The development of children’s expressive drawing

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Two studies are presented on expressive happy and sad drawings made by British 4- to 12-year-olds (n = 80 and 160, respectively) in which the drawings were assessed individually for the quantity and quality of expressive devices. Quantity was measured in the number of appropriate expressive content themes and formal properties evident in each drawing. Quality was rated on a Likert scale on the extent to which the drawing expressed the intended mood. Both the quantity and quality of expressive happy and sad drawings of predetermined and free topics increased with age. Improvements in content expression, but much less so with expressive formal properties, accounted for the development of quantity. A slower period of development between 6 and 9 years for both measures was consistently found, with a significant improvement often shown among the 12-year-olds. The finding that happy drawings were scored higher than sad drawings is explained in respect of adult and child expectations of pictures. Correlations between expressive scores and performance on a visual realism drawing task tentatively indicated that expressive and realism skills in drawing are only weakly related. The development of expressive drawing is considered in the context of the delivery of art education in schools.

Conveying moods and ideas in a picture is often central to the artist’s intention. Such meaning can be literally depicted (e.g. a smiling face to depict happiness), but more subtle communications are conveyed non-literally through the subject matter (e.g. a countryside scene on a summer’s day) and by formal properties (e.g. bright colours, curved lines, texture, composition, etc.). These non-literal styles of communication are called content and abstract expression, respectively.

It has often been commented that preschool children’s drawings portray an expressive quality similar to some artists, such as Klee and Picasso (e.g. see Davis, 1997a; Golomb, 2002; Rosenblatt & Winner, 1988). Fineberg (1999) comments that the works of a number of expressive artists have been very much influenced by children’s drawings, and that such artists valued their own childhood works. Furthermore, we know that children from different cultures become increasingly aware of, and

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interested in, the expression of moods and concepts when viewing pictures (Jolley, Zhi, & Thomas, 1998a, 1998b; Kogan, Conner, Gross, & Fava, 1980; Parsons 1987).

It is surprising, therefore, that children's expressive drawing represents a topic largely neglected in the research literature. One notable exception is the work undertaken by the Harvard Project Zero team on American children (e.g., Carothers & Gardner, 1979; Davis, 1997a; Ives, 1984). They have examined the central question of what develops in children's expressive drawings. Carothers and Gardner showed 7-, 10- and 12-year-olds two drawings of incomplete scenes, one expressing happiness, the other sadness. The children were asked to complete each scene by drawing a tree and a flower so that each drawing looked as though only one person had drawn it. The authors reported age-related increases in the extent to which each child's pair of drawings differed in expressiveness, but only the 10- and 12-year-olds showed any evidence of variation in their pair of expressive drawings. Whereas Carothers and Gardner examined only content expression, Ives (1984) identified evidence of literal, content and abstract expression in 4- to 20-year-old's expressive (happy, sad and angry) drawings of trees and lines. The percentage of children in each age group utilising at least one of these devices increased with age. However, there was a significant dip in performance between the 7- and 9-year-olds, and even the 11-year-olds' drawings showed less overall evidence of the three devices than those made by the 7-year-olds.

Winston, Kenyon, Stewardson, and Lepine (1995) extended the assessment of expressive drawing by counting the number of content and abstract expressive devices children use. They asked Canadian 6-, 9- and 12-year-olds to draw a happy and sad tree. The pair of drawings made by each child was scored for the presence of six expressive content themes (personification, season of tree, ageing/illness/death of tree, weather, attack and sociability), and whether formal properties (colour, line and size) had been used expressively. Hence, Winston et al. measured the (pairs of) drawings on quantity of content and abstract expression, that is, the number of different content themes and formal properties employed (and not simply on the identification of content and abstract expression as presented by Ives, 1984). Winston et al. reported that the number of themes and formal properties increased significantly with age, but subsequent analyses on each theme and formal property revealed that not all age groups differed significantly. However, as post hoc age comparisons were not reported on either the number of themes or formal properties, it is unclear between which age groups a lack of progression lay.

Using a very different rating criteria based on the work of Goodman (1968), Davis (1991, 1997a, 1997b) assessed children's and adults' drawings on specific aesthetic properties displayed. She asked groups of 5-, 8-, 11- and 14-year-olds and adults in North America to make a happy, sad and angry drawing, with participants free to choose the content of their drawings. The 14-year-olds and adults consisted of two subgroups, self-professed artists and self-professed non-artists. Of most relevance to this paper is the raters' (both trained in the visual arts) judgments on the extent to which (on a 4-point continuous scale) each drawing portrayed four aesthetic properties. These properties were overall expression (considering the use of subject, line [width, direction and animation] and composition [placement of forms on the page and to each other]), the balance of the picture, and the use of line and composition (separately) as agents to expression. Excluding the two artist groups and using a composite measure of the four properties, Davis reported an 'L-shaped' developmental pattern: the 5-year-olds scored higher than the other samples (all of which performed similarly). Furthermore, analysis of each property independently revealed approximations to an L-shaped pattern. Davis
(1997b) made the worrying conclusion that North American children are leaving school with less ability to draw aesthetically than when they started school.

To summarize, previous research in expressive drawing has reported two broad and contrasting developmental effects in schoolchildren: age-related increases and a stagnation period of varying length. The difference may be explained in part by the disparity in tasks and scoring procedures. The difference in assessment is likely to be particularly important here. For instance, whereas Winston et al. (1995) used a counting approach which can be described as measuring the number of expressive devices employed (i.e. quantity of expression), Davis' (1997a) identification of aesthetic properties on a Likert-type scale is more akin to measuring quality of expression.

Our aim in this paper was to provide an inclusive and comprehensive assessment of the developmental pattern in children's expressive drawing. This was achieved by asking children to make expressive drawings of both free and predetermined topics, and assessing the drawings for literal, content and abstract expression. A crucial aspect of the assessment was recording both the number (i.e. quantity) of expressive devices employed and the overall quality of expression. This last point is important not only because previous work has tended to focus on one of these two measures, but also because any one drawing may show strong expression for one measure but not the other. For instance, a drawing can express a mood (quality) poignantly but do so with minimal detail reflecting few devices (quantity). Similarly, a drawing may be cluttered with objects and hence show many content themes (quantity) but with little overall expressive effect (quality). By adopting this inclusive approach, we may find different developmental patterns for quantity and quality, as well as for content and abstract expression.

