisham, South East London: Rathfern, Eliot Bank and Dalmain, all of which have above-average numbers of pupils supported by Pupil Premium.

The four control classes had normal community of enquiry philosophy sessions and the intervention classes had normal philosophy sessions plus teaching of CT skills, using the refined version of Fridland’s programme. All sessions, over 12 weeks, were video-recorded. The first and last sessions were used as data points to compare the classes’ critical thinking skills and metacognitive abilities.

The results of the intervention were very positive. The study measured instances of (i) the use of critical thinking (CT) and metacognitive (MC) skills; and (ii) successful use of CT and MC skills. In both respects, the control groups showed an increase. The intervention groups, however, showed **a much greater increase in the use of these skills**: the classes using Fridland’s programme demonstrated a 62% increase in the use of CT and MC skills and a 63% increase in the successful use of both skills.

	Control classes			Intervention classes		
	week 1	week 12	increase	week 1	week 12	increase
CT and MC uses	29.00	30.75	6%	33.00	53.50	62%
Successful CT and MC uses	20.75	26.25	26%	24.00	39.25	63%

In addition to these quantitative results, the study sought qualitative feedback from the teachers in the intervention classes, which was very positive [B.3]. As one describes:

- *“It was very noticeable, over the course of the weeks, how the children’s approach and level of thinking deepened and they showed an increasing maturity with their levels of thought. They responded well to one another’s ideas and suggestions, often beginning their answers with: ‘I agree with what xxx said’, or ‘Following what xxx said, I think/believe ...’. There has been a marked improvement with the way they approached the concepts and ideas.”*

Another teacher similarly observes a notable improvement in the children’s use of CT skills:

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- *“[T]he progress made by the class has been excellent. They had developed clear definitions of inference and distinction. Their comments and listening [have] greatly improved. The philosophy has had an extremely positive impact on the class.”*

All TPF’s philosophy facilitators commented that they could see a difference between the control and intervention groups in the final session, particularly in reference to the MC skills they were using. Feedback from the children in the intervention group was also very enthusiastic; it is worth highlighting that 100% (111 children) of those who replied said ‘yes’ when asked whether they thought the CT skills they had learned should be taught to other children [B].

The finding of the study is that the use of philosophical enquiry *together with* the teaching of critical thinking skills through the technique-centred approach significantly improves children’s ability to reason successfully when compared with using philosophical enquiry alone.

2. Transforming the way The Philosophy Foundation, the second largest UK provider of philosophical tuition in schools, delivers educational content to children nationwide

“This study has transformed TPF’s practice by resulting in a method which supports both metacognition and critical thinking skills in a way that is mutually integral, fits into our already impactful pedagogy, and brings further benefits to students” [C.1]

Drawing on Fridland’s ideas about technique-centred orientation as successfully implemented in the 2017 and 2018 studies, TPF has transformed its teaching method by introducing pedagogical interventions that present to young learners in explicit form the means and techniques of good thinking and the various logical moves that function as ways by which we reach the goal of understanding a given question or topic. For instance, TPF introduces and teaches thinking skills such as ‘inference-making’ and ‘counterexample’, and then asks students to notice, use and evaluate these logical tools during in-class discussions. These interventions not only model good critical thinking through questioning but also make explicit the techniques, means or strategies used in such thinking. As Fridland’s research highlights, these then become ends in themselves for students to develop, refine and improve.

Subsequent to the studies, TPF has incorporated these techniques directly into its method, reaching a further 1,800 children across 80 classes in both primary and secondary schools including, for the past two years, as part of the Harris Experience Programme for Year 10 and Year 11 students who are potential scholars but have barriers to learning [C].

TPF has presented the transformative impact of its collaboration with Fridland at national and international education conferences [D.1]. The benefits of technique-centred teaching and lessons from the 2017 and 2018 studies were disseminated to educators and policymakers at the Centre for Engaged Philosophy’s 2019 event Philosophy in Schools: Enriched Curriculum, Enriched Lives (London, UK), the 2019 LondonEd Research conference (London, UK), the 10th Festival of Education in 2019 (Berkshire, UK) and the 2018 FAPSA Biennial Australasian Philosophy in Schools Conference (Fremantle, Australia).

