Difficulties of Written Expression in Children in the Upper Primary School

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Background 1

Henderson and Hall (1982) first noted that children who were poorly coordinated frequently underachieve in the academic as well as the physical and social aspects of school life.

Background 2

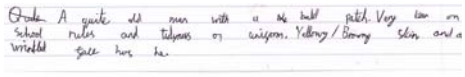
Since then, many studies have highlighted handwriting as a major area of concern in this group, citing inaccuracy, illegibility and slowness of speed as the particular features of these children's writing.

(e.g.Barnett & Henderson,2005; Berninger, 2004)

Difficulties with writing in the wider context

My experience working with children with DCD who have high measured IQs and good literacy, is that they often exhibit *unexpected* difficulties expressing themselves in writing.

11 Year Old with VIQ of 155



Background 3

Evidence suggests that:

- DCD commonly co-occurs with other disorders, and with ADHD in particular (Kaplan, 1998; Kadesjo & Gillberg,1998)

Background 4

- Underachievement in school is associated separately with both DCD (Henderson & Hall, 1982; Losse, 1991) and with ADHD (Brown, 2000).
- Handwriting difficulties are also found in children with both DCD (Barnett & Henderson, 2005) and ADHD (Tucha & Lange, 2001).
- Little is known about how the combined disorders impacts upon achievement.

Handwriting and Composition: Are they related?

- Evidence of a causal relationship between mastering handwriting and learning to write in a normal population (Berninger et al, 1997; Jones & Christensen, 1999).
- Lack of fluency in handwriting constrains writing quality by limiting resources for higher order processes (Connelly & Hurst,2001; Christensen, 2005)

Research Questions

- To what extent is the 'thinness' of written composition attributable to the difficulty of handwriting?
- Could there be a *direct* impact on the writing ability from an additional disorder, such as ADHD, as well as an *indirect* impact through the handwriting?

More specifically…

1. Is there a relationship between handwriting and composition quality?
2. What are the roles of motor coordination and attention in the writing process?

Recruitment to the study

Teachers in mainstream primary schools in north London were asked to identify children who had *unexpected* writing difficulties, i.e. those who could tell a story orally but could not write the story to the same level.

Aims

1. To compare performance on a narrative task in written mode with performance on the same in oral mode.
2. To compare the written performance of the target group with that of children without writing difficulties.

Method

Participants

- 12 children, 6 boys and 6 girls, aged 10-11 years in mainstream primary schools in north London (the target group).

  12 control children, matched for age, sex and general ability.

Procedures

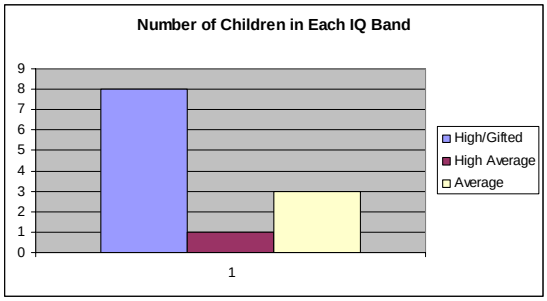
The children in the target group were tested individually for:

- verbal IQ;
- three measures of literacy: word reading, spelling and reading comprehension;
- motor coordination;
- attention.

Standardised Tests

- WISC III-R (Weschler,1992) – Short form
- The British Ability Scales II - Word Reading (Elliott, 1996)
- The British Ability Scales II - Spelling (Elliott, 1996)
- The Neale Analysis of Reading Ability (NARA) II (Neale, 1997)
- Movement ABC (Henderson & Sugden, 1992)
- Brown Attention-Deficit Disorder Scales for Children and Adolescents (Brown, 2001): Teacher rating

Summary of Measured Verbal IQ



Summary of Literacy Scores

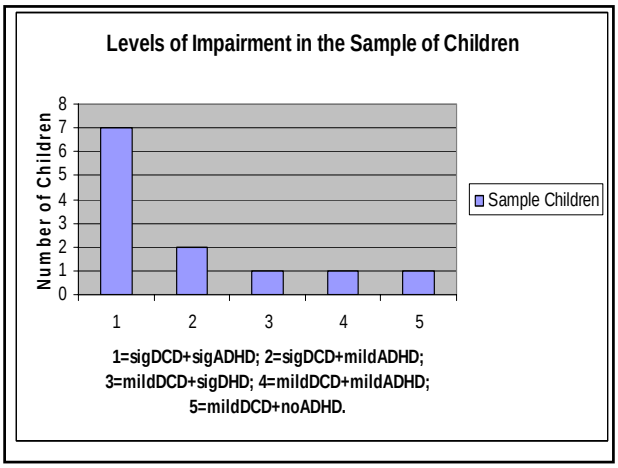
- Three children had impaired* word reading.
- One of those also had impaired* spelling.
- All twelve scored within the normal range for reading comprehension.

