The development of cohesion in children's writing: a preliminary investigation

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ABSTRACT
The study reported in this paper investigated the developmental pattern of cohesive ties realized through the free writing of children aged six and ten years. The proportional usage, both of cohesive ties to quantity of text and of the various ties to one another, are identified. Differences of usage as functions of age and sex are also considered.

INTRODUCTION
The role of cohesion in establishing textual coherence has been extensively examined by Hasan (1968) and, more recently, Halliday & Hasan (1976), while the nature of the relationship of the former to the latter has been discussed by Widdowson (1978). Cohesion may be defined as one of the means whereby propositions can be grammatically or lexically related to each other within the confines of a text. Semantic relationships can be established with phenomena external to a text, for example, a jointly perceived environment, but such links cease to be linguistically cohesive. Cohesive relationships exist between sentences and are structural in nature. Five main forms of cohesive tie have been identified; reference, substitution, ellipsis, conjunction and lexical.

An extended examination of these categories has been made by Halliday & Hasan (op. cit.), and only a brief resumé will be given here as a means of providing a theoretical context for the empirical study reported below. A reference item (such as he, she, it, etc.) establishes a semantic association with an object or event within, or external to,
the text and such an association may express identity, association or dissimilarity with all, part, or no characteristics of the referent. As these associations are semantic links they are not tied to filling the same syntactical location in a sentence as the referent. Reference is subdivided into personal, demonstrative and comparative categories. Whereas reference is a semantic relationship between the items and its referent, there being complete identity between the two, substitution, and its alternative form, ellipsis, involve a grammatical relationship in which the referent is replaced in the same structural position in the sentence by a ‘token’ with which it has no semantic relationship. In substitution this ‘token’ may take one of several forms according to its grammatical function: one, ones, same in a nominal function; do, be, and have and their various morphological forms, in the verbal position; so, not, to represent substitution of a whole clause. In ellipsis these functions are replaced by zero.

Substitution and ellipsis not only differ from reference in the nature of the relational link established between the referent and its lexical representation in the new linguistic environment but also in the fundamental function which is undertaken. In cohesion by reference there is identity between the two lexical items because the link is semantic. By using substitution and ellipsis, however, the intention is to bring the referent into an environment which contrasts with its original position. Not only is there acceptance of part, or the whole, of the original referent, but there is also repudiation of part, or something which could conceivably form a part, of the original; there is always some point of contrast between the ‘given’ and the ‘new’ information available from the text.

Unlike reference, substitution and ellipsis, conjunctives are not cohesive items in themselves, they do not presuppose any other lexical item. Rather, they indicate the relationship between some given information to that which is to follow; they do not so much represent a grammatical feature, as do substitution and ellipsis, but work on a semantic level, similar to reference. When such words or expressions function cohesively they stand in the initial position of a sentence. The division of conjunctive ties into categories for the purpose of classification and analysis is to some extent arbitrary but those proposed by Halliday & Hasan (op. cit.) seem to function appropriately. They place the cohesive conjunctive elements into six groups: additive, adversative, causal, temporal, other (continuatives) and intonational. The last, intonational, is a feature of spoken English and was not, therefore, taken into consideration for the purpose of the present study into children’s written English.

The final category, lexical, is concerned with the actual choices of vocabulary in the compilation of a text, and the cohesive effect of such choices on the structural unity. Rigid sets of rules concerning the selections to be made are not found. Rather, subtle semantic links are employed which have been established through previous personal experience. A large number of these semantic links will be common to the majority of English speakers and will therefore reach a reasonable level of objectivity when the classification of lexical items is attempted, simple ‘rules’ may even be formulated. Other items may only be felt to cohere by the author and a fairly limited audience. The
author's ability to communicate, however, is often dependent upon making such intentional cohesive ties explicit. There are a number of ways in which selections from the vocabulary may hold a cohesive function, for instance, exact repetition of an uncommon item, the use of synonyms, super-ordinate or general items, and collocation (Sinclair 1966).

