Art and Data Science: a model by pupils

We tend to believe that our choices are personal and free. Despite this, advertisement knows how to influence us, and data science knows (more or less) our choices before we take them. Are we so predictable?

In any case, the world needs decisions, and in case of doubt, it's not a bad idea to rely on (impartially carried out) data science. In principle, every unclear matter that looks like a grey zone can be modelled, and for example one can find a way to measure and classify the shades of grey. Any classification is a choice and follows choices. However, when one has to make a choice anyway, then one can try a sensible approach.

With these premises, in an art class one could challenge high-school pupils to (try to) describe theoretically what art is, and then how they would "objectively" determine if (or to which extent) some given "artwork" is artistic. I foresee that the pupils' answer would surpass in depth and insight any pre-made reflection of the educators and it would make sense to collect and analyse them, also aiming at repeating the activity with further classes.

If you trust people (possibly, restricting to suitably defined "art experts"), then you could collect individual judgements and with ratings have some statistical measure as for how artistic a given "artwork" is (say, in percentage). Such a survey would also allow to measure bias, as it is for example to be expected that artworks believed to be by female artists are rated worse just because of gender bias.

One could also try to use such studies to understand art. For example, one could say in particular that masterpieces are, in some sense, a "local maximum" for quality. This property could be investigated by making an automatically generated artwork and comparing it to "small variations" of it. In short, a test for quality (and, possibly, a way to improve it) would be checking if small variations would be better.

Moreover, an artwork is made of finitely many (more or less artistic) choices. Supposing that the human eye has a limited perception and does not see differences which are too small, we could end up saying that there are only finitely many possible ways to paint a given frame (the number being huge, though).

An experiment would be having a square frame and divide it regularly into smaller squares, choosing a colouring from two colours (say, red and green). And then investigating how many small squares are needed so that the output (which only depends on the finitely many binary choices red/green) is perceived as artistic. This would be similar to determine how many sand grains make a heap.

In the end, reality is multidimensional, and any study, survey, or measure it's only a projection of it. However, as reality is too complex for us, then we have to became masters of projections, namely we have to choose meaningful projections and interpret them.