

Stability and flexibility in the artistic toolbox of children's Formal Drawing Style

Michelle Steiner '10, STRIDE Scholar, Government & Emily Brown '12, STRIDE Scholar

Peter B. Pufall, STRIDE advisor, Department of Psychology

Method

Action study

Participants: Twenty 4-, 5-, 6-, 8- and 10-year-old children attending a private day school associated with a private college participated in the study.

Procedure: Children were tested individually. They drew a child, a child playing ball and a child pushing a wagon on an 8.5 by 5.5 inch paper with a number 2 black lead pencil. The order of the drawings was varied systematically across children.

Rating Aspects of Drawings: College-aged female judges rated the three drawings of each child. One third of the judges rated the extent to which each Aspect of Drawing (Table 1) was similar across drawings (**Vividness of Style**), one third rated the extent to which differences in each Aspect differentiated the actions (**Meaningful Differences**), and the last third rated the extent to which there were random variations in each Aspect (**Differences**). They used a four-point scale with 0 representing no similarity or difference and 3 significant similarity, difference that conveyed meaning or difference per se.

Agreement was defined as making the same rating or a rating that differed by one scale value. The judges agreed on over 85% of their ratings.

Content Study

Participants: Fifteen 8-, ten 10-, and ten 12-year-old children, attending the same private day school as the children in the Action study, participated in this study. None of the children participated in both studies.

Procedure: The children were tested in groups of between 10 and 15 of their peers. In a random order they each drew a dog, tree or house with a number 2 lead pencil.

Rating Aspects of Drawings: Following the same procedures used in the Action study, two experimenters have done preliminary ratings. Judges agreed on 80% of their ratings.

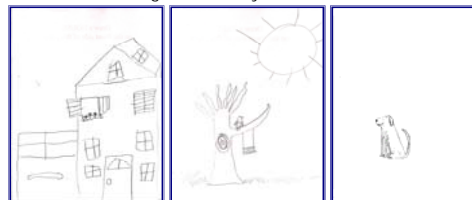
Results

The ratings in the Action (Figure 1) and Content (Figure 2) study were analyzed separately by a mixed model ANOVAs. Age and sex of the children were the between group variables; aspects of representation was the within subject variable.

Within each study the three instruction conditions (similarity, differences that convey meaning, and differences as random variations) were analyzed separately.

There were no significant differences in the ratings of similarity ratings across ages in either study; however, ratings of random and meaningful variations were higher for the older children (4th and 6th grade) than the younger ones. That is, older children vary their drawings to a greater extent than the younger ones do.

As in the Genre study, there were differences among Aspects of Drawing; however, Grade Level did not interact with Aspects of Drawing. That is, the pattern of the relative contribution of each aspect to similarity (style) and difference were invariant over the grade school years.



Figures 3, 4, and 5. Jill's (8 years old) drawings in the Content study offer vivid examples of **Line** that is similar in type and quality; **Composition** that varies in the use of page but is similar with respect to depth and balance; **Objects** of distinctively different shapes but not form and **Detail** that is relatively varied with respect to textures but not density.

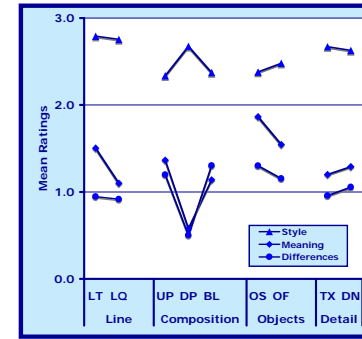


Figure 1. Action Study mean ratings of Aspects of Drawing, ages combined.

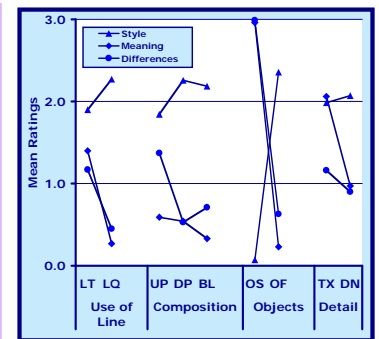


Figure 2. Content Study mean ratings of Aspects of Drawing, ages combined.

Consistent with the Genre Study, all Aspects of Drawing are rated as highly similar (ratings approximately 2.0 or higher) across drawings. By contrast, but with the exceptions of **shape** and **texture**, variations in the way aspects were drawn generally rated at approximately 1.5 or lower, in both studies.

