

## Executive Summary

### PROMOTING SOCIAL AND COGNITIVE DEVELOPMENT THROUGH COLLABORATIVE ENQUIRY:

#### AN EVALUATION OF THE '*THINKING THROUGH PHILOSOPHY*' PROGRAMME

This study investigated the effects of collaborative philosophical enquiry on children in mainstream classes in primary schools in an educational authority in Scotland. This paper provides a summary of this evaluation.

#### INTRODUCTION

Clackmannanshire is situated in the middle of Scotland, north east of Glasgow and north west of Edinburgh. In 1997 the council offered a progressive vision for developing its future educational services in a policy document entitled '*Learning to Succeed in Clackmannanshire*'. One of the aims of this policy was that of helping children to become more independent thinkers and more effective problem solvers. A philosophical enquiry approach was introduced to primary school classrooms in 2001 as an element of this strategy. This approach aimed to encourage children to think more independently. The introduction of a collaborative enquiry approach followed careful consideration of existing research on how children develop and extensive consultation with head-teachers in Clackmannanshire.

The Clackmannanshire initiative involved a commitment throughout all its primary schools to promote thinking for learning through collaborative enquiry. The project was subject to rigorous evaluation involving a partnership between Clackmannanshire and the University of Dundee.

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. The programme was more structured than other programmes used to prompt classroom enquiry. This degree of structure was built into the programme to take account of the particular development needs of the teachers involved, most of whom had no previous experience of collaborative classroom enquiry.

The process of Philosophy for Children includes the key features that Adey (2001) suggested are necessary for promoting cognitive skills and educational attainment. Black and William (1998) have also referred to dialogue as an important element in 'formative assessment' practice. Black and William presented strong evidence that formative assessment contributes to significant learning gains and helps to raise educational achievement.

The approach adopted in Clackmannanshire was strongly influenced by Lipman's 'Philosophy for Children' programme (e.g. Lipman, Sharp and Oscanyon, 1980) and the subsequent work of Robert Fisher in the United Kingdom. Lipman's programme aimed to encourage children to become more reasonable thinkers and wiser decision makers. The programme also encouraged children to reflect on and become more aware of their thinking. This process seems consistent with a range of evidence provided by Watkin (2001) concerning the role of 'higher order' meta-cognitive processes in thinking and learning. Meta-cognitive processes refer to those processes that actively involve students in planning, monitoring and reflecting on what and how they are learning.

## **Aims of the Clackmannanshire project**

This initiative aimed to test whether a weekly 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 from independent sources into a quantitative index of effectiveness. A consistent positive 'effect size' was calculated across all ten Philosophy for Children studies reviewed. An effect size of this magnitude would indicate that the outcomes of Philosophy for Children to be certainly of educational significance.

The current Clackmannanshire initiative remains unusual in testing out these specific outcomes in the context of mainstream classrooms across an entire educational authority. The Clackmannanshire initiative raised the question of what outcomes would result from using collaborative enquiry in mainstream classes of 30+ pupils simultaneously in schools across the authority. Would the previous results be replicable in circumstances of large classes facing the 'normal' constraints of funding and professional development time? (i.e. the initiative was not excessively funded in ways that would make replication difficult elsewhere).

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 challenging open-ended questioning by the teacher. Open-ended Socratic questions challenge the children to think more independently. Such questions are also instrumental in promoting dialogue between 'teacher and pupil' and 'pupil and pupil'.

The Clackmannanshire initiative built in rigorous evaluation from the outset. The need for a proper evaluation not only recognized the investment of local teacher time and energy but also possible implications for practice in the wider educational community.

The project was well supported by the council from the outset. All the councils Primary Year 6 and Primary Year 7 teachers were invited to a meeting to launch the Clackmannanshire Thinking Initiative in August 2001. The presence of the council's chief executive and senior managers of the education service at this meeting helped to emphasise the council's commitment to the initiative. This commitment, together with significant national media interest at the time, probably helped to motivate the initial involvement of the teachers. Professional development sessions were offered in September 2001 and initial baseline data collection for the evaluation was completed by October 2001. The first classroom philosophical enquiry sessions started from the beginning of November 2001. Participating P6 and P7 teachers were provided with from ten to twelve hours of professional development during the first year of the initiative.

## 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?’**

These questions thus sought to explore the possibility of the process of collaborative enquiry being used on a wider curricular basis. This possibility was being raised at a time when the curriculum appeared to be perceived by teachers as highly prescribed and content-driven. Such a situation seemed to many teachers to leave little room for exploratory discussion in the classroom.