In respect of content expression, we applied content analysis that has been used in analysing written and spoken conversations (e.g. Krippendorf, 1980; Weber, 1990) to discovering the number of content themes that were present in the drawings. In respect of formal properties, we concur with Winston et al.'s choice of colour, line and size as the appropriate ones to investigate. These are the most likely to be evident in children's expressive drawings, and they have been those most prominently researched in the literature (e.g. Buckalew & Bell, 1985; Burkitt, Barrett, & Davis, 2003; Carothers & Gardner, 1979; Davis, 1997a; Golomb, 1992; Ives, 1984; Morra, Caloni, & d'Amico, 1994; Winston et al., 1995). The quantity measure, therefore, represented the sum of expressive subject matter themes and formal properties employed. The measurement of quality was more straightforward, and we modified the approach adopted by Davis (1991, 1997a) to rate the extent to which a drawing expressed the intended mood on a Likert-type scale.

British children were chosen for the sample, as they receive formal art education towards producing expressive drawings throughout their statutory art education (5–14 years). Indeed, when the teaching of art in English schools was first formalized as a central programme (Department for Education, 1995) a number of comments were included in respect of expression. For example, the programme of study for Key Stage 1 (5–7 years) states that, ‘pupils should be taught about the different ways in which ideas, feelings and meanings are communicated in visual form’ (p. 2). Consistent with this pedagogy, children are expected to, ‘record their ideas and feelings confidently . . . ’ (p. 9) in their own productions. Furthermore, these aims and expectations are expanded upon at Key Stages 2 (7–11 years) and 3 (11–14 years). Such a study is timely, especially as we know of no published pre- or post-National Curriculum study examining the
development of expressive drawing among British children. Experiment 1 investigated drawing development in predetermined topics, Experiment 2 in free tasks. In all tasks, children were asked to draw happy and sad pictures to compare performance between positive and negative moods.

Two distinct developmental predictions can be made. As the amount and level of teaching on expressive picture-making increase with age, we might expect that children should become more accomplished in the variety and quality of expressive devices. Consistent with this prediction, children’s increasing representational repertoire, supplemented by higher levels of detail, should give them more subject matter at their disposal from which to produce expressive subject-matter themes. Older children may prefer to focus on the use of expressive formal properties, particularly as the use of formal properties as expressive devices is emphasized during the Key Stage 3 programme (11-14 years). Initial developments may therefore be explained by an increasing repertoire of content themes, whereas later development is stimulated more by the employment of expressive formal properties. Consequently, the most prominent shift in quality may be shown relatively late when older children’s drawings reveal both expressive subject matter and formal properties.

An alternative theory considers the influence of children’s increasing desire to draw their world as they see it (for reviews, see Cox, 1992; Thomas & Silk, 1990) and states that the pursuit of drawing ‘photographic’ or realistic representations stifles the child’s natural expression (see Lowenfeld, 1947). Davis (1997a) proposes this argument as one explanation for the ‘L-shaped’ development she reported. Depending upon the timing and strength of any visual realism effect different predictions can be made. For instance, a mild influence exerting itself initially in the middle primary school years (around 7 or 8 years of age) would result in children’s use of expression levelling off in a curved or ‘r-shaped’ development. Alternatively, a severe effect occurring early in school-age children would cause an initial drop from preschoolers’ ability, leading to either a continuing decline or a flat levelling off throughout the school years (as in the ‘L-shaped’ pattern reported by Davis, 1997a). Although a possible influence of increasing aptitude in visual realism skill on expressive drawing has been speculated on in the literature, we are unaware of any study comparing these two skills within the same sample of children. Thus, we also presented children with a visual realism task in Experiment 2 to see how this performance related to their expressive ability in the free drawing task. The findings should indicate whether both skills develop concurrently or whether they show data consistent with the view that improvements in realistic drawing impair expressive drawing.

**EXPERIMENT 1**

Previous research has suggested a variety of progressions in children’s expressive drawing from age-related increases (e.g. Winston et al., 1995), to dips in middle childhood (e.g. Ives, 1984), to children across the school age performing poorly compared to preschool children (e.g. Davis, 1997a). Studies have assessed the drawings on the identification, number or quality of various aspects of expression. In this study, we included a range of these measurements to gain a more complete overview of the developmental pattern(s). The task was to draw two predetermined topics (trees and houses) expressively. Trees are commonly drawn by children from an early age and lend themselves to be drawn expressively (see Carothers & Gardner, 1979; Ives, 1984;
Morra et al., 1994; Winston et al., 1995). Houses are also commonly drawn by children from an early age and can be drawn expressively. Although drawing predetermined topics may underestimate some children’s expressive drawing, we considered it important to assess performance initially using standard topics (free drawings were assessed in Experiment 2). Happy and sad examples of each topic were requested to examine whether children’s tendency to read more positive feelings in pictures (see Jolley & Thomas, 1994, 1995; Parsons, 1987) extended to production.

British participants were selected from the mid-points of the three key stages of the National Curriculum for Art (Department for Education, 1995). Hence, 6-year-olds were selected to represent Key stage 1 (5–7), 9-year-olds for Key stage 2 (7–11) and 12-year-olds for Key Stage 3 (11–14). In addition, 4-year-olds were chosen to assess performance at a point prior to formal art training. Apart from age, no other criteria were used to select the children.

Method

Participants

Eighty children participated, consisting of 20 children in each of four age groups: 4-year-olds (M = 4;1, SD = 0;2, 9 male and 11 female), 6-year-olds (M = 6;2, SD = 0;3, 10 male and 10 female), 9-year-olds (M = 9;2, SD = 0;3, 11 male and 9 female) and 12-year-olds (M = 12;1, SD = 0;3, 10 male and 10 female). Most of the children were of white-ethnic origin and attended nurseries and schools in an English city. The children were chosen randomly from their classes, and no attempt was made to select those gifted in the visual arts.

Materials

Plain, white A4 paper was used for the drawings. Each child was provided with a pencil and six coloured crayons (black, red, yellow, blue, green and brown).

Procedure

The 6-, 9- and 12-year-olds were tested by the second author in groups of five within their own age group. The children were seated around a table in a vacant classroom and spaced to prevent copying. They were informed by the experimenter that they were going to draw four pictures, each on a separate piece of paper. They were told that they could use any of the crayons (and pencil) in front of them but that it should be their own work, and they should therefore not look at anyone else’s picture.