**Sampling of children's written texts**

The present study was undertaken to consider the understanding that children have of cohesion as a system, revealed through their written performance. Earlier studies of children's written texts have focused on the level of the sentence alone. This would seem an inappropriate level, for meaning is habitually conveyed through the whole. As Widdowson (op. cit.) has pointed out, any number of sentences in a collection are related coherently to achieve an illocutionary act.

Cohesion, being one of the devices by which coherence may be maintained, has recently come under consideration as an important factor in learning to read efficiently (Nash-Webber 1977). Failure to realize the implication of a cohesive tie, to recover its referent, implies loss of meaning and a breakdown of coherence for the recipient of the communicative act.

Though understanding appears to come before production in the child's progress in language development, the extent to which the child employs and develops cohesive ties would seem another valuable avenue of approach to our understanding of the child's acquisition of the linguistic system. There has been little consideration of this aspect in the literature, though King & Rentel (1979), in their review of research related to early writing development, state:

*We would also expect a higher proportion of reference than other types of cohesive relations in these early attempts at writing, . . . that pronominals, verbal and nominal substitution, and simple conjunctions will occur with greater frequency than ellipsis and lexical cohesion.*

By the age of seven, they continue,

*At the level of categories we predict that children will employ mainly lexical cohesion, . . . Low codability, however, should lead to increased production of modifiers and substitutions, and in turn, to greater utilization of substitution and co-ordination as cohesive mechanisms. These trends should be reflected in development since as children acquire new categories and elaborate old ones, their ability to achieve cohesion through collocation should increase and their need to substitute and co-ordinate to achieve cohesion should decrease. (p.251)*

**Investigation**

The present small scale-study examined the occurrence of cohesion in written English
produced by samples of children at six and at ten years of age. The frequency of cohesive ties or the proportion of such ties to length of text in sentence units could not be hypothesized. A pilot investigation suggests that, as conjectured by King & Rentel, reference may be the dominant feature of cohesion in children’s writing but, contrary to their hypothesis, substitution, ellipsis and conjunction are little used. It was believed that definite developmental trends would be noted from observation of two age groups. Such trends were thought to include an increase in the proportion of ties in the texts employed by the 10-year-olds to those used by the 6-year-olds. A decrease in the proportion of reference items, with a corresponding increase in the other categories of cohesion and, within each category, a more varied application of each cohesive form, was expected. It was possible that those texts produced by the girls might be both longer and more mature (Harpin 1976: 74–5). This maturity might display itself, in part, in a greater mastery of cohesion as a linguistic device. Such differences, if they did occur, should be more apparent at ten years than at six.

Hypotheses

There are a number of hypotheses which emerge from observations of children’s writing during the pilot investigations and from the predictions of King & Rentel and Harpin. For ease of later reference and as guidelines for analysis of the results these hypothesis are numbered below:

1. Young children use a higher proportion of reference items than other cohesive ties.
2. Proportional use of reference items decreases with age.
3. Older children increase their use of cohesive ties other than reference.
4. Young children use substitution and conjunction with greater frequency than ellipsis and lexical cohesion.
5. Use of substitution and conjunction decreases with age.
6. Girls exhibit linguistic maturity by using a larger range and variety of cohesive devices than boys.
7. Older children use a greater proportion of cohesive devices.

PROCEDURE

a) Sample

5 boys and 5 girls were selected at both six and ten years of age from a middle school covering the ages 5 to 12 years. The school was situated in a ‘middle-class’ suburb of London. While its pupils reflected the characteristics of population it is possible that as many as one third of the children in the area did not enter the school, being educated privately.

