

Promoting Social and Cognitive Development in Schools: An Evaluation of ‘Thinking Through Philosophy’

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Abstract

This study investigated the effects of collaborative philosophical enquiry on children’s cognitive abilities, critical thinking and socio-emotional perceptions. The study took place over a four-year period in mainstream classes in primary schools in Scotland. This paper provides a summary of the overall evaluation.

Keywords: Philosophy for children, thinking, evaluation, cognitive ability.

Introduction

A key aim of Clackmannanshire Council’s policy of ‘*Learning to Succeed in Clackmannanshire*’ has been to help children become more independent thinkers and more effective problem solvers. A philosophical enquiry approach was introduced to primary school classrooms as an element of this strategy.

The initiative used Paul Cleghorn’s (2002) programme ‘Thinking through Philosophy’ to provide a structure for challenging children to think critically and creatively. The Thinking through Philosophy programme provided stories and poems that acted as a stimulus to prompt thinking. The stories and poems included a high degree of ‘ambiguity’, i.e. they were open to different interpretations by the children in ways that could stimulate discussion as to the meaning of each story.

Aims

This initiative aimed to investigate whether regular participation in collaborative enquiry can lead to:

1. Developments in cognitive ability
2. Developments in critical reasoning skills and dialogue in the classroom
3. Emotional and social developments

Previous evidence was already available supporting these outcomes. Prior to the Clackmannanshire project, the author critically reviewed previous research literature relating to the evaluation of Philosophy for Children (Trickey and Topping, 2004). This review used a meta-analytic technique to compare and combine results and found a consistent positive ‘effect size’ across all Philosophy for Children studies reviewed.

The Clackmannanshire initiative raised the question of what outcomes would result from using collaborative enquiry in mainstream classes of approximately 30 pupils. Would previous positive findings be replicable in large classes facing the ‘normal’ constraints of funding and professional development time?

A key element in this process is the emphasis on developing a community approach to ‘enquiry’ in the classroom that enables children to construct a more considered understanding of the subject material than would be possible through a more traditional individual learning approach. One of the characteristics of this process is an increase in the use of supportive but cognitively challenging open-ended questioning by the teacher.

Methodology

The study investigated two questions:

‘Can philosophical enquiry lead to positive outcomes in children when simultaneously used across primary schools in a local educational authority with classes of 30 children and teachers with little previous experience of collaborative enquiry methods.’

‘If so, what is the nature of these outcomes?’

The outcomes of the Thinking through Philosophy programme were evaluated through:

1. *standardised tests* administered to experimental and control classes to provide measures of cognitive ability and self-esteem.
2. *analysis of classroom discussion* using video recordings to provide measures of critical thinking and dialogue.
3. *analysis of the perceptions of pupils, teachers and head-teachers* using questionnaires to provide an indicator of social/emotional development.

The first two evaluation methods used a traditional two by two pre-post experimental design. One population of children participated in one lesson each week using the Thinking through Philosophy programme while the matched control classes followed their usual curriculum. Both populations were then retested at a later stage under the same conditions.

The third evaluation method, while equally rigorous, used a more qualitative design. Questionnaires were used to elicit the perceptions of pupils, teachers and head-teachers of outcomes arising from the Thinking through Philosophy programme.

Method 1: Standardised Tests

The standardised tests used were the Cognitive Ability Tests (CAT) and Myself-as-a-Learner (MALS).

a) Cognitive Abilities Test (CAT3)

The Cognitive Abilities Test (Lohman, Thorndike and Hagen, 1993) provided measures in standardised scores of Verbal Ability, Nonverbal Ability and Quantitative Ability for each pupil using multiple-choice questions.

‘Pre-initiative’ standardised scores were obtained in the three overall abilities for a sample of 105 Experimental pupils and 72 Control pupils. Follow up testing took place 16 months later. The results of each of the children were compared with how they performed in initial testing and how they performed in follow-up. There was an overall average gain per pupil of 6 standardised points when the verbal, quantitative and nonverbal scores of the experimental subjects were summated into a total Cognitive Abilities Test score. There were highly significant gains in all three cognitive ability areas (i.e. verbal, nonverbal and quantitative ability). There were no gains in the cognitive ability scores of the control group.

The results thus suggest that even one hour’s use of an enquiry-based teaching methodology each week can have a significant impact on children’s reasoning ability. There was anecdotal evidence from both teachers and pupils that the use of enquiry-based methods extended well beyond the ‘Philosophy hour’.

b) Self Perception as a Learner and Problem Solver

Burden’s (2000) ‘Myself as a Learner’ (MALS) was constructed to focus upon ‘academic self-concept’ as against an all-embracing ‘self-concept’. MALS provides a measure of ‘students’ perceptions of themselves as learners and active problem solvers within educational

settings'. The scale comprises of 20 statements, e.g. 'I need lots of help with my work'. The students rate themselves on each statement on a five-point scale.

'Pre-initiative' scores were obtained for 186 pupils comprising of 134 'Experimental' pupils and 52 'Control' pupils. This procedure was then repeated six months later as a post-test measure. The pre- and post-test results were matched for every one of the 134 experimental pupils and every one of the 52 control pupils. Those pupils who had been involved in the Philosophy programme improved their self-esteem scores (significant at the 0.05 level) over this period. There was no significant difference between the pre- and post-test results of the control pupils. These results suggest that enquiry-based approaches are conducive to promoting self-esteem in learning situations.