The topics of the drawings were introduced in a counterbalanced order. Half of the children were asked to draw the two trees first, half the house drawings first. Within each group, the happy and sad drawings were counterbalanced. The instructions for the happy tree drawing were as follows: ‘I would like you to draw a happy tree. That is, a picture of a tree which looks happy. I would like you to make the tree look as happy as you can. It doesn’t matter if it looks like a real tree or not, it is more important that it looks happy. Do you understand?’ All participants appeared to understand the instructions. Questions of clarifications (e.g. whether could they use the whole page or whether could they draw a happy face on the tree) were answered by saying that it was
up to them how they would make the tree look happy. The drawings were collected once all the children in the group had finished their drawing. The other three drawing tasks were explained in the same way with the substitution of the words, ‘sad’ and ‘house’ as appropriate. Approximately 10 min was allocated for each drawing.

The 4-year-olds were tested individually in two sessions. The trees were drawn in one session, the houses in the other (mood and topic were again counterbalanced). The instructions were essentially the same as for the older children, except that before commencing their drawing, they were asked to say what they had been asked to draw. For the few children who made some error, the task was explained again until the participant understood. All children were thanked and complimented on their drawings.

**Scoring of drawings**

Each drawing was analysed to produce a ‘quantity’ score (combined number of expressive subject matter themes and formal properties) and a ‘quality’ score. Content analysis was used to derive the number of subject matter themes used in each drawing. For this analysis, the drawings were compiled into four sets relating to each topic (i.e. happy tree, sad tree, happy house, sad house). Two raters were asked to independently note each and every item of subject matter within each set, but not multiple examples of the same item. The two raters compared and agreed on a final list. The raters then discussed and generated themes together from the list of contents for each drawing task. It was stressed to the raters that each subject matter theme should be an independent category. That is, each content item should be allocated to one theme only. For the happy tree drawings, the following themes were generated: personification, weather, season/state of tree and surrounding vegetation, text, animals, vehicles/other objects, people and other. An additional theme of ‘action on tree’ was generated for the sad tree drawings. The happy and sad houses were given the same themes: personification, state of house, state of surroundings in garden, weather, people, animals, text, vehicles/other objects and other.

Rating booklets were generated, describing each theme with examples provided of content items. Two further raters were asked to use the booklet to independently rate each drawing for the presence of any of the described themes. The booklet emphasized that any content item represented in a drawing should be allocated to one theme only, and the presence of only one content item was sufficient for its subject matter theme to be recorded for that drawing. The rater then had to decide whether the content item (and hence the theme) expressed the intended mood or not (appropriate or inappropriate). However, it was stressed in the booklet that some drawings may show evidence of a theme in which both appropriate and inappropriate expression had been employed. For instance, the portrayal of the sun and rain in a ‘happy’ drawing indicates both appropriate and inappropriate expression of the theme ‘weather’. Only ‘appropriately’ expressed themes were allocated a point for the purpose of data analysis, regardless of whether or not the raters had also recorded the theme as ‘inappropriate’. We decided against taking off points for any inappropriately expressed theme, as we wanted to measure the total number of appropriately expressed themes each child was able to employ in each drawing. Figure 1 represents an example of a happy tree drawing scored for subject matter themes in Experiment 1.

The instruction booklet also asked each rater to consider whether any of the formal properties of size, line and colour had been used to express the intended mood. To
Figure 1. Drawing of a happy tree in original pencil (Experiment 1) by a 12-year-old boy. The appropriate subject matter themes scored for this drawing were weather, season/state of tree, animals, vehicles/other objects and people (score of 5).
facilitate the scoring of content and abstract expression, the raters were provided with expressive drawings (from a pilot study) and suggested ratings for subject matter themes and formal properties. Finally, the instruction booklet asked each rater to rate on a 5-point scale the degree to which the drawing expressed the intended mood. It was emphasized to the raters in the present study that this ‘quality’ rating may not relate to their previous ratings of subject matter themes and formal properties. For instance, a child may have used many themes to express the intended mood, but with little poignancy. Similarly, a drawing may portray few themes, but with dramatic effect. The ratings were recorded on a spreadsheet in which numbers corresponded to those written on the front of the drawings. All ratings were made blind to the age and gender of the child artists.

The raters for the content analysis were two female psychology students (21 and 22 years of age, respectively). The raters for the final scoring of the drawings were two additional female psychology students (21 and 22 years of age, respectively) who had passed Art at GCSE level (an exam typically taken by British 16-year-olds after 2 years of specialism). For the purposes of the two studies presented in this paper, we considered that educated adults could conduct the content analysis, as the task required only listing and categorising the items of subject matter in the drawings. In contrast, the final ratings required assessing which content and formal properties had been used expressively, and rating each drawing’s overall quality. Hence, raters with some art experience were deemed necessary for the scoring of the drawings. Davis (1991) also used adults with art experience (albeit more considerable than our raters) and cited evidence from her pilot work that there is greater reliability in ratings from this population. It should be noted, however, that there is a lack of evidence as to whether non-artists and artists differ in the rating of drawings generally (see Cox, Perara, & Xu, 1998).

The inter-rater reliability for the subject matter themes was 90–100% for each theme and 88–96% for each of the formal properties. As the concordance was high, one of the rater’s scores was randomly selected for the data analysis. The quality ratings that had initially been allocated the same score (1–5) were for the happy tree (35%), sad tree (38%), happy house (39%) and sad house (45%). Where the two raters had allocated a different score, a third rater was asked to identity which of the two ratings she agreed with. These adjudications and the originally ‘agreed’ scores were used for the data analysis of the quality ratings.

Results

Colour reproduction examples of happy and sad tree drawings by age group can be found in the Appendix (Fig. A1) together with how each drawing was scored for subject matter themes (see Table A1). The means and standard deviations of the quantity and quality scores by age group, mood and topic of drawing are shown in Table 1. So that the developmental patterns can be viewed more easily, Fig. 2 displays the mean scores for quantity and quality by age. For the purpose of simplicity, the house and tree data were collated for this figure only (this was acceptable as the analyses reported below revealed no main topic effects).