The children were selected on an age criterion, each of the four sub-samples being
drawn from as close to the year-group mean for the population as possible in order to
counter the effects of any gains which might accrue from an extra term’s schooling, or
the possible detrimental effects from only one term’s schooling at five years of age. The
survey covered a period of four weeks, two weeks either side of the spring half-term.
During that time all the written work which was of a ‘free’ nature was collected from the
sample. Reporting information in, for example, science meant that a large amount of
vocabulary or structural form might be dictated by the matter in hand and that many
words or expressions would be given to the pupils by their teachers. It was believed that
the areas which best represented the child’s ability in practice were stories, poems and
related forms; although nearly always instigated by the teacher, the children were able
to follow a line of thought uniquely their own. The only types of writing collected
during the period of the survey were story and poetry.

**TABLE 1. Descriptive data of texts**

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total no. of words written</td>
<td>1683</td>
<td>1366</td>
<td>3049</td>
<td>3201</td>
<td>5248</td>
<td>8449</td>
</tr>
<tr>
<td>Mean no. of words per text</td>
<td>105</td>
<td>80</td>
<td>92</td>
<td>178</td>
<td>262</td>
<td>222</td>
</tr>
<tr>
<td>s.d.</td>
<td>53</td>
<td>31</td>
<td>44</td>
<td>124</td>
<td>220</td>
<td>184</td>
</tr>
<tr>
<td>Total no. of sentence units</td>
<td>172</td>
<td>152</td>
<td>323</td>
<td>362</td>
<td>561</td>
<td>923</td>
</tr>
<tr>
<td>Mean no. of sentence units per text</td>
<td>10</td>
<td>9</td>
<td>10</td>
<td>20</td>
<td>28</td>
<td>24</td>
</tr>
<tr>
<td>s.d.</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>12</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>Mean length of sentence unit</td>
<td>10</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>s.d.</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>N</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>

b) **Analysis**

The concept of cohesion in English, as defined and employed by Halliday & Hasan,
rests on the notion that it is a feature of relationship between sentences. ‘Cohesive’
devices employed at the level of sentence are primarily to be considered as structural
relationships. The establishment of cohesive ties in a text might be considered straight-
forward for most of them play a grammatical role, but this implies a coherent text
already delivered in sentence units. While the majority of 10-year-olds’ texts which
were collected displayed a consistent notion of what constituted a sentence, few of the
6-year-old sample examined employed the full stop, or, if they did, rarely in the
‘correct’ position. In order to analyse the operation of cohesion in the texts of the 6-
year-olds some form of division into sentence units had to be made. This was not to
‘correct’ the text, or to bring to it a greater degree of coherence, that would serve no
useful purpose and go against the spirit of the child’s own creative effort. Rather, it was
to establish some logical boundaries across which the action of cohesive rather than
structural ties could be detected. A full account of the procedure undertaken is given
in Rutter (1980: 36-43).

The texts were analysed according to the scheme devised by Halliday & Hasan (pp.
333-338) with a minor adjustment to the lexical category to accommodate sub-
ordinate items, and those which could be related as a direct result or consequence of an
earlier referent.