Consistent with the Genre Study, the similarity and difference ratings gap is consistent and greater for **Line** and **Composition** than the gap for **Object** and **Detail**.

Consistent with the predictions from the Genre Study, aspects of drawing involving **Object** and **Detail** serve dual purposes. They both specify underlying similarities and distinct differences among drawings.

When creating **Object**, the similarity-meaningful difference gap for **shape** is not only small in the Action study but reversed in the Content study.

The gap is not evident in **form**. Even though shapes change if the child tends to close a figure drawing one shape, she closes it drawing another.

The extent of the gap when creating **Detail** is significant for **texture** but not **density**. Textures differentiate a meaningful property of objects, e.g., the surfaces of trees, houses and dogs are distinctive. The density of distinguishing features is not varied systematically.

Conclusions

Formal Drawing Style is developmentally paradoxical. The formal style of a 5-year-old will not look like his style at age 10. Yet our research indicates that FDS is continuously crafted out of the same artistic tools or aspects of drawing.

The tools of style are dynamic; they serve the dual functions of preserving style and creating meaningful differences. Tools that craft the **lines** or **compose** the picture emphasize similarity over difference, their **duality** is **weak** or unbalanced.

By contrast, tools that **shape** and **texture** objects reveal a **strong duality**. The balance of style and meaning can swing from one extreme to another depending on the content and purpose of drawing.

The studies we have done have revealed but not tested the limits of these dualities; indeed each study suggests a new partitioning of the tools of style, e.g., **form** and **density** appear to be weak dualities that may complement **line** and **composition** as anchors of formal drawing style.

Children's drawings have a "signature" quality (Hartley, J. L. et al., 1982, Pufall & Pesonen, 2001, and Somerville, 1982). We have identified formal aspects of drawing that constitute formal drawing styles (FDS) that are relatively constant even as children alter the content or purpose of their drawings (Barth-Rogers, Bernstein & Pufall, 2004).

Formal drawing styles are not rigid programs of action, but dynamic systems organized about aspects of drawing or tools of mark making that are exploited in different ways as children vary their drawings to convey different meaning. We have identified nine aspects of drawing – the dynamic constituents of FDS (Table 1) – that are grouped into the higher order nodes of line, object, composition and decorative detail.

Our analysis of children's drawings of a house within different Genre (signage, illustration and aesthetic images) indicate that aspects of **line** and **composition** anchor a child's FDS and did not distinguish among the genre. By contrast, **shape** and **form** were perceived to be similar across the drawings and to distinctions among genre.

This pattern was constant between 2nd and 6th grade. It suggests that the stability of FDS is anchored in properties of **line** and **composition**, while other aspects' contributions to style vary as a function of what children draw and why they draw it.

The two studies reported here test predictions implied in this model of FDS. In the Action Study, children drew three images of human actions, and in the Content Study, they drew three formally different objects.

Predictions

Form and shape serve dual purposes. They preserve similarity and are varied to create meaningful differences. The balance of that duality will shift between studies.

As in the Genre study, their duality will be balanced (both rated about 2.0) across drawings of human Action.

By contrast, variation in **form** and **shape** will be greater than their continued similarity across drawings of different Content.

Line and Composition anchor FDS across content and purpose as well as over development.

Properties of Line and Composition will be perceived as more similar than different across content and the purpose for drawing.

Line and Composition will be perceived as more similar than different over age.

Table 1. Aspects of Drawing

Line
Type of Line (LT): Are lines always continuous or broken, or a combination of both?
Quality of Line (LQ): Are lines thick or thin, bold or faint?
Composition
Use of Page (UP): Is the page filled or are there large open areas?
Depth within the picture plane (DP): Is depth created by the position of an object within the picture plane (relative height), or objects with respect to each other (interposition) or linear devices such as converging lines?
Balance (BL): Balance is akin to symmetry. Is the subject matter centered or set left or right? Are objects balanced across the midline, or is a big object on one side balanced against several smaller ones on the other side?
Object
Shape (OS): Are the shapes within drawings configured in the same way, or do they vary? For example, are all shapes circular or variations on the circle?
Form (OF): Are the edges or contours of shapes complete (closed) or open (incomplete), bold or faint, well formed or distorted; are boundaries honored?
Detail
Density of features (DN): Are objects replete with features, e.g., does the face have eye, pupils, eye lids and brows?
Texture and shading (TX): Are lines or dots or cross-hatching of lines used to emphasize surfaces?