A three-way mixed ANOVA was conducted to examine the effects of age (4), mood (2) and topic (2) on the quantity score. There was a significant age effect, F(3, 76) = 30.37, p < 0.001. Post hoc Tukey tests indicated significantly higher scores in the older
age group within each pairwise comparison, except between the 6- and 9-year-olds, where there was no significant difference. Scores were significantly higher in the happy drawings than the sad drawings, $F(1, 76) = 22.31, p < 0.001$. However, the significant mood × topic interaction, $F(1, 76) = 11.81, p = 0.001$, revealed that this was true only for the tree drawings ($t = 6.08, df = 79, p < 0.001$). All other effects were non-significant ($p > 0.15$).

To explain the age-related developments more specifically, separate three-way mixed ANOVA were conducted on subject matter and formal property scores. While age effects were significant for the use of both devices, the developing use of expressive subject matter themes occurred earlier than that of expressive formal properties. The

Table 1 Mean (and standard deviations) of quantity (0–9) and quality (1–5) scores by topic (House and Tree) and mood (Happy and Sad) in Experiment 1

<table>
<thead>
<tr>
<th>Age</th>
<th>Happy</th>
<th>Sad</th>
<th>House</th>
<th>Sad</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 years</td>
<td>1.40 (0.88)</td>
<td>1.00 (1.34)</td>
<td>1.35 (1.39)</td>
<td>0.90 (1.02)</td>
</tr>
<tr>
<td>6 years</td>
<td>2.35 (0.67)</td>
<td>1.80 (1.01)</td>
<td>2.65 (1.09)</td>
<td>1.45 (1.00)</td>
</tr>
<tr>
<td>9 years</td>
<td>2.20 (0.95)</td>
<td>2.45 (1.28)</td>
<td>2.95 (1.47)</td>
<td>1.85 (1.04)</td>
</tr>
<tr>
<td>12 years</td>
<td>3.25 (1.41)</td>
<td>3.30 (2.30)</td>
<td>4.15 (1.53)</td>
<td>2.55 (0.94)</td>
</tr>
<tr>
<td></td>
<td>Quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 years</td>
<td>1.85 (0.93)</td>
<td>1.75 (0.85)</td>
<td>1.70 (0.86)</td>
<td>1.60 (0.75)</td>
</tr>
<tr>
<td>6 years</td>
<td>2.25 (0.72)</td>
<td>1.95 (0.69)</td>
<td>2.25 (0.79)</td>
<td>1.95 (0.51)</td>
</tr>
<tr>
<td>9 years</td>
<td>2.45 (0.69)</td>
<td>2.25 (0.85)</td>
<td>2.40 (0.99)</td>
<td>2.10 (0.72)</td>
</tr>
<tr>
<td>12 years</td>
<td>3.10 (1.07)</td>
<td>3.00 (1.30)</td>
<td>3.00 (1.30)</td>
<td>3.05 (0.76)</td>
</tr>
</tbody>
</table>

Figure 2. Mean quantity and quality of expression for happy and sad drawings of a tree and a house (combined) by age group (Experiment 1).
6-, 9- and 12-year-olds produced significantly more expressive subject matter themes than the 4-year-olds did (and the 12-year-olds compared with the 6-year-olds). In respect of formal properties, older age groups scored significantly higher than younger groups except between the 4- and 6-year-olds, and the 6- and 9-year-olds. Inspection of all the tukey tests for age differences in the subject matter and formal properties measurements indicated that only between the 6- and 9-year-olds was there no significant improvement in either device. Happy scores were significantly higher than sad scores for the subject matter themes only.

A three-way mixed ANOVA on the quality scores revealed a significant age effect, $F(3, 76) = 18.51, p < 0.001$. Post hoc Tukey tests indicated significantly higher scores in the older age group within each pairwise comparison, except between the 4- and 6-year-olds and between the 6- and 9-year-olds where there were no significant differences. There were no other significant effects, although the higher happy scores compared with the sad scores approached significance, $F(1, 76) = 3.21, p = 0.08$.

To summarize the developmental patterns, the development in quantity of expression between 4 and 6 years was due to more expressive subject-matter themes produced but not in the number of formal properties presented. The use of both devices then developed slowly, with significant increases between 4 and 9 years (but not between 6 and 9 years). The final progression was more rapid for formal properties (12-year-olds using more than the 9-year-olds) than subject-matter themes (12-year-olds using more than the 6-year-olds). As was shown for the quantity scores, higher-quality expression scores were given for older children. However, the development of quality was slower with a significant improvement from the 4-year-olds' level not shown until 9 years of age, with a further improvement shown by the 12-year-olds. There were no topic main effects, nor topic interactions with age, suggesting that these aforementioned developmental effects were consistent across tree and house drawings. The happy drawings were frequently rated as more expressive than the sad drawings, reaching significance for the quantity of expression score on the tree drawings, and for subject-matter themes across both topics.

**EXPERIMENT 2**

The reliability of the age-related increases in children's expressive drawing reported in Experiment 1 was examined further by asking children to make 'free' expressive drawings. Allowing children to choose their own topics may be the optimum measurement of expressive drawing, particularly for those children who find it difficult to draw a given topic expressively. Children were again chosen randomly to represent mid-points in each of the three key stages of the National Curriculum for Art, in addition to a group of 4-year-olds (to assess expressive drawing prior to the commencement of formal art teaching). As in Experiment 1, no other criteria were used for selection to ensure that the children were representative of their age group in the normal population.

An additional aim was to investigate the relationship between expressive and visual-realism drawing skills. It has often been suggested in the literature that children's creative drawing suffers in middle childhood owing to an increasing desire for their drawings to portray photographic realism (e.g. Gardner, 1980; Rosenblatt & Winner, 1988). Indeed, Davis (1997a) cites this as one possible explanation for the flat development of her participants aged 8 years and beyond, suggesting that the 'L' in her
‘L-shaped’ pattern stands for literal. If children’s improving realism skill leads to a flat development in expressive drawing, we would expect no correlation between the two skills if independently assessed. A more severe influence in which increments in realism skill reduce the child’s expressive ability suggests a negative correlation. Both scenarios would indicate that visual realism and expressive drawing skills are relatively distinct from each other. Certainly, there are many cases of art products where this appears to be so. For instance, a highly visually realistic painting in the Renaissance tradition may communicate the likeness of the subject matter to its referent more than a conceptual or emotional message. Similarly, in abstract art (which is often regarded as expressive), there is little or no representation.

