

coercion are also counted, the entrepreneurial children ($\bar{X} = 43.5$) almost perfectly matched the cooperations of the SP, while the bureaucratic children cooperated ($\bar{X} = 32.8$) about 22% less often than did the SP. When the SP cooperated, the S was sure to win some money on that trial. It appears, therefore, that entrepreneurial children were helpful to the SP to the degree that the latter was helpful to them, while bureaucratic children were more competitive and apparently more concerned with the goal of winning the game.

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NOTE

1. Notation follows Rapoport & Chamamah (1965).

the organism perceives in a more articulate manner. For instance, parts are more easily distinguishable from the whole. In terms of a perceptual model, hierarchic integration implies *flexible* perceptual activity. Developmental theory would contend that this type of activity is concomitant with increased articulation, not globality. Globality implies *rigid* perceptual activity.

In an effort to explain the perception of geometric illusions, developmental theory would maintain that younger organisms (children) are at a lower level of perceptual development; hence, they perceive more globally. In the case of the Poggendorff illusion, they are less able to distinguish the oblique line from the parallel lines; hence, a relatively large illusion results. On the other hand, older organisms (adults) are at a higher level of perceptual development; hence, they perceive more articulately. In the case of the Poggendorff illusion, they are more able to distinguish the oblique from the parallels; hence, a relatively small illusion results. So far, a developmental model of perception appears capable of explaining the finding that the magnitude of the Poggendorff illusion decreases with age. Now, how would the apparent specificity of the successive trials effect be explained?

It is important to understand that the basic tenet of Werner and Wapner's developmental theory is essentially a two-factor concept: (1) articulation, and (2) integration. It is asserted here

An explanation of developmental differences in the successive trials effect of the Poggendorff illusion

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The organismic variable of age has a profound effect on the magnitude of the Poggendorff illusion. Children perceive a greater illusion than do adults. However, a successive trials effect has been demonstrated only in adults. These findings are explained in terms of a perceptual model derived from the developmental theory of Werner and Wapner and basic information-processing concepts.

If two portions of a straight oblique line are interrupted by two vertical parallel lines, an illusion occurs. The two portions of the oblique line no longer appear to be parts of a single line. This distortion, known as the Poggendorff illusion, is shown in Fig. 1.

Recently there has been renewed interest in this illusion, and systematic empirical investigations have been carried out. For example, it has been found that the organismic variable of age has a profound effect on the magnitude of the Poggendorff illusion. Both Leibowitz & Gwozdecki (1967) and Vurpillot (1957) have reported a decrease in the illusion as age increases from approximately 5 years to adulthood. These investigators employed a method of adjustment. Pressey & Sweeney (1970) employed a method of production and crossvalidated this finding in a group of 8- to 14-year-olds.

In 1902, Judd reported that the Poggendorff illusion decreased with

repeated measures. Interestingly, it has been found that the illusion does not change with successive trials when children serve as Ss (Pressey & Sweeney, 1970). However, Pressey & Sweeney (1969) reported a successive trials effect with adult Ss. To date, the fact that the successive trials effect appears to be specific to adults has not been explained.

The developmental theory of Werner (1961) and Wapner & Werner (1957) provides a perceptual model for an explanation of the apparent specificity (or interaction) of the successive-trials phenomenon with age. The basic tenet of Werner and Wapner's developmental theory is as follows: as the organism develops (grows in age), its functioning becomes increasingly articulate; concomitantly, its ability to integrate data hierarchically increases. In terms of a perceptual model, developmental theory would maintain that initially the organism perceives in a somewhat global (or inarticulate) fashion because the organization of its perceptual processes is relatively undifferentiated and consequently more homogenous. With an increase in age (development),

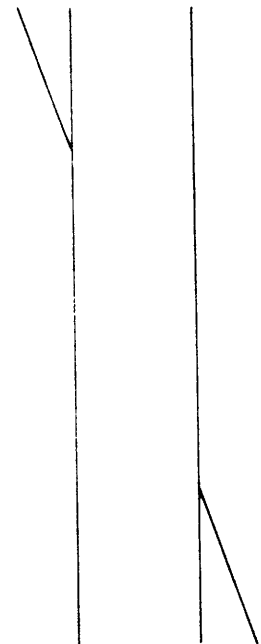


Fig. 1. The Poggendorff illusion.

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that integration, in terms of perceptual process, implies effective information processing. It is also asserted that the successive-trials effect can be conceived of as a sequential two-factor phenomenon. First, the percept or illusory response is established. Second, with successive trials, the percept (information) is assumed to be integrated (processed) so that the figure is seen more veridically. With children, it can be assumed that the information from successive trials is not processed effectively since the illusory effect is still present. In other words, the response is rigid. It remains relatively the same with repeated presentation of data. With adults, efficacy of information processing can be assumed to be greater than for children. Although, to some degree, the illusory effect is present at first for adults, it decreases with successive trials. In other words, the response is flexible. It does change with repeated presentation of the same data. Thus it appears that the mechanism of the successive-trials effect is a function of

the level of the organism's perceptual development. It could be argued that the successive-trials phenomenon is not dependent on age-specific factors only, since the initial level of the illusion could be higher for some adults than for some children. Somewhat similarly, some children may exhibit a successive-trials effect. These are distinct possibilities. However, the perceptual implications of developmental theory discussed here are general ones based on group data which may obscure individual differences. The point is that initial level of illusory response and a possible decrease with repeated measures appears to depend chiefly on level of perceptual development. It so happens that level is usually directly correlated with age (i.e., the older the organism, the higher the level of its perceptual development, and vice versa). Other organismic variables besides age, such as personality, may account for the successive-trials phenomenon at an early age, but the theoretical model discussed here

would maintain that despite the age of the organism, an initial high level of illusion alone is necessary before a successive-trials effect can be demonstrated.

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