3. Changing how the Foundation trains teachers, ensuring ongoing year-on-year impact as they deploy to new schools

“TPF will train all specialists to explicitly teach CT and MC skills during philosophy sessions at appropriate times, and include this new intervention in all forward training.” [D.1]

Fridland first worked with TPF in 2016 to help design a training course for KCL philosophy graduate students in the methods based on her research, to support their delivery of the Foundation’s programmes to disadvantaged schoolchildren across London. The Foundation has subsequently continued to develop its reach through the training of philosophy teachers in this new method of building critical thinking skills. It is also training its own team of some 70 specialist philosophy teachers in the method, which will be integrated into their training programmes going forward. As one TPF specialist involved in the 2017 and 2018 studies explains, his experience of teaching using the methods based on Fridland’s research led him to a *“deeper examination of my practice as a teacher, especially the opportunities I provide for children to take charge of their own learning through metacognitive strategies. I have begun to demonstrate to and train both philosophy teachers and class teachers in the methods I have learned”* [D.2].

In addition, a series of online teacher training workshops took place in late July 2020 (part of a re-engineering prompted by the COVID-19 crisis), which has facilitated even greater impact on teaching practice thanks to the wider international participation that this format enables: teachers from seven countries in addition to the UK took part. All participants were satisfied with the

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workshops, with half rating them as ‘outstanding’. Feedback evidencing their impact includes the following [D.3]:

- *“It will impact on my teaching, because after this training I got several tools to start teaching cognitive skills in several classes who I have been philosophizing with since they were in nursery school and now are 5th/6th grade. ... My aim is to start teaching the three cognitive thinking skills (after summer holidays) which were mentioned during the training: inference making, difference drawing and counterexamples.”*
- *“The critical thinking and metacognition training will be highly valuable as it will allow me to ... provide a sense of progression for the children which I think is important to keep them engaged in the practice of philosophy.”*

4. Raising awareness of technique-centred approaches to teaching critical thinking skills among policymakers at the national level

The widely recognised success of the Fridland-based method developed by TPF resulted in an invitation to TPF Co-CEOs/Co-Founders Emma and Peter Worley to a meeting with policymakers at the DfE in January 2020, at which the 2017 and 2018 findings and the Foundation’s distinctive technique-centred approach were discussed [D]. The recommendations of the DfE’s report for the improvement of the teaching of CT skills in schools will, as a result, be partly shaped by TPF’s approach and, hence, by Fridland’s research.

5. Sources to corroborate the impact

A. Fake News and Critical Thinking Programme, The Philosophy Foundation website. <https://www.philosophy-foundation.org/critical-thinking>.

B. Sources demonstrating how Fridland’s research has improved the critical thinking skills of schoolchildren: B.1 The Philosophy Foundation Report, Exploratory Study 2017; B.2 The Philosophy Foundation Report, Second Trial 2018; B.3 Teacher Feedback, Second Trial 2018; B.4 Student Feedback, Second Trial 2018; B.5 Journal article, E. Worley & P. Worley, Teaching Critical Thinking and Metacognitive Skills Through Philosophical Enquiry: A Practitioner’s Report on Experiments in the Classroom, *Childhood & Philosophy* 15 (2019), 1-34.

C. Sources corroborating that Fridland’s research has transformed the way The Philosophy Foundation teaches philosophy to children nationwide: C.1 Quality and Validation, The Philosophy Foundation website, <https://www.philosophy-foundation.org/validation-research> ; C.2 Testimonial letter from Co-CEO and Co-Founder, The Philosophy Foundation.

D. Sources illustrating how Fridland’s research has changed the way The Philosophy Foundation trains teachers and raised awareness among policymakers: D.1 TPF Social Impact Report 2018-19; D.2 Testimonial letter from Operations Director & Head of Early Years, The Philosophy Foundation; D.3 Email correspondence from Co-CEO and Co-Founder, The Philosophy Foundation.