

# Stability and Variation in Children's Personal Drawing Styles

Tiffany Tseng '11J STRIDE Scholar, Economics & Elizabeth Tanner '10 Psychology

Peter B. Pufall, faculty advisor, Psychology

Our previous analyses of *Personal Drawing Style* characterized *PDS* as a **dimensional profile**, a specific pattern in the relative emphasis among the communicative dimensions of expression, narrative, movement and reality in a child's drawings (Tseng, Chain & Pufall, 2008). Our longitudinal analyses demonstrated that **dimensional profiles** are relatively stable over development within the grade school years.

Dimensional profiles do not represent the **contextual adaptations** children make when alter their underlying profile to accommodate their drawings to communicate topics set by teachers, mimic the styles of peers, or to capture the range of ideas and feelings a child has and seeks to communicate.

Within this poster we describe the development of describe the development of three children's dimensional profiles over their grade school years. Our new focus is the analysis on the variations of individual drawings with respect to the dimensional profile. Variations reveal children's relative openness to contextual pressures/guidance within a given year as well as variations in the openness of PDS over development.

## PDS and Developmental Adaptation (the continuing question)

Do children have distinctive PDSs?

Are the dimensional patterns (profiles) of PDS stable over development?

## PDS and Contextual Variability (the new question)

Is the variability across dimensions relatively constant?

Is the extent of contextual adaptation stable over development?

## Method

### Participants

This research is a longitudinal analysis of drawings done by Carla, Evan, and Alex during their primary school years. Carla and Evan's art works were completed during their 2<sup>nd</sup> through 5<sup>th</sup> grades. Alex's art works were completed during his 2<sup>nd</sup> through 4<sup>th</sup> grades. They attended a private elementary school in New England that focused on both graphic and plastic representation as symbolic systems that complement language in the development of thinking and learning.

### Materials

This research created yearly portfolios of each child's class-work: a subset of their drawings was preserved on slides that were later transcribed into a digital format. The subsets of their work preserved several properties, among them are children's media preferences, size of paper on which the drawings were done, and the proportion of all the drawings in their overall portfolio done each year.

### Assessing PDS

Children's art works were rated by the experimenters in terms of the extent to which they perceived the dimensions of expression, narrative, motion and reality orientation within each drawing. Each of these dimensions are manifested in two ways (Table 1).

## Rating Scale & Reliability

Judges rated the manifestations of Expression, Narrative and Motion on a scale from 0 to 5. Because we are analyzing dimensional expression in this study, the perceived presence of Expression, Narrative and Motion ranges from 0 to 10.

Reality Orientation implies an inverse relation between reality and fantasy hence when rating for reality and fantasy, judges distributed the 5 rating points between them. Reality orientation is calculated by doubling the value judges assigned to Reality.

Inter-judge agreement was defined as identical ratings or rating that differed by only one unit of the scale. Inter-judge agreement was 89% (Alex), 91% (Evan), and 88% (Carla).

Table 1: Dimensions of Personal Style

**Expression** can be literal or figurative, both of which can appear in the same drawing.

- ☞ **Literal** expression refers to the graphic depictions of specific emotion and is usually conveyed by facial expressions, particularly the shape of the mouth.
- ☞ **Figurative** expression conveys emotion, feeling, energy, etc. without realistically representing them and may be manifested in the use of swirling or linear lines to convey sense of energy.

**Narrative** can be schematic and dynamic, both of which can appear in the same drawing.

- ☞ **Schematic** narrative is reflected in drawings of scenes or settings within action is likely to occur
- ☞ **Dynamic** narrative is reflected in drawings depict interpersonal or mechanical interactions.

**Motion** can be formless and embodied, both of which can appear in the same drawing.

- ☞ **Formless** motion is conveyed in flowing lines and swirls that not depict a specific kind of movement or even what is moving.
- ☞ **Embodied** motion of is specified by biomechanical configuration of limbs, postural angle and positioning of bodies within the picture plane.

**Reality Orientation** implies a balance of reality and fantasy. Drawings which portray content and stories realistically are high in reality and low in fantasy.

- ☞ **Reality** is manifest in real life events, scenes, or objects as they would be seen.
- ☞ **Fantasy** is manifest in imaginative/media/literature or shared social fantasies.

## Results

Figures 1-3 represent the "in depth account" of Alex's PDS profiles and contextual adaptations within and across three years (first to third from top to bottom). Parallel accounts of Evan's and Carla's PDS are not represented. Alex's PDSs are based on three consecutive years; Evan's and Carla's are represented by three consecutive years and groupings of years. Years were grouped because they produced few drawings in some years, hence statistical descriptions of those years would be vulnerable to the distortions of small sample effects.