**TABLE 2. Distribution of cohesive ties**

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>6-year-olds</th>
<th>Total</th>
<th>Boys</th>
<th>10-year-olds</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Girls</td>
<td></td>
<td></td>
<td>Girls</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reference</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>233</td>
<td>132</td>
<td>365</td>
<td>221</td>
<td>312</td>
<td>533</td>
</tr>
<tr>
<td>Mean/text</td>
<td>15</td>
<td>8</td>
<td>11</td>
<td>13</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>s.d.</td>
<td>10</td>
<td>5</td>
<td>8</td>
<td>11</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td><strong>Substitution</strong></td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean/text</td>
<td>0.19</td>
<td>0</td>
<td>0.09</td>
<td>0.2</td>
<td>0.05</td>
<td>0.13</td>
</tr>
<tr>
<td>s.d.</td>
<td>0.4</td>
<td>0</td>
<td>0.3</td>
<td>0.7</td>
<td>0.2</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Ellipsis</strong></td>
<td>8</td>
<td>2</td>
<td>10</td>
<td>8</td>
<td>18</td>
<td>26</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean/text</td>
<td>0.5</td>
<td>0.13</td>
<td>0.3</td>
<td>0.4</td>
<td>0.9</td>
<td>0.7</td>
</tr>
<tr>
<td>s.d.</td>
<td>0.9</td>
<td>0.5</td>
<td>0.7</td>
<td>0.8</td>
<td>1.3</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>Conjunction</strong></td>
<td>22</td>
<td>26</td>
<td>48</td>
<td>30</td>
<td>91</td>
<td>121</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean/text</td>
<td>1.4</td>
<td>1.5</td>
<td>1.5</td>
<td>1.7</td>
<td>4.6</td>
<td>3.2</td>
</tr>
<tr>
<td>s.d.</td>
<td>1.2</td>
<td>1.1</td>
<td>1.1</td>
<td>1.6</td>
<td>4.9</td>
<td>3.9</td>
</tr>
<tr>
<td><strong>Lexical</strong></td>
<td>54</td>
<td>68</td>
<td>122</td>
<td>102</td>
<td>202</td>
<td>304</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean/text</td>
<td>3.4</td>
<td>4</td>
<td>3.7</td>
<td>5.7</td>
<td>10.1</td>
<td>8</td>
</tr>
<tr>
<td>s.d.</td>
<td>2.7</td>
<td>2.5</td>
<td>2.6</td>
<td>4.7</td>
<td>7.5</td>
<td>6.6</td>
</tr>
</tbody>
</table>

| **All cohesive ties** | 320  | 228         | 548   | 365  | 624          | 989   |
| Total              |      |            |       |      |              |       |
| Mean/text          | 20   | 13          | 17    | 22   | 31           | 26    |
| s.d.               | 11.4 | 6           | 9     | 16   | 26           | 23    |

**RESULTS**

a) **Reference**

Despite the greater textual output of the 10-year-old sample considered against the 6-
TABLE 3. *Cohesive ties x sentence units (x100)

<table>
<thead>
<tr>
<th></th>
<th>6-year-olds</th>
<th></th>
<th></th>
<th>10-year-olds</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Total</td>
<td>Boys</td>
<td>Girls</td>
<td>Total</td>
</tr>
<tr>
<td>Reference</td>
<td>135.47</td>
<td>86.84</td>
<td>113</td>
<td>61.05</td>
<td>55.62</td>
<td>57.75</td>
</tr>
<tr>
<td>Substitution</td>
<td>1.74</td>
<td>0</td>
<td>0.93</td>
<td>1.11</td>
<td>0.18</td>
<td>0.54</td>
</tr>
<tr>
<td>Ellipsis</td>
<td>4.65</td>
<td>1.32</td>
<td>3.1</td>
<td>2.21</td>
<td>3.21</td>
<td>2.79</td>
</tr>
<tr>
<td>Conjunction</td>
<td>12.49</td>
<td>17.11</td>
<td>14.86</td>
<td>8.29</td>
<td>16.22</td>
<td>13.11</td>
</tr>
<tr>
<td>Lexical</td>
<td>31.4</td>
<td>44.74</td>
<td>37.77</td>
<td>28.18</td>
<td>36.01</td>
<td>32.94</td>
</tr>
</tbody>
</table>

All cohesive ties 186 150 169.66 100.83 111.23 107.15

*The relationship between figures is confirmed when the cohesive ties are proportioned against the total number of cohesive ties and against the total number of words written for each sub-group.

