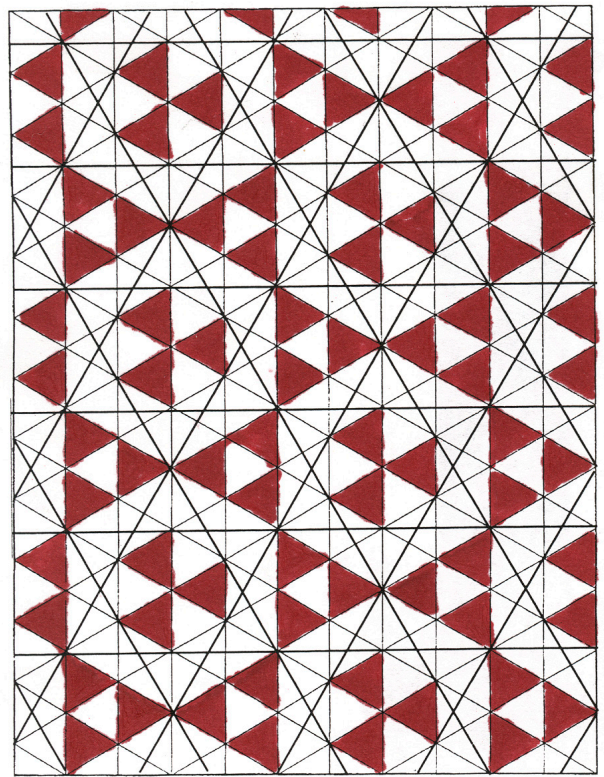


## Geometry Through Art: Its Premises & Methods

by Norman Shapiro

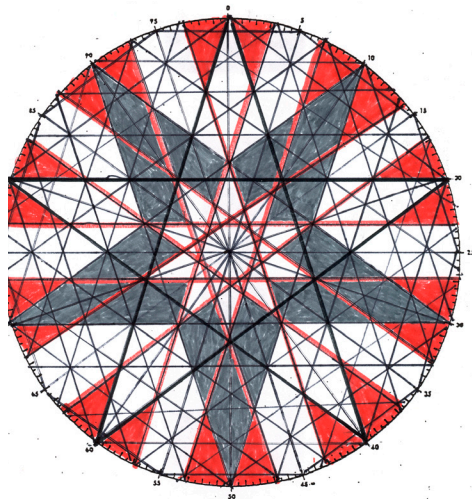
A bit of historical context:

In the classroom among the youngest children, Euclid's Geometry proved to be dull and deadly. For the generation I grew up in, it scared the elementary school teachers as much as the children. During the years I began my own teaching, more often than not 'geometry' was saved till the end of the school year -if it was ever at all even reached or 'covered'. My own experience with this taught me that Geometry actually should be taught first thing. Taught at the outset, it actually helped children better visualize arithmetic! They were able to visualize that there were patterns to be discovered in numbers! And discovering them, had a handle on factoring (multiplying and dividing). the patterns made mentally adding and subtracting numbers possible. Did it better than memorization alone.



In the era before World War II, a Swiss educator named Johann Heinrich Pestalozzi evolved a method of teaching called 'Informal Geometry'.

His approach became a movement. He based it on the notion that children learn best when the experience is tangible, perceptually real. And that one builds from the simple tasks and ideas in gradual steps to complex and more abstract ones. It took hold in Germany and England. From there it came here to the United States. This was in the 1930s. It never got more than a toe hold in our public schools. Not even when in the mid 1970s Donis A. Dondis was a professor at M. I. T. and came out with his book 'Visual Literacy'. It was not much read. Not by my teaching colleagues, nor when I as a teacher in the public schools was conducting workshops for teachers, demonstrating Geometry Through Art and other specific hands-on activities that would help teachers motivate their students and get them involved in learning "The Basics."



