

Experimental aesthetics: Children's complexity preference in original art and photoreproductions

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The relationship between aesthetic preference and complexity was studied in children, comparing full-size original abstract artworks with reduced-size photoreproductions. No preference for complexity was found; rather, a tendency toward preference for intermediate levels of complexity, or rejection of high complexity, seemed to be indicated, primarily for the full-size original artworks. There was little relationship between results with the original artworks and their reduced-size photoreproductions, suggesting, until further research can be accomplished, a cautionary note in the widespread use of photoreproductions in experimental aesthetics.

In experimental aesthetics, one of the more investigated phenomena is the so-called complexity preference function, or the generalized tendency for individuals to prefer complexity over simplicity in a visual display. A number of studies have been reported in which subjects have indicated a greater preference for complex over simple visual stimuli, whether the visual material is in the form of random polygons varying in the number of sides (the complexity dimension), or in the form of experimentally contrived line drawings varying in judged complexity, or in some other form (Farley, 1970; Farley & Ahn, 1973; Farley & Dowling, 1972). Most of the available studies have used experimentally contrived laboratory-type materials. These materials are not of the type normally confronted by children. Few studies, and none with children, have employed real artworks in the investigation of the complexity preference function. One of the first with adults, by Osborne and Farley (1970), employed abstract expressionist reproductions of postcard size, with subjects ranking the reproductions on either complexity or preference, with independent groups for the ranking conditions. University graduate students were used, and art students were compared with students in educational psychology. A general preference for complexity was found, with the function, however, becoming asymptotic at less-than-maximal levels of complexity for the non-art students.

In a more recent experiment, also employing adults, Nicki and Moss (1975) have extended the earlier research to different artworks.

As mentioned, one problem with the foregoing work that has employed real art is that no data have been reported on children. A number of researchers have noted that the period of childhood and adolescence

may be particularly important in the development of the preference for visual complexity (Baltes & Wender, 1971; Koester & Farley, in press; Munsinger, Kessen, & Kessen, 1964), at least for the laboratory-type research materials described above.

Another major problem where the complexity preference function is concerned, and indeed, in many areas of investigation in experimental aesthetics, is the extensive use of photographic reproductions as stimuli. Because of the presentation problems involved in using original art in experiments, there has been almost complete reliance on the use of photographic reproductions of original art as experimental stimuli. Although this practice is widespread, it is not based, at least where children as subjects are concerned, on data indicating the comparability of originals and photographic reproductions. It may be possible that laws of aesthetics sought after and occasionally identified by experimental aestheticians employing photographic reproductions may not generalize to perception of the real thing—original artwork. Perhaps, for instance, the complexity preference function in children is moderated or influenced by the type of stimulus employed, whether it is the tertiary stimulus of the photoreproduction or the primary stimulus of the original artwork. Clearly, the determination of any such moderating effect is central to the transportability of experimental aesthetics to the "real world" of first-hand artistic experience.

The present study was undertaken for two reasons. First, an attempt was made to employ real art in studying the complexity preference function in children, and, second, the effects of original art vs. photographic reproductions were investigated.

METHOD

Sample

Forty elementary school children in a midwest city of approximately 170,000 population were employed in the

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study (one subject did not complete the testing, thus the final $N = 39$). Eighteen were females, 21 were males. The mean age was 7.75 years (range = 6-10 years).

Materials and Procedure

Twenty-five black-and-white abstract woodcuts of closely similar size (averaging about 15 x 18 in.) were selected from among available art originals in the file of an undergraduate art class at the University of Wisconsin, Madison. These 25 woodcuts were photographically reproduced with proportional reduction from the original (to an average size of about 5 x 6 in.). The subjects were randomly assigned to one of four experimental conditions. The conditions were original work ranked on preference, original work ranked on complexity, photoreproduction ranked on preference, and photoreproduction ranked on complexity. Two testers were used, one male, one female, of approximately the same age. This was done so as to at least partially control for sex of the experimenter. The subjects were randomly assigned to either the female or the male experimenter in a serial fashion out of the ongoing classes. The two experimenters worked in adjacent rooms and alternated these rooms between themselves in a predetermined order. Thus, any Room by Experimenter by Experimental Condition by Subject effects were controlled. The testing procedure for both originals and photoreproductions was as follows: The 25 stimuli were spread, in a different random order for each subject, on the floor of the testing room. Instructions for complexity ranking were as follows: "As you can see, there is a whole bunch of pictures lying on the floor. I want you to look at each picture and tell me which one you think has the most things in it." The picture chosen was then recorded and turned face down. The foregoing instructions were then repeated for the remaining 24 pictures, until all pictures had been turned over. Instructions for preference ranking were as follows: "As you can see, there is a whole bunch of pictures lying on the floor. I want you to look at each picture and tell me which one you like most of all the pictures." The picture chosen was then recorded and turned face down. The foregoing instructions were then repeated for the remaining 24 pictures, until all pictures had been turned over.