An alternative view emphasizes the similarity in skills required for the production of expressive and representational styles. Generally, both require a control in the mark-making process. More specifically, content expression requires a degree of realism skill so that the subject matter can be recognized. Similarly, both skills are dependent on an aptitude in the use of formal properties (e.g. use of line, colour, etc.). If expression and realism are conceptualized as subcomponents of overall drawing skill, we might expect a positive correlation between the two: those children showing aptitude in one type of skill should show competence in the other.

Although the interplay between realism and expressive skill has been speculated on in the literature, we are unaware of any study that has even explored children’s respective abilities in these two skills. We tested the various predictions by correlating children’s performance on the expression task with that on a visual-realism task in which children were asked to draw a figure of a man running (a 3D model was presented). This task was based on one reported by Cox et al. (1998), where marks are awarded (on a 12-point scale) for the child’s use of direction, overlap, partial occlusion, proportion, detail and whether it is recognizable as a man.

Method

Participants
One hundred and sixty children participated, consisting of 40 children in each of four age groups: 4-year-olds ($M = 4;7$, $SD = 0;4$, 14 male and 26 female), 6-year-olds ($M = 6;7$, $SD = 0;6$, 25 male and 15 female), 9-year-olds ($M = 9;5$, $SD = 0;6$, 22 male and 18 female) and 12-year-olds ($M = 12;4$, $SD = 0;7$, 25 male and 15 female). The children were chosen from schools in two English cities and were mainly of white-ethnic origin. No attempt was made to find participants gifted in the visual arts.

Materials
Each child was provided with plain, white A4 paper, a pencil and six coloured felt pens (black, red, yellow, blue, green and brown). A 3D model of a man running was used in the visual-realism drawing task.

Procedure
The children were tested in groups of five except the 4-year-olds who were tested individually. The children were instructed by the third author to draw a happy picture
and a sad picture (counterbalanced). The instructions emphasized that it did not matter what they drew, but that it was important that the picture expressed happiness (or sadness) so that someone else would think it was a happy (or sad) picture. Children’s understanding of the instructions was checked, and each picture was made on a separate piece of paper. Ten minutes was allocated for each drawing, and copying was discouraged. After 2 weeks, 10 children were chosen randomly from each age group and asked to draw, from the model, of a man running. Children were tested individually and each saw the model from the same side-on angle presented on a box 30 cm away. All children were thanked and complimented for all their drawings.

Scoring of drawings
The scoring of the expressive drawings followed the same procedure as that previously outlined in Experiment 1, except that in the content analysis, the construction of themes from an agreed list of contents was initially carried out independently by the two raters before the themes were discussed (this additional component of independence follows more closely the guidelines for content analysis). The same themes for both happy and sad drawings were generated: personification, weather, season/health of vegetation and countryside, vehicles/buildings, other objects, one person, more than one person, animals, text, thought bubbles and other.

The drawings from the visual-realism task were scored on a 12-point scale, as described by Cox et al. (1998). Higher visual-realism scores are awarded for the appropriate use of direction (3 points), overlap (2), partial occlusion (2), proportion (1), detail (3) and whether the drawing is recognizable as a person (1).

The raters for the content analysis were a 39-year-old male manager in the leisure industry and a 40-year-old female housewife. The raters for the final scoring of the drawings (including the visual realism drawing) were two females (aged 20 and 21 years) reading for a BA in Art and Design History.

The inter-rater reliability for the subject matter themes was 80–100% for each theme and 81–86% for each of the formal properties. To facilitate satisfactory concordance on the quality of expression ratings, the two raters discussed scores that diﬀerently only slightly to derive an agreed rating. After consultation, 83% of the happy drawings and 82% of the sad drawings had the same quality rating. Inter-rater reliability on the visual realism scores ranged from 83 to 100% for each of the 12 criteria. One of the rater’s scores for each measurement (themes, formal properties, quality, and visual realism) was chosen randomly for the data analysis.

Results
Colour reproduction examples of happy and sad drawings by age group can be found in the appendix (Fig. A2) together with the how each drawing was scored for subject matter themes (see Table A2). Figure 3 and Table 2 show the means of the quantity and quality of expression scores by age group and mood of drawing. A two-way mixed ANOVA on the quantity scores revealed a significant age effect, $F(3, 156) = 21.26, p < 0.01$. Post hoc Tukey tests indicated significantly higher expression scores for the older age groups within each pairwise comparison, except between the 4- and 6-year-olds, and also between the 6- and 9-year-olds. Significantly higher scores were given for the happy drawings, $F(1, 156) = 4.18, p = 0.04$. There was no significant age × mood
interaction, $F(3, 156) = 1.38, p = 0.25$. A separate two-way mixed ANOVA on subject-matter themes only revealed a significant age effect with the same age group differences as reported for total quantity (i.e. all pairwise comparisons were significant except between the 4- and 6-year-olds, and between the 6- and 9-year-olds). There was no significant age × mood interaction. The two-way mixed ANOVA on formal property scores revealed no significant effects.

A two-way mixed ANOVA on the quality scores revealed a significant age effect, $F(3, 156) = 56.45, p < 0.01$. Post hoc Tukey tests indicated that all pairwise comparisons were significant. In each case, the older age group scored more highly. The happy drawings were rated significantly more highly than the sad drawings, $F(1, 156) = 4.80, p = 0.03$. There was also a significant age × mood interaction, $F(3, 156) = 2.75, p = 0.04$. Simple effects were conducted on each mood of drawing (adjusted $\alpha = 0.025$) to look for developmental patterns for happy and sad drawings separately. The happy simple effect was significant, $F(3, 156) = 26.80, p < 0.01$. Tukey post hoc tests revealed that the 9-year-olds and 12-year-olds’ drawings were rated more highly than those drawn by the

**Figure 3.** Mean quantity and quality of expression for happy and sad free drawings (Experiment 2).

**Table 2.** Mean (and Standard Deviations) of Quantity (0-11) and Quality (1-5) Scores of Free Drawings by Mood (Happy and Sad) in Experiment 2