Method 2: Video Recordings

Twelve video recordings were obtained of classroom discussion comprising of six pre-test recordings and six post-test recordings. Eight of the twelve recordings were of experimental classes who had a weekly Thinking through Philosophy lesson for six months and four were of control classes who had no involvement with the programme.

'Pre-initiative' video recordings were made of classroom discussion of a Greek fable. The teacher first read out the story and then explored its meaning through discussion with the class. The teachers were asked to repeat the exact same task with the same instructions six months later. The discussions were again video-recorded.

Each video recorded classroom discussion was scored using a structured observation schedule. Specific behaviours were selected for scoring on the grounds that they were readily observable and measurable and provided an indication to which the broader aims of the programme had been achieved. A measure of inter-observer agreement was gained to ensure the observation schedule was sufficiently reliable.

The classes involved in the Thinking through Philosophy programme increased their scores in the following behaviours (all significant at $p < 0.05$ level). The rate of pupils supporting their views with reasons doubled in the experimental group over a six-month period. Teachers doubled their use of an open-ended follow-up question in response to pupil comments. The percentage of time that pupils were speaking (compared to the percentage of time that the teacher was speaking) increased from 41% to 66%. The length of pupil utterances in the experimental classes increased on average by 58%. There were no significant changes in the discussions taking place in the control classes.

Method 3: 'User Questionnaires'

The perceptions of pupils, teachers and head-teachers of the outcomes arising from involvement with the Thinking through Philosophy programme were obtained through:

1. systematic analysis of questionnaires completed by 77 pupils after six months
2. observations elicited from a questionnaire completed by head-teachers after six months
3. verbal and written comments from participating teachers throughout the initiative (elicited during support meetings and through diaries maintained by the teachers)

During the analysis of the pupil questionnaires, all pupil responses for each open-ended question were assigned to categories that were judged to reflect clear themes in the pupils' responses. The reliability of this approach was gauged by obtaining inter-rater comparisons.

The responses indicated that the pupils saw 'communities of enquiry' as leading to an increase in their participation in classroom discussion and to gains in their social/emotional development and thinking. The study provided evidence of improvements in pupil's

communication skills, confidence and concentration. The study also suggests that the process of community of enquiry helped pupils learn to *self-manage their feelings/impulsivity* more appropriately. Pupil responses to each question were subjected to Chi-Square analysis to determine the probability of these scores occurring by chance. Seven out of the ten questions were significant at the 0.01 level and two questions at 0.04.

Evidence of significant gains in the social/emotional development of the pupils was considerably strengthened by the level of consistency of results at three different levels, i.e.

1. consistency of pupil responses to the different questions in the questionnaire
2. consistency between pupil perceptions, class-teacher perceptions and head-teacher perceptions,
3. consistency of findings from different evaluation methodologies, e.g. a) the questionnaires and the video analysis of classroom discussion both provided clear evidence of increased participation of pupils in classroom discussion; b) the pupil perceptions of increased confidence matched gains measured on standardised tests of self-esteem.

Sustainability of cognitive gains

Both experimental and control groups of pupils were followed up by retesting with the Cognitive Abilities Test as they approached the end of their second year of secondary education. The pupils who had regularly participated in communities of enquiry in primary school had not experienced any further enquiry at secondary school. The control group similarly had not been involved in community of enquiry activities at secondary school. The group that had participated in enquiry and achieved significant cognitive gains at primary school demonstrated that these gains were fully sustained following two years of secondary education despite no further experience of enquiry. Similarly the control group who had showed no cognitive gains in primary school also showed no gains in secondary school. The main conclusion arising from this additional study was that cognitive gains achieved through regular participation in collaborative classroom communities of enquiry *proved sustainable* despite the absence of further experience of classroom enquiry in secondary school.

Conclusions and Implications

The Clackmannanshire study provided evidence that one hour of classroom philosophical enquiry each week in primary schools can be highly cost-effective in promoting:

1. sustainable gains in cognitive ability
2. developing critical reasoning skills and dialogue in the classroom
3. emotional and social developments

The study demonstrated that such developments can take place in mainstream classes of 30 pupils with teachers with little previous experience of leading whole class enquiries. However, developing open 'communities of enquiry' is likely to require a shift in pedagogy for many teachers. The role of the teacher in supporting whole class enquiry emphasises the role of the teacher as 'curious facilitator' rather than 'expert instructor'. The availability of appropriate and adequate training and credible support for teachers is thus crucial to achieving positive outcomes.

Challenging pupils to think independently in collaborative classroom communities may not be easy. However, as the current study demonstrated, there are potential gains for pupils. The nature of these educational gains seem increasingly important as the purposes of education are redefined in a rapidly changing world of information technology and global

economy. Evolving curricula now placing increasing emphasis on thinking and interpersonal skills.

References

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Steve Trickey is a practicing senior educational psychologist with Clackmannanshire Council in Scotland. Steve has worked as an educational psychologist for 30 years including two education districts in England and two in Scotland. Steve's strong interest in promoting thinking has been reflected in regular contributions to previous International Conferences on Thinking (ICOTs). Steve has worked closely on a collaborative project with the University of Dundee to evaluate outcomes arising from the use of Philosophy for Children in elementary schools. Steve has identified gains in children's cognitive abilities, critical thinking skills and social/emotional development from their regular participation in classroom 'communities of enquiry'.