The study was based on the hypothesis that collaborative philosophical enquiry would lead to developments in the pupils’ cognitive ability, improvements in critical reasoning skills and social/emotional developments.

The research design involved both quantitative and qualitative methods. The evaluation consisted of three related components using distinct methodologies. The components focused on overlapping and related outcomes and provided a triangulated approach to the overall evaluation.

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. The *analysis of classroom discussion* using video recordings to provide measures of critical thinking and dialogue.
3. The systematic *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. This involved collecting a range of data from two comparable populations of children before the initiative started in November 2001. One population of children then 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. These responses were then subject to systematic analysis.

## **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 in October 2001. Follow up testing took place 16 months later in February 2003. The results of each of the children were compared with how they performed in October 2001 and how they performed in February 2003. 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). The probability of that these gains could have happening by chance is less than one in a thousand. 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 and intellectual performance.*

### **b) Self Perception as a Learner and Problem Solver**

Burden's (2000) 'Myself as a Learner' (MALS) was constructed to have a deliberate focus upon 'academic self-concept' as against all-embracing 'self-concept' or more specific academic related scales (e.g. reading or mathematics 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 in October 2001 for 186 pupils comprising of 134 'Experimental' pupils and 52 'Control' pupils. This procedure was then repeated in May 2002 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. The difference between the pre- and post-test total MALS scores for the experimental pupils was found significant at the 0.05 level. There was no significant difference between the pre- and post-test results of the control pupils.

The 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 involvement with the Thinking through Philosophy programme 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 in October 2001 in six classes. The teacher first read out the story and then explored its meaning through discussion with the class. A number of 'prompt questions' were provided to each teacher to help get the discussion started. Four of these classes were then involved in a weekly Thinking through Philosophy lesson for six months starting from November 2001. These served as the 'experimental' classes. Two of the classes had no involvement with the Thinking through Philosophy programme and served as the 'control' classes.

The teachers (whose classroom discussions were video recorded) were asked to repeat the exact same task with the same instructions in the last two weeks of May 2002. The teachers were given written guidance and advice to help replicate the original conditions as far as possible. The discussions were again video-recorded.

The first ten minutes of 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. This process aimed to determine the incidence of the following specific behaviours during the observation period:

- Occurrence of pupil supporting their view/opinion (of the stimulus used) with a reason
- Occurrence of pupil agreeing or disagreeing with a view expressed by another pupil and providing a reason for this
- Occurrence of teacher asking an open-ended question (including follow up questions)
- Ratios of the amount of time pupils were talking to the amount of time their teacher was talking.
- Length of discrete pupil utterances

The classes involved in the Thinking through Philosophy programme increased their scores in all of the above five of the above 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.

The analysis of the video recordings of the classroom discussions provided evidence that use of the Thinking through Philosophy programme resulted in:

- increased participation of the pupils;
- more elaborated responses from pupils;
- developments in the critical thinking of the children;
- and an increase in the use of open-ended, follow-up teacher questions by the teachers.

Overall, the analysis of the video recordings of the classroom discussions suggested that participation in the Thinking through Philosophy programme led to improvements in the quality of dialogue and critical thinking.

### **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 0.005 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.

## **Conclusions and Implications**

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

1. Developments in cognitive ability
2. Developments in 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 are thus crucial to achieving positive outcomes.

While challenging pupils to think independently in collaborative classroom communities may not be easy, the potential gains for pupils are high, as the current study demonstrated. 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 show more emphasis on creative and critical thinking, values education and interpersonal skills as well as the need to develop basic literacy and numeracy skills. This study was set in a Scottish context. The recently published 'A Curriculum for Excellence' in Scotland is document that sets out plans for reducing the content of the existing Scottish curriculum so that the most relevant issues can be explored in more depth and with more thought and understanding. This would seem to provide a real opportunity for creating 'space' for placing more emphasis on collaborative approaches, such as philosophical classroom enquiry, to support pupils sustain the type of gains evidenced in this study. Maybe in such circumstances Scotland (and England) will move up from their current positions in comparative international performance indicators (such as Pisa and Timss) to challenge leaders such as Singapore who routinely revise their curriculum and place more emphasis on creative thinking.

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Full references have not been included for the purposes of this particular paper. However, if you would welcome more information regarding any aspect this evaluation, please contact Steve Trickey at:

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