<table>
<thead>
<tr>
<th>Age</th>
<th>Happy Quantity</th>
<th>Sad Quantity</th>
<th>Happy Quality</th>
<th>Sad Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 years</td>
<td>1.55 (1.40)</td>
<td>1.78 (1.42)</td>
<td>2.40 (1.19)</td>
<td>2.13 (0.97)</td>
</tr>
<tr>
<td>6 years</td>
<td>2.33 (1.47)</td>
<td>1.90 (1.58)</td>
<td>2.85 (0.80)</td>
<td>2.85 (1.08)</td>
</tr>
<tr>
<td>9 years</td>
<td>3.08 (1.59)</td>
<td>2.30 (1.64)</td>
<td>3.90 (0.98)</td>
<td>3.13 (0.97)</td>
</tr>
<tr>
<td>12 years</td>
<td>4.08 (2.28)</td>
<td>3.58 (2.12)</td>
<td>4.05 (0.90)</td>
<td>4.10 (0.90)</td>
</tr>
</tbody>
</table>

A two-way mixed ANOVA on the quality scores revealed a significant age effect, $F(3, 156) = 56.45, p < 0.01$. Post hoc Tukey tests indicated that all pairwise comparisons were significant. In each case, the older age group scored more highly. The happy drawings were rated significantly more highly than the sad drawings, $F(1, 156) = 4.80, p = 0.03$. There was also a significant age × mood interaction, $F(3, 156) = 2.75, p = 0.04$. Simple effects were conducted on each mood of drawing (adjusted $\alpha = 0.025$) to look for developmental patterns for happy and sad drawings separately. The happy simple effect was significant, $F(3, 156) = 26.80, p < 0.01$. Tukey post hoc tests revealed that the 9-year-olds and 12-year-olds’ drawings were rated more highly than those drawn by the
4-year-olds and 6-year-olds. The sad simple effect was also significant, $F(3, 156) = 27.89, p < 0.01$. All the pairwise Tukey post hoc tests reported that the older age group within each pairwise comparison scored significantly higher, except that between the 6- and 9-year-olds.

The mean and standard deviations for the visual realism scores were as follows: 4-year-olds ($M = 1.70, SD = 1.70$), 6-year-olds ($M = 4.40, SD = 2.41$), 9-year-olds ($M = 6.10, SD = 1.20$) and 12-year-olds ($M = 9.10, SD = 1.37$). A one-way between-subjects ANOVA on the visual realism scores revealed a significant age effect, $F(3, 36) = 31.96, p < 0.01$. Tukey tests showed that the older age group within each pairwise comparison scored significantly higher, except that between the 6- and 9-year-olds. Pearson’s product-moment correlations were conducted to identify the relationship between the visual realism scores and expression scores (quantity and quality). Although there were significant positive correlations of visual realism with quantity and quality of happy expression, and with quality of sad expression, none of these relationships was significant when age was partialed out. These partial correlations were as follows: visual realism with quantity of happy expression ($r = 0.13, p = 0.43$), with quantity of sad expression ($r = 0.17, p = 0.29$) with quality of happy expression ($r = 0.17, p = 0.29$), and with quality of sad expression ($r = 0.12, p = 0.45$).

Consistent with Experiment 1’s findings, children’s expressive drawing improved with age. The development in quantity scores was initially slow, with significant improvements from the 4-year-olds’ level not shown until 9 years of age. A further development in quantity of devices was found in the 12-year-olds’ drawings. These shifts were entirely due to increases in subject matter themes; there were no significant differences in the number of formal properties employed. The developmental pattern for the quality scores followed broadly the same progression as that described for the quantity scores, particularly for the sad drawings where there was again a slow period of growth between 6 and 9 years. Happy drawings were scored higher than sad drawings for both quantity and quality of expression. Finally, the developmental pattern on the visual realism task was very similar to that shown on the expressive task (with slower growth between 6 and 9 years). The small, positive (but non-significant) associations between visual realism and expressive skill indicate that there is some overlap between these subcomponents of drawing ability.

**GENERAL DISCUSSION**

The two presented studies on 4- to 12-year-olds’ expressive drawings showed that both the quantity and quality of the moods expressed increased with age. Furthermore, age-related improvements were shown across stimuli (predetermined and free topics) and mood (happy and sad). Although there was some variation in the particular age shifts depending upon the task and type of measurement, the 9-year-olds’ drawings were frequently not differentiated from those produced by the 6-year-olds, suggesting a slow period of growth between these ages.

These findings are somewhat consistent with those reported by Carothers and Gardner (1979), Ives (1984) and Winston et al. (1995), who all found age-related increases overall. Furthermore, Ives’ dip between 7 and 9 years and our reported slow period of growth around a similar period suggests that children of this age experience some difficulty developing their expressive drawing. Although Davis (1997a) also found stagnation in expressive drawing around this age, her findings appear least consistent
with our data (and other research) as her flat development continued for older children (and she also reported exceptionally good performance from her youngest children, that of 5-year-olds). Assessing the extent to which variations in art education may account for the apparent differences between Davis’ findings and our data is difficult, as there is no standardized art curriculum adopted in the area in which Davis’ children were tested (Boston), nor indeed in America, to compare with that used in Britain. We believe, however, that statistical and (in particular) rating criteria issues do go some way to explain the disparity between the findings.

The validity of Davis’ reported dip in performance from her 5-year-olds’ level relies on statistically significant lower scores from the samples of older participants, particularly the 8- and 11-year-olds. However, these direct comparisons were not reported (see Davis, 1991). Instead, Davis (1991, 1997a) grouped the 5-year-olds with the two artist populations (adolescent and adult) and compared this group with all the other samples combined (8-, 11-, non-artist 14-year-olds and adults). Although Davis reported a significant difference in performance between these two groups, we cannot infer from this that there was a significant dip from the 5-year-olds’ level. The adult artists, being the highest performing group, could have been responsible for the aforementioned statistical difference.