TABLE 4. Distribution of variety within cohesive ties

<table>
<thead>
<tr>
<th></th>
<th>6-year-olds</th>
<th></th>
<th></th>
<th>10-year-olds</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Total</td>
<td>Boys</td>
<td>Girls</td>
<td>Total</td>
</tr>
<tr>
<td>Reference</td>
<td>11</td>
<td>9</td>
<td>13</td>
<td>15</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Substitution</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Ellipsis</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Conjunction</td>
<td>7</td>
<td>4</td>
<td>9</td>
<td>8</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Lexical</td>
<td>12</td>
<td>12</td>
<td>16</td>
<td>13</td>
<td>20</td>
<td>21</td>
</tr>
</tbody>
</table>

All ties 35 27 43 42 67 73

year-olds, the actual proportion of referential ties to sentence units was found to drop as a function of increased age. This was, perhaps, due to the different narrative style employed by the two age groups; the 6-year-olds predominantly used the third person, while the 10-year-olds used the first person. The 6-year-old sample showed a heavy bias in favour of using personal reference and the definite article (cf. Halliday & Hasan, pp. 70–74) which again may be understood as a reflection of the narrative form.

**Personal Reference:**

Robinson Crusoe suddenly saw a footprint/*it* cant be my *its* to big *he* thought/ (boy: 6 years)

**Demonstrative:**

/*and one day a sip came to get him/*the* ship came and () him awey/ (boy: 6 years)

This was found, to a lesser extent, in the work of the 10-year-olds. The latter were found to be using a greater variety of personal referents, filling both the Head and Possessive functions. They also employed a higher proportion and variety of demonstrative reference, and an expansion of the comparative category.
**Personal Reference, Head:**
I knew what the bone were. *They* were to show that who would die. (boy: 10 years)

**Personal Reference, Possessive:**
He was a friendly tiger/*he* took me to a shelter where *his* cubs were. (boy: 10 years)

**Demonstrative Reference, near:**
The next day he came to the lake to drink. *He* seemed to do *this* every morning. (girl: 10 years)

**Comparative Reference, quantity:**
There was a big box of ship matches/*I* picked them up and struck *one*. (boy: 10 years)

Considering only the cohesive aspect of the texts, boys in the 6-year-old sample appeared to employ cohesive referential ties more frequently than girls of the same age although this may have been a factor of the imposed text divisions. There was no marked difference between the boys and girls, of either sample age, as to the proportion of personal, demonstrative or comparative reference.

b) **Substitution**
Neither age group used substitution with any degree of frequency. Such as were found occurred in the nominal and verbal categories.

**Substitution, nominal:**
He looked over a hill and there *they* were dancing around a prisoner/*there* was an over *one* in a boat/ (boy: 6 years)

**Substitution, verbal:**
Our next lesson was handwriting. We had to *do* a 1/4 of A's page of A's and B's and CDEXYZ. (boy: 6 years)

The proportion of substitution to number of sentence units produced between the 6-year-old and 10-year-old samples decreased.

c) **Ellipsis**
Examination of the difference between the use of ellipsis in the sample texts of the 6-and 10-year-olds showed a decrease of total quantity with age, but variety of forms increased. At 6 years there were two categories of nominal and one of clausal ellipsis against five categories of nominal and six of clausal ellipsis at 10 years. There was also an increase in the number of individual subjects using the elliptic ties in the nominal and clausal categories, five subjects at 6 years against nine subjects at 10 years.
Ellipsis, Normal:
And he went up a hill and saw some cannibals/and one () ran away/and Robinson shot one cannibal/the other () run away/. (boy: 6 years)

Ellipsis, Clausal:
Then he remembered his thethers wards you must fire the pot all day and night/so he did (). (boy: 6 years)

There were three uses of the verbal category in the 10-year-old sample, a category which was absent in those of the 6-year-olds.

Ellipsis, numeratives:
I owned Winchester Castle and many other great castles in the world. I owned 5 () abroad and 2 () in France. (boy: 10 years)

Ellipsis, epithets:
My last lesson was spellings which was one of my wirst subjects. I had a few hard () and a few easy (). (girl: 10 years)

Ellipsis, clausal:
Then why bother me snapped Daphne. Daddy wants you that's why () I said. (girl: 10 years)

d) Conjunction
The coding of conjunctive ties was not straightforward, especially in the 6-year-old texts because the sentence boundaries had been imposed. It could be argued, therefore, that a certain number of such ties were not legitimate, for they were not conceived by the subjects themselves as holding initial positions in the sentence units. After coding it was found that, considering only the 10-year-old texts, the girls appeared to employ proportionally twice as many conjunctive ties, especially those relating to temporal ordering, also a greater variety of forms, with boys using eight categories, girls sixteen.