The profiles in the figures are stacked (see Table 3), that is, the dimension means of 3-Dim profiles are added to the 4-Dim means, and the means of the 2<Dim profiles are added to the sum of the first two profiles. The sems are completely independent.

We present them in this way so that similarities and differences in profiles are more easily detected visually. The actual means of each profile are listed in the table at the bottom of the figures.

Table 2: Measures of stability and variation

### PDS as Dimensional Profiles

- ☞ Dimensional Profile is the pattern of mean ratings across dimensions.
- ☞ Dimensional Profiles are stable across age if the pattern of means in the 4-Dim groupings (see below) is basically constant.

### PDS and Contextual Adaptations

- ☞ Contextual variability is represented by the standard error of the mean (*sem*) for each dimension, i.e., the error bars.

### Stable Profiles and Contextual Adaptations: An in depth account

- ☞ number dimensions that matched the overall dimensional profile (within one standard deviation).
  - ☞ 4-Dim drawings match on all dimensions.
  - ☞ 3-Dim drawings match any three dimensions.
  - ☞ 2<Dim drawings match on two or fewer dimensions.
- ☞ Comparing profiles (stability) and *sems* (variation) within groupings within and across ages reveals whether PDS is stable or varies with respect its fundamental form and contextual adaptability.

### Alex

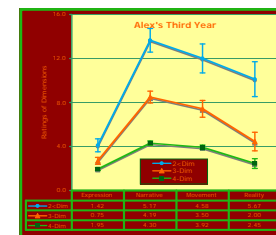
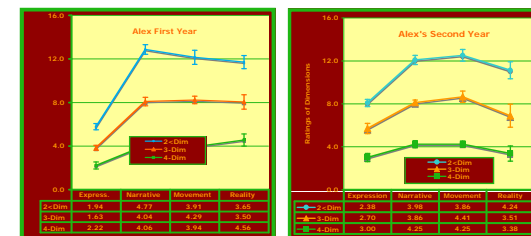
- ☞ PDS profile is relatively stable over development and within age across groupings of drawings. Narrative and motion are emphasized over express. Reality orientation decreases over the years meaning that fantasy become more salient.
- ☞ Within each age contextual adaptation is relatively constant across dimensions and across groupings of drawings within age. Across age contextual adaptation increases sharply for all dimensions in the 3- and 2<Dim groupings, except for expression, in the third year.

### Evan

- ☞ PDS profile is relatively stable over development and within age across groupings of drawings. His emphasis on narrative and motion over express and reality diminishes with development.
- ☞ Contextual adaptations are relatively stable across dimensions but increase across groupings of drawings. In the last year his drawings vary more with respect to the balance of reality and fantasy than any other dimension.

### Carla

- ☞ PDS profile is relatively stable over development and within age across groupings of drawings. Reality orientation is emphasized over the other three dimensions, non of which are vividly portrayed in her work.
- ☞ Contextual adaptations are relatively stable across dimensions within age and across groups of drawing in the first and last years. In contrast to Alex and Evan, Carla's drawings vary over a broad range on all dimensions in the first and last year. The variation is indicated by the fact that very few of her drawings in these years could be classified as 4-Dim.



## Conclusions

☞ Alex, Evan and Carla demonstrate distinctive PDSs.

☞ The forms of Alex's and Evan's profiles are similar within and across age. However, they are distinctive with respect to contextual adaptation. Alex's drawings vary in their extent of narrative, movement and reality much more than Evan's due. Evan's drawings are highly variable with respect to reality in the third year. In short, while their profiles are formally similar, Alex explores or is more open to the potential of each dimension to a much greater extent than Evan does.

☞ Carla's PDS varies from Alex's and Evan's in terms of its underlying form as well as in the extent to which she explores the potential of each of the dimensions. Her works are so varied that in the first and last year only one of two of them meet the criterion for a 4-Dim match.

☞ Overall these analyses underscore the importance of characterizing PDS both as prevailing tendency as well as in terms of the flexibility or openness of that system. As Alex's developmental portfolio of shows, a child's underlying tendency as well as openness to variation about that tendency may both be relatively persistent or stable properties of a child's personal drawing styles, and, by contrast Evan's drawings over development exemplify a drawing system that has a persistent form but varies in terms of the openness to variation.

☞ As a dynamic system PDS reflects its adaptive potential. In typical children, personal style adapts to social contextual demands as well as shifting personal interests. Children can and do vary their drawings to communicate a variety of ideas, feelings, and beliefs about their immediate world, their momentary experiences. Children can and do vary their personal styles over time, perhaps in the service of new communicating their feelings about, understanding of and beliefs in their personal, social and physical worlds.

Images of the children's drawings can be viewed on the computer