Nevertheless, Davis’ 5-year-olds did perform consistently better than the 8-, 11- and non-artist 14-year-olds on each of the four aesthetic properties. This is in contrast to the relatively poor performance in studies testing similar-aged children (Ives, 1984; this paper). Why were Davis’ 5-year-olds’ drawings rated so highly? Closer inspection of the drawings made in Davis’ (1991) study, and her discussion of the rating criteria (Davis, 1997a), may provide a resolution to this apparent disparity. Davis (1997a) presented a 5-year-old’s drawing of an emotionally laden face (e.g. a happy face) that typically represented those made by her 5-year-olds and compared it with an adult artist’s happy drawing that displayed similar uplifting lines and balance albeit in a non-representational style. Davis (1997a) stated, ‘because of a similar use of line and composition, from a distance at which the precise symbolic vehicle in each drawing could not be ascertained, the viewer would still recognise two happy drawings’ (p. 155). Thus, Davis is noting the similarity in formal properties displayed in 5-year-olds’ and adult artist drawings, irrespective of whether the drawings were representational or not. Indeed, the criteria relating to the four aesthetic properties that Davis’ judges were asked to consider were very much focused on the participants’ use of formal properties. Three of the properties (balance, use of line and composition as agents to expression) were wholly based on formal properties. Only on overall expression did the content (i.e. symbolic vehicle), together with the formal properties of line and composition, form part of the assessment.1

The 4-year-olds in our study, representing the closest age group to Davis’ 5-year-olds, also produced drawings that predominated with people/faces showing literal expressions. According to our rating criteria, however, such drawings would be seen less favourably. Our quality measure (rather than quantity) bore the most resemblance to Davis’ aggregated scores on the Likert-style responses to her four aesthetic properties. However, unlike Davis’ criteria that were heavily weighted towards formal properties, no direction was given to our raters who presumably did not consider the depiction of an emotionally laden face as particularly noteworthy. We can only

1 However, content was considered by Davis (1991, 1997a), in her comparison of the number of children who produced representational and non-representational drawings by group. It also featured in her presentation of the participants’ use of various metonymic and metaphoric expressive connections.
speculate on why this was, but perhaps they felt that displaying literal expression lacked sophistication. Drawing the human face does lend itself particularly well to the expressive use of line and composition, and presumably this partly explains why Davis’ 5-year-olds performed so well. However, they might not have been so successful if they had drawn other topics in which the expressive use of line and composition relies less on the intrinsic nature of the topic and consequently more on the skill of the drawer.

This leads us to question the comparison made by some commentators between young children’s drawings and those made by artists. Considering even younger children’s drawings, those produced by 2- and 3-year-olds, for example, there certainly appear to be some similarities between their mostly non-representational marks and the work of some abstract artists. We agree with Davis (1991, 1997a) and others (e.g. Rosenblatt & Winner, 1988) that young children’s drawings result from the children lacking the conventions of realism, compared with the abstract artists who have rejected those conventions in preference for a learned skill in using formal properties expressively. Thus, the intention and skill behind the drawing are quite different in each case. In respect of the end product of the drawing, the representational drawings of our 4-year-olds leave us less convinced that drawings from this age group (and older) have an aesthetic similarity to the drawings made by some abstract artists. Whether the non-representational drawings of even younger children have such similarity requires empirical verification.

Despite the differences between our findings and those presented by Davis (1991, 1997a), there are similarities which are sufficient in providing a relatively coherent framework to consider the development of children’s expressive drawings. We suggest that initial developments from 4 years are mainly accounted for by an increasing use of subject-matter themes. This is not only supported by our present data but also indicated by Davis’ (1997a) children progression from using metonymic–physiological expressive connections (i.e. emotionally laden faces) to metonymic–narrative expressive connections (i.e. people being shown in an emotionally laden scene). This progression to drawing scenes that are ‘happy’ or ‘sad’ are likely to display a larger repertoire of subject-matter themes than the mere depiction of literal expression. Children’s use of expressive formal properties may take much longer to develop, the signs of which may not be seen clearly until adolescence. We found significant late-developing formal property effects for predetermined topics. Although the increases in expressive formal properties shown by our older children in their free drawings were non-significant, they were more pronounced than the progressions shown between the younger age groups. Furthermore, Davis did find some evidence of development from 11 years of age when line and composition as agents to expression were analysed independently. It appears therefore that improvements in expressive formal properties are shown in older children’s drawings, but they may not be strong. However, children’s use of formal properties may be underestimated in free-drawing tasks in which their minds focus on which representations to draw rather than to the application of expressive formal properties to those which they choose. More positive findings may be found in tasks where there is no competing demand to draw representationally, i.e. in non-representational drawings.

The differences in developmental patterns reported in the literature suggest that measurements may be particularly influenced by the methodology of the tasks. In a recent study examining children’s use of size to denote affective characterization, Burkitt, Barrett and Davis (2003) found that 4- to 11-year-olds significantly differentiated by size their drawings of nasty and nice topics (a man, dog and tree) compared with
neutrally characterized versions. As there were no age effects, their findings suggest that even young children can use size in the context of instructions that emphasize positive and negative affective characteristics. It might appear, therefore, that Burkitt et al.'s findings are inconsistent with the very slow development in expressive use of formal properties found in the present studies (although their lack of age effects is similar to our findings). As we did not analyse our size data separately, a direct comparison with Burkitt et al.'s data is problematic, but it does indicate the potential effects of varying instructions on expressive drawing. This may be particularly so when one set of instructions activates a psychological mechanism that is not provoked by another set of instructions. Burkitt et al. explained their findings by the activation of a defence/appetative response, that is, children drew the nasty topics smaller to symbolically reduce their threat whilst drawing the nice topics larger gains psychological affinity. In our studies, and others that have asked for happy and sad drawings, we would not expect the defence/appetative response to be activated, as the instructions were designed to measure children's artistic or aesthetic repertoire of devices to express mood.

This paper also explored the relationship between children's expressive and realism-drawing skill. The developmental patterns from the expression and visual realism tasks were very similar, showing age-related increases but with weaker improvements between 6 and 9 years. When age effects were removed, only a small (non-significant) positive effect size (see Cohen, 1988) was found between the two performances. This weak positive relationship is perhaps not surprising, considering the similarities and differences in making a realistic and expressive drawing. Generally, both are components of overall drawing skill, so we would expect there to be a positive relationship between the two subcomponents. Both skills require control of the mark making process, and in particular, a certain level of representational ability must be acquired for expression to be conveyed via subject matter (indeed, very few of our children produced non-representational drawings). The demands in producing a lifelike depiction, however, can be inconsistent with depicting an expressive drawing. Whereas a visually realistic depiction depends upon a precise use of line (to create the effects of depth, proportion, partial occlusion, perspective, etc.), a more flexible use of line is often shown in expressive drawings (where distortion, exaggeration, disproportion and multi-perspectives can all communicate an expressive effect). Indeed, children's drawings may show a number of different drawing systems (see Golomb, 2002; Willats, 1997). Our data suggest that the balance of the complimentary and competing demands of representation and expression is facilitatory, that is, those children who are better able to produce a visually realistic drawing are more likely also to be relatively good expressive drawers, but that the skills are only weakly related. The implication is that drawing skill is not so much a unitary construct, but a general term that caters for skills that develop relatively independently within the drawing domain.