Much modern pedagogical thinking germinating (pun intended) during the pre-Hitler period that I learned when I came to Brooklyn College: introduced a German word 'gestalt' (new to me) and gave a different perspective to what learning entailed. (The whole being greater than its parts.) While still a college student, I came across a book by Victor Lowenfeld . It was in print since I was a kid

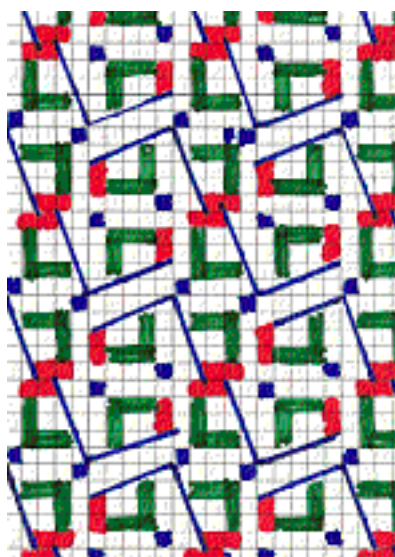
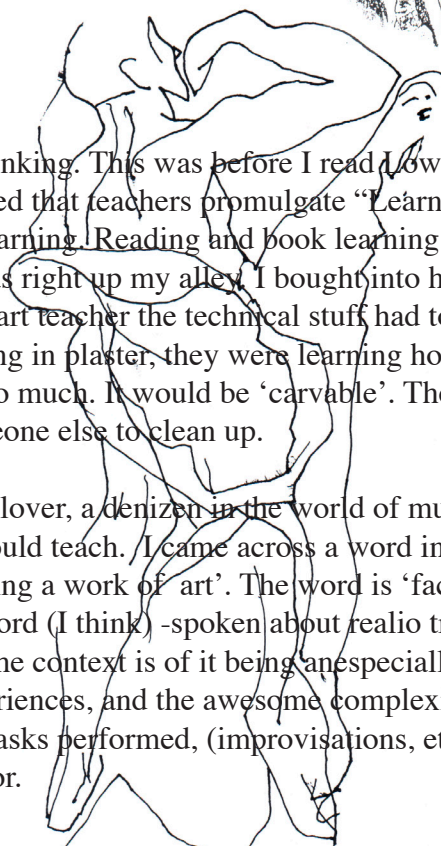
of 19: "Creative and Mental Growth". I came for the fourth edition of it, printed in 1947. This book became my bible.

My own methods are founded on Lowenfeld's teachings, his premises being that a teacher **MUST** know and fully understand and respect the stages of child development. I wonder when I look around at what teachers teach or try to, if they are cognizant of the fact that some things that are taught are not appropriate to the developmental stage and age of their students or that a foundation for presenting it was not adequately provided.



John Dewey played his part in my thinking. This was before I read Lowenfeld, or even was able to digest what he was saying. Dewey advocated that teachers promulgate "Learning by Doing". He believed in students getting more than book learning. Reading and book learning was not nearly enough. As a teacher of art, what he was saying was right up my alley. I bought into his point of view. We were always 'doing and making' stuff. And as an art teacher the technical stuff had to be as authentic an experience as I could make it. If they were carving in plaster, they were learning how to pour it in the water so the proportion was not too little or too much. It would be 'carvable'. They'd use real tools and safely and not be leaving any mess for someone else to clean up.

My experiences as an artist, as an art lover, a denizen in the world of museums and gallery art have also influenced how I perceive what I should teach. I came across a word in more recent times. It is one coined to denote the process of 'making a work of art'. The word is 'facture'. have you heard of it? Maybe not. Facture is a sort of in-word (I think) -spoken about realio trulio art with a capital A. The processing, the evolving of it. The context is of it being an especially intense and highly concentrated thing the artist goes through, experiences, and the awesome complexity of its many aspects. Things occur with media, ideas, the tasks performed, (improvisations, etc) -from start to finish, stuff that the words denote and are the labels for.



Teachers teaching and children learning partake of comparable processes and aspects -comparable as to it being mind-boggling in its complexity. We plain folk do not call it 'facture'. We just call it 'learning'.

And perhaps if we thought more as about 'facture' and 'learning' processes, both may have affinities, pedagogical significances: an importance, as much importance as the subject content we are so prone to prioritize.