RESULTS

In order to estimate the relationship of preference and complexity separately in each of the two stimulus modes (original vs. photo), Spearman rank-difference correlations were computed between preference and complexity for the 25 stimuli within the two stimulus types, treating stimuli as subjects. The results of this analysis were as follows: For original art, $\rho = .23$ (n.s.); for photoreproductions, $\rho = .04$ (n.s.). There would appear therefore to be no linear relationship between complexity and preference in either stimulus type.

A second analysis compared the mean preference ranking for the top 20%, middle 20%, and bottom 20% of the stimuli on the complexity dimension, so as to check for a possible curvilinear relationship, separately for the original and photopresentations. Because of overlapping scores, it was not possible in all analyses to achieve precisely 20% ($N = 5$). Accordingly, in some cases, $N = 6$. The mean preference ranks were as follows (a low value indicates greater preference): For original art, low complexity, 11.8, middle complexity, 9.4, and high complexity, 15.4; for photoreproductions, low complexity, 13.7, middle complexity, 11.3, and high

complexity, 14.2. These means suggest a curvilinear relationship between preference and complexity for both original artworks and their photoreproductions. Greatest preference was found for middle levels of complexity in both types of stimuli. Separate one-way analyses of variance by rank were computed for the original art and the photoreproductions, with only that for the original art yielding a significant main effect ($p < .05$).

Although the trend toward a nonmonotonic relationship between preference and complexity in both the original art and the photoreproduction of that art (significant only in the former) might suggest the possibility of similar complexity preference functions in both sets of stimuli, the comparability of these two sets should be specifically tested where complexity ranking and preference ranking are concerned. To this end, the complexity ranks for the 25 stimuli in their original and photoreproduction forms were correlated by Spearman rank difference, yielding a ρ of $-.04$ (n.s.). The comparable correlation for preference rankings was $.08$ (n.s.). Thus, no significant relationship was shown between complexity rankings of the original art and its photoreproduction or between preference rankings for these two sets of stimuli.

DISCUSSION

This research suggests that the preference for complexity often reported for adults with experimentally contrived stimulus materials may not generalize to children's judgment of real artworks. This is an important finding for the development of an empirical, scientific basis for aesthetics and art education. The curvilinear function, however, is not incompatible with the Osborne and Farley (1970) results for non-art-student adults and abstract expressionist photoreproductions, where greatest preference was found at less than maximal complexity levels. Taking the Osborne and Farley study and the present study together suggests that there may be no strong preference for complexity in real artworks or photoreproductions of those artworks, but possibly intermediate or less than high levels of complexity may be most preferred for these stimuli, at least for persons not specifically trained in art. One might speculate further from these studies that perhaps there is a developmental trend where artworks are concerned for a shift with age to higher levels of preferred complexity. Thus, there was a trend in the present children toward preference for intermediate levels of complexity (significant for original art stimuli only); the adults of Osborne and Farley preferred somewhat less than the highest levels of (rated) complexity. To test such a hypothesis would require use of the same stimuli in groups of subjects across a wide age range, preferably employing a longitudinal and cross-sectional research design. Ages less than and greater than those in the present and Osborne and Farley studies should be included, as well as replicating those studies. Artworks representing various types (e.g., representational, non-representational, etc.) should be studied, perhaps with separate analyses of the complexity preference function within each type.

Although further research clearly is needed, these results suggest that the greatest aesthetic enjoyment for children of this age may come from real artworks judged by such children to be of intermediate complexity. Practically speaking, such material might well be experimented with by art teachers to capture students' interest or to revive it. Having such a possible principle

associated with students' liking art may be useful in the experimental pedagogy of art.

One interesting result of this study is the lack of a significant relationship between the original art stimuli and their photoreproductions in rankings of complexity and rankings of preference. Clearly, complexity is judged differently for the original full-size art piece and its reduced photographic reproduction. So also are the preference judgments for these stimuli. This finding could be of considerable importance to experimental aesthetics, given the widespread, almost universal use of reduced-size photoreproductions. The generalizability of results to date may be questioned. Before serious reconsideration of such results should be undertaken, however, the possibility that the lack of relationship shown in the present study is a reliability problem or a sampling problem should be determined. Considering photoreproductions in the present study as a sort of alternate forms test, the lack of correlation might be viewed as test unreliability. Or the lack of correlation might be due to sampling, given the small samples employed. Replicating and extending this study to include a larger sample, with the present independent groups plus repeated-measures groups (both preference and complexity judgments, for both sets of stimuli), would disambiguate these issues.

The similar trend of complexity preference between the two sets of stimuli suggests some degree of comparability may exist. However, for the moment, the best recommendation would seem to be to employ the full-size original artworks if possible in experimental studies of visual art.

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