** = more than two SD below the mean*

Summary of Motor and Attention Scores for Target Children

	Sig. Impaired Below 5%	Mildly Impaired 5 -15%	Unimpaired
MABC	**10**	**2**	**0**

	Sig. Impaired Above 54	Mildly Impaired 45 - 54	Unimpaired Below 45
Brown Scales	**8**	**3**	**1**



Story Task – Dragon Picture Sequence

Instruction:

"Write/tell a story based on these pictures. Make it as exciting as you can so that it can be read/told to other children."

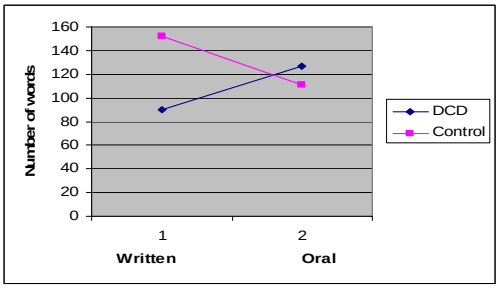
Procedure

- Children were given up to 30 minutes to write or tell the story.
- All scripts were transcribed and analysed for:
  - Number of words
  - Composition quality (5-1).
- In addition, written scripts were analysed for handwriting quality (5-1) and writing speed.

RESULTS

A repeated measures ANOVA was used to analyse the data with one between-subjects factor (*group*) with two levels of group (*target and controls)* and one within-subjects factor (*mode of language)* with two levels of mode (*written and oral*).

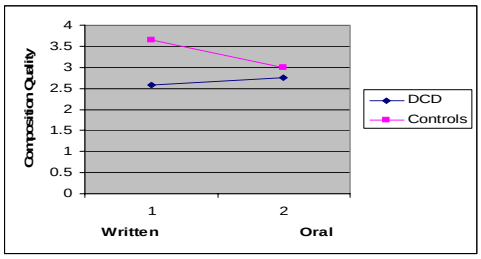
Number of Words Produced: DCD written vs. controls written



Number of Words Produced

- Difference between written and oral mode in the target group was significant ($p<.001$) and the difference between the target group and controls in written mode was also significant ($p< .001$).

Composition Quality: Written vs. oral, DCD vs. controls



Composition Quality

- Difference between target group and controls was significant in written mode (p = .06), but not in oral mode.
- Difference in control group between written and oral modes was significant (p =.03).

Correlations

- M-ABC correlated with writing speed (-.67) and composition quality (.59) but not with handwriting quality.
- Brown Attention Scales did not correlate with any other measure.

Discussion 1

- The fact that all twelve target children scored below the 15% on M-ABC suggests that motor coordination *does* play a role in writing difficulties.
- This appears to affect writing speed though not handwriting quality.
- Writing speed and number of words correlate with written composition, suggesting that to write *well* one must write *enough.*

Discussion 2

- Role of attention not at all clear.
- Assessment tools not sensitive enough.
- Need to measure specific cognitive functions associated with ADHD, such as working memory or organisation of ideas.
- Overlap of DCD and ADHD may only be better understood if performance is compared with that of pure groups.

Discussion 3

- Group data provides only a partial picture.
- Variability within the group.
- Children referred for different reasons.
- Further research may need to look at case-study evidence for clues as to the nature and causes of these delays.

The Handwriting Interest Group

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The National Handwriting Association

www.nha-handwriting.org.uk

AIMS

- To increase awareness of handwriting as a vital component of literacy
- To promote good practice in the teaching of handwriting
- To support those who work with children with handwriting difficulties.

HOW THE AIMS ARE REALISED

- It produces an annual journal.
- It keeps an updated website
- It publishes books and leaflets on specific aspects of handwriting
- It runs an in-service training programme for teachers and teaching assistants
- It runs an information service.
- It advises government departments on policy.

STRUCTURE

CURRENT PROJECTS

- Advising the government on school policy.
- Offering the accredited graduate diploma module to other universities.
- Training teaching assistants.
- Increasing influence on products which are developed commercially.
- Setting up a tutor register.

Future Hopes

- To attract patronage and further sponsorship.
- To facilitate research into handwriting.

National Handwriting Association

Promoting good practice