Conjunction, temporal:
He looked up and saw me and said Ladys bring this man to me. Immediately they brought me to him. (girl: 10 years)

It is difficult, therefore, to compare the two age groups' use of conjunctively cohesive ties for it must be asked whether girls and boys of 10 years really differ to such a large extent in their use of such ties, and if they do not, which is more representative? It is possible that this is an aspect of cohesion which is on the verge of being systematically employed by the older age group, an aspect which, possibly, the girls in the sample are just beginning to explore.
e) Lexical

The 6-year-old sample contained examples of four of the five categories of lexical cohesion, (there was no example of a ‘general’ item,) the largest of these being repetition of the identical word, with collocation being the next most frequent category for girls, and the use of super- or sub-ordinate words for boys.

**Lexical, same word:**

Footprints in the sand
One day Robinson aw someones footsteps in the sand. (boy: 6 years)

**Lexical, collocation:**

... they were dancing around a prisoner/ there was another one in a boat/ it was his chance to escape so he jumped out and ran away. (boy: 6 years)

**Lexical, super-ordinate:**

There in front of me was a tyrannosaurus Rex/ ... I tried to get on the dinosaur horn by he kept on wagging his tail and still I could not escape. (boy: 6 years)

**Lexical, sub-ordinate:**

In dinosaur land
If I saw some eyes in my bedroom I would turn the liked on and if I saw a tyrannosaurus Rex I would turn into superman. (boy: 6 years)

The trend from age six to age ten years was a decrease in the proportional use of lexically cohesive items with the girls using more than the boys in each age sample.

**Results with reference to Hypotheses**

The findings of this study give the following indications:

1. Young children (at 6 years) use a higher proportion of reference items than other cohesive ties.
2. The proportional use of reference items decreases with increase of age (from 6 to 10 years)
3. Older children (at 10 years) do not increase their use of cohesive ties other than reference, indeed the use of all types of cohesive tie decreases between ages 6 and 10 years.
4. Young children (at 6 years) do not use substitution and conjunction with greater frequency than ellipsis and lexical cohesion. Lexical cohesion and conjunction are used more frequently by both age groups (6 and 10 years) than either ellipsis or substitution.
5. Use of substitution and conjunction does decrease with increase in age (from 6 to 10 years).
6. Girls at 10 years use a greater variety of cohesive devices than boys (although this is not the case at 6 years).
7. Older children (at 10 years) do not use a greater proportion of cohesive ties, although they do use a greater variety in their writing.

GENERAL DISCUSSION OF RESULTS

Consideration of the cohesive ties utilized in the two sample age groups shows reference as the pre-eminent category, followed by lexical cohesion. The other three categories (substitution, ellipsis and conjunction) appear infrequently, substitution, especially being employed rarely. The ordering of the cohesive ties as a proportion of all words written shows little difference as a function of either sex or age. Though more cohesive ties were employed by the older children they formed a lower proportion of their total output. The differences between boys and girls with each age group is marked. However, the reversal from greater frequency of the use of ellipsis for boys at 6 years to greater frequency for girls at 10 remains intriguing, also the girls' greater use of conjunction and lexical cohesion as opposed to the boys' greater proportional use of reference and substitution at both ages. The greater variety for girls at 10 years may be explained by the tendency for girls, in the early and middle years of childhood, to show a higher linguistic ability (Davis 1937, McCarthy 1954, Harpin 1976, Whitehead 1977). The range and variety of cohesive devices employed by the 10-year-old children appeared to differ substantially from those utilized by the 6-year-old children.

