

An Investigation into whether Learning to Play Chess at a Young Age Increases Cognitive Ability

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The Hypothesis

Pupils who have had chess tuition will show significantly higher overall scores than those who have not received chess tuition, in a 'quiz' based on Maths and Non-Verbal Reasoning



The Participants:

483 pupils in year 4 from 14 schools in Bristol, Manchester, Teeside and Liverpool:

- 201 chess pupils
- 282 non-playing pupils (the Control)

All chess pupils had received chess tuition whilst in year 3

The 'Quiz'

19 Maths and Non-Verbal Reasoning questions
max. score 40

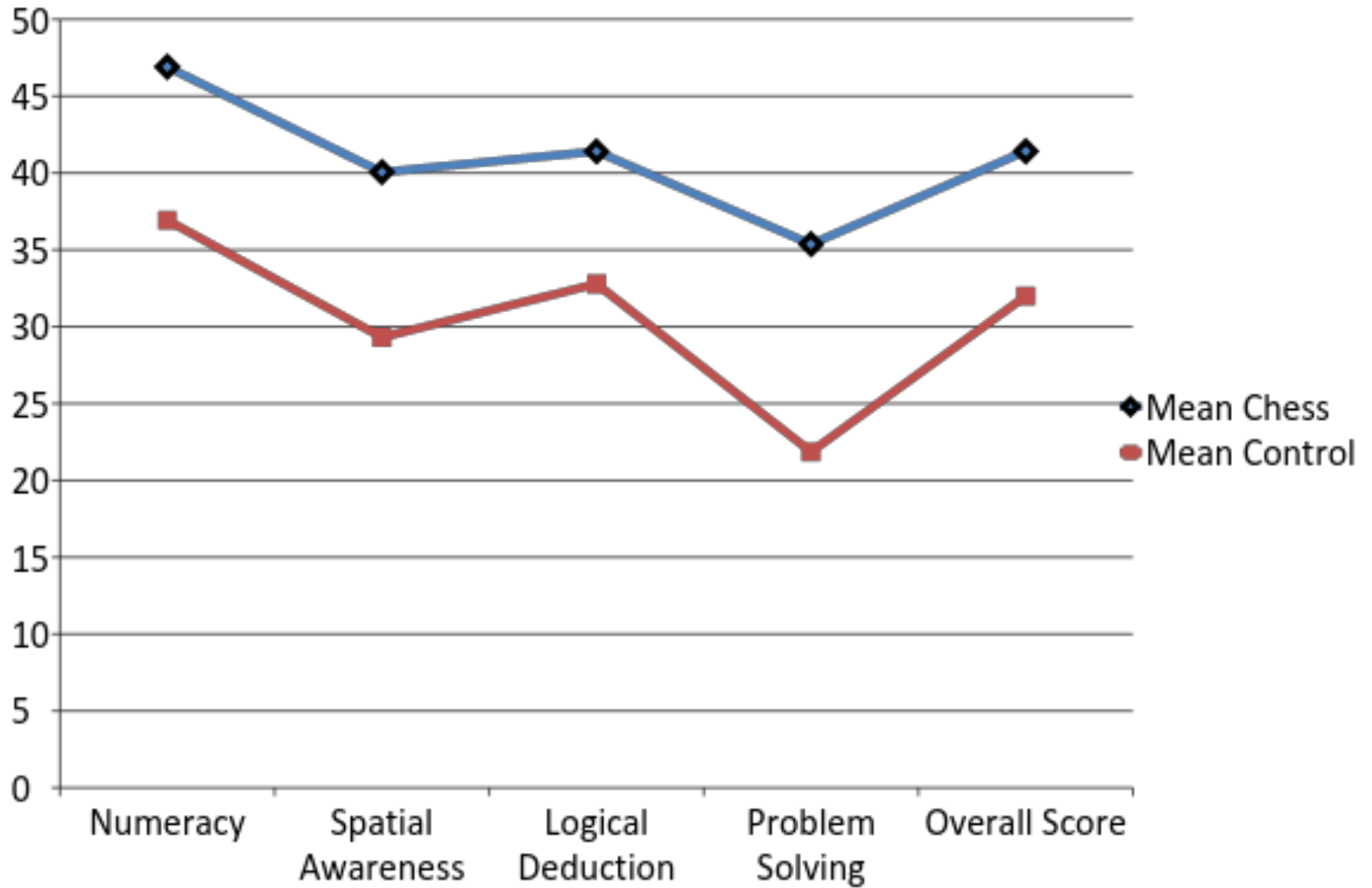
Specific skills tested:

- **Numeracy** – max. score 26
- **Spatial Awareness** – max. score 12
- **Logic** – max. score 13
- **Problem Solving** – max. score 10

Results

Skill	Marks Available	Chess Mean Average	Control Mean Average
Numeracy	26	12.19 (46.9%)	9.60 (36.93%)
Spatial Awareness	12	4.81 (40.05%)	3.52 (29.31%)
Logical Deduction	13	5.38 (41.41%)	4.26 (32.79%)
Problem Solving	10	3.54 (35.37%)	2.37 (21.86%)
Overall Score	40	16.57 (41.42%)	12.79 (31.99%)

Comparison of Means (%)



Analysis of Results



- There was a broad spectrum of ability in both the chess and control conditions
- The quiz was more challenging than pupils realised!
- 11 of the 19 questions demonstrated significant results
- 6 of the 19 questions demonstrated encouraging, but inconclusive results
- 4 of the 19 questions proved too difficult for the majority of pupils, but produced some thought-provoking results

Research in Phase 2

- In addition to the year 4 classes being tested, tests are also being done with year 5 pupils and year 6 pupils, in order to see whether there may be an optimum time for children to learn chess.
- Comparisons will be made between the boys' scores and the girls' scores to see whether the effects of learning to play chess are the same for both genders.
- The research is being carried out in London and Manchester and comparisons will be made to see if location plays a part in the possible effects of learning to play chess.