The data are inconsistent, therefore, with the view that children's attempts to make their drawings 'look right', as in a photograph, affects detrimentally their expressive drawing (e.g. Davis, 1997a; Gardner, 1980; Rosenblatt & Winner, 1988). Crucially, the relatively slower periods of development in expressive drawing were not associated with a corresponding rapid advancement in visual-realism skill. These conclusions must be tentative, as our data are correlational, and only one task with a small sample was used for assessing the children's visual-realism skill. Furthermore, the nature of the relationship between visual realism and expressive skills may be complicated and ever-changing during the child's drawing experience.
Further studies (preferably longitudinal) requesting a range of expressive and visual realism tasks are required to assess the complex influences of the two skills. It would also be worthwhile assessing whether extending the drawing time for the tasks has any impact upon performance. Ten minutes per task was chosen for the tasks reported in this paper as pilot work had shown this to be a reasonable period in which children of all ages could meet the task demands. Whereas the younger children often finished their drawings well before the time limit, older children, who tended to produce more detailed and careful drawings, used their whole time allowance more frequently. Although all these children finished their drawings, it is possible that some of them could have produced more expressive and realistic drawings if the time allowed had been extended. Whilst increasing pressures on research time in schools act as a constraining influence, we need to ensure that all children are given sufficient time on tasks to fully show their abilities.

This paper also highlighted differences in children's expressive drawing between moods. Although performances in both happy and sad drawings increased with age, expressive ratings were often significantly lower for the sad drawings. This mood bias in children's expressive drawings is consistent with the bias of drawing happy faces to sad ones in their literal depiction of mood (Buckalew & Bell, 1985). It is also consistent with studies examining children's comprehension of positive and negative moods expressed in pictures (Jolley & Thomas, 1994, 1995; Parsons, 1987). For instance, Parsons found that many pre-adolescent school children commented that the content of pictures should be realistic and (most importantly for this discussion) pleasant to look at. Children are likely to have less experience seeing pictures expressing negative moods both in their homes and in schools. This sets up an expectation that pictures should be 'nice'. Furthermore, teachers and parents are unlikely to encourage young children to draw negative emotions as much as positive ones. Drawing is clearly a pleasurable activity for most children, and they may choose to draw something negative only in particular instances, perhaps to 'unload' a current negative feeling. These occasions will not predominate in most children's drawing experience, and the lack of practice will be reflected when they do attempt to draw expressive negative moods. Thus, a combination of teacher/parent and child expectations will bias the child's production and comprehension of pictures towards displaying positive moods. The basis of these expectations may relate to our reluctance to confront negative emotions (see also Davis, 1991).

Returning to the central question in this paper of the development pattern in children's expressive drawing, it is worth considering further our findings of a slow period of growth between 6 and 9 years (and, to a lesser extent, 4–6 years) in the light of the teaching of art in English schools during this period. Children between the ages of 4 and 9 years attend primary schools in which art is often taught by non-art specialists. Our samples of 12-year-olds were chosen from secondary schools in which children's art classes are taken by art specialists. It is not uncommon to hear primary-school teachers comment on their vulnerability in teaching art, and in a survey, Clement (1994) reported that over 60% of them felt the need for more training to teach the art curriculum. Teachers will often see their perceived inability to draw as a major drawback to teaching art. This is not a criticism of teachers but a suggestion that art is not a skill produced competently across the adult population, of which teachers form a subset. Finally, with the introduction of the numeracy and literacy hours (it is a statutory requirement that English children are taught both Mathematics and English for an hour each every day), the time allocated to art teaching (and the perception of its
importance) will have been undermined (see also Crace, 2003). A similar point is made by Davis (1997b) in respect of art education in America. These educational factors may result in many primary-school children’s art experience being less than optimal and may explain in part the slow development in expressive drawing in children of this age reported in the present studies. Future research investigating the potential benefits of specialist art teaching, and allocating more time to art education, would show whether these art-education factors influence the development of expressive drawings during the primary-school years.

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References


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Appendix: Examples of scoring of subject matter themes for tree drawings (Experiment 1) and free drawings (Experiment 2)

**Table A1** Examples of scoring of subject matter themes for tree drawings (Experiment 1)

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Gender</th>
<th>Subject-matter score</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Happy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>M</td>
<td>1</td>
<td>Season/state of tree (no additional score for multiple trees)</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>2</td>
<td>Personification, Season/state of tree</td>
</tr>
<tr>
<td>9</td>
<td>F</td>
<td>2</td>
<td>Personification, Season/state of tree</td>
</tr>
<tr>
<td>12</td>
<td>M</td>
<td>3</td>
<td>Personification, Season/state of tree, weather</td>
</tr>
<tr>
<td><strong>Sad</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>M</td>
<td>0</td>
<td>(Inappropriate: Season/state of tree)</td>
</tr>
<tr>
<td>6</td>
<td>F</td>
<td>1</td>
<td>Personification (Inappropriate: Season/state of tree)</td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>1</td>
<td>Season/state of tree</td>
</tr>
<tr>
<td>12</td>
<td>M</td>
<td>2</td>
<td>Personification, Season/state of tree</td>
</tr>
</tbody>
</table>

*Note.* See Fig. A1 for drawings.

**Table A2** Examples of scoring of subject matter themes for free drawings (Experiment 2)

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Gender</th>
<th>Subject-matter score</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Happy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>1</td>
<td>One person</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>2</td>
<td>One person, Thought bubbles</td>
</tr>
<tr>
<td>9</td>
<td>F</td>
<td>2</td>
<td>One person, Other objects</td>
</tr>
<tr>
<td>12</td>
<td>M</td>
<td>3</td>
<td>Weather, Personification, Countryside</td>
</tr>
<tr>
<td><strong>Sad</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>1</td>
<td>One person</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>1</td>
<td>Animals (no additional score for second animal)</td>
</tr>
<tr>
<td>9</td>
<td>F</td>
<td>2</td>
<td>One person, Text</td>
</tr>
<tr>
<td>12</td>
<td>M</td>
<td>3</td>
<td>One person, Text, Weather</td>
</tr>
</tbody>
</table>

*Note.* See Figure A2 for drawings.
Figure A1. Examples of happy and sad tree drawings in Experiment 1.
Figure A2. Examples of happy and sad free drawings in Experiment 2.