King & Rentel (op. cit.) postulated that, for the earliest written texts, reference would appear as the most important category of cohesive tie, with strong dependence on substitution and conjunction, but not ellipsis and lexical cohesion. With the development of writing abilities this, they believed, would change towards greater reliance on lexical cohesion, especially collocation, and a corresponding proportional decrease in the other forms. This survey supported the first of these hypotheses. Within the category of lexical cohesion and proportion of collocated items to other lexical forms was found to be greater in the 10-year-old sample and this increase was also observed when collocation was considered as a proportion of all cohesive ties. The classification of ties to collocation was carried out subjectively since no evidence has yet been provided concerning those elements in the common vocabulary that collocate highly. It is possible, therefore, that if objective means of measurement were available, this difference between the two age group samples would be greater.

Although conjunction was found to be employed fairly frequently, substitution was not. Ellipsis and lexical cohesion, which King & Rentel believed would be rarely used especially by the younger children, were found more frequently than substitution, lexical cohesion being the next most frequent category after reference in each age group.
It would seem that King & Rentel are right in their reasons for the pre-eminence of reference in young children's writing. Essentially, writing, for children at the earliest stages, grows out of their speech, and that, for the most part, is totally bounded by a situational context. Such a context would tend to engender a high degree of exophoric references. These would be expected to carry over into the earliest written texts. With the establishment of textual conventions, a number of propositions would come to be related, not by exophoric reference, but by endophoric reference. Indeed, in the sample texts of the 6-year-olds the mixture of exophoric and endophoric reference was marked. Most of the exophoric referents had to be supplied by inference based upon a re-creation of the situation and state of mind in which the child had been writing in order for the text to be understood. Eventually, it may be hypothesized, the proportion of exophoric reference diminishes as the child accepts the conventions of literary form. At the same time other methods of developing coherence between prepositions within written text come to be understood. A proportional rise in reference items from an increased use of endophoric reference would not, therefore, necessarily occur.

After reference, lexical cohesion appears to play an important role in the establishment of cohesion. The young child possibly comes to control aspects of cohesion through the repetition of words or phrases. Initially these may be used where reference items would appear more suitable and may indicate that the child's use of reference is not yet operational. The utilization of synonyms and sub-ordinate, rather than super-ordinate, items was found in both the 6- and 10-year-old texts. While collocation took an increasingly greater proportion of the lexically cohesive ties it appeared that, even at ten years of age, the use of super-ordinate or general items was rare. These devices require the intellectual construction of semantic hierarchies and an understanding of the effects they are able to achieve and it is for this reason that they may be late to develop.

It is possible that similar mental abilities are required before cohesion by substitution, ellipsis and conjunction can be successfully employed. All three are used to achieve deliberate contrast. Those which were found to have been taken into the child's linguistic repertoire were possibly acquired in association with particular phrases or usages and then employed as 'stock' expressions. Only a more extensive use than that found in the present survey would imply understanding of contrast by reference to the 'given' within the environment of the 'new' information available in the written text. The rarity of substitution for both age groups can be explained by its requirement of embedding an abstract 'token' in order to represent and contrast previously given information.

CONCLUSION

The present survey, in subjecting the texts of immature writers to analysis, shed light
on both the strengths and weaknesses of these young writers and on the process of analysis. Children as writers, even soon after their initiation into the skill and art of writing, were found to be adept at communicating, that is, they could write coherently to fulfil an illocutionary act. The manner in which they did so, however, was often found to be confused when the text was examined objectively as a product of their technical competence in, for example, sustaining cohesion as reported above. The process of analysis, though successful as a theoretical concept, required, to some extent, distortion of the observed text, especially for the 6-year-olds, before it could be applied. There were also numerous small difficulties concerning specific items in the context of particular environments (cf. Rutter 1980). Yet from such examination comes a greater awareness of the ideal and the actual, an insight through description into how children in possession of the latter come to approach the former that they may comprehend and manipulate textual material with growing competence.

REFERENCES


