

## **ASSOCIATIVE MEMORY, FIGURATIVE ART, AND ABSTRACT CONCEPTS**

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What is it that makes the appreciation of an artwork such a personal experience? We believe that from cognitive psychology's perspective, the answer is in the question: *experience*. Whether it is the experience we have accumulated across our lifetimes, or the experience of an artwork in the here-and-now. Here we attempt to straddle the divide between art on the one hand, and the science of human experience on the other. Our aim is to provide a psychological basis for why our experience of art depends on context — both the context defined by our individual histories, and the physical and temporal context in which the artwork itself is located. While what we suggest below is based on current cognitive theory, those parts concerning the interpretation of artworks in changing contexts require empirical validation.

How does experience shape our understanding of the things around us? Imagine that you're seeing something for the first time, say a dog. It has shape, color, sound, smell, and a feel. As it moves around, these things each move with it. Associative mechanisms (e.g., Hebbian learning) in our brains link these things together. As we repeatedly experience this same dog we strengthen these links. We also strengthen links to other things that tend to co-occur with it — its owner, perhaps. Links between things that do not co-occur so systematically do not get strengthened. For example, that first time, we may have seen the dog in a particular road, and the next time in a particular building. But while these locations are linked to the dog within each instance of experience, they do not co-occur so often, and are therefore eventually lost among the vast sea of insignificant links.

Then we meet another dog. Its shape, sound, and feel are similar to those of the first dog, and they 'reactivate' the echoes of that first dog. They're not identical, but they're close enough, and the properties of the two dogs become linked. The ensemble of links between these and similar properties gradually grows and refines with each experience of these and other dogs to give rise to a 'semantic' memory for dogs in general. When we meet a new dog, this semantic memory allows us to make generalizations from our past experience of dogs to this new experience of a specific dog; it will likely move in a certain way, or bark, or wag its tail. But we don't confuse this specific instance of a dog with our generalized memory of dogs because this

instance is accompanied by other things in its immediate space and time. These other incidentally associated things ‘define’ the here-and-now experience of this dog as an individual instance of dogs in general.

What about things that we experience which are not so ‘concrete’ (and which are not so easy to depict in art) such as ‘peace’, ‘ability’, ‘constraint’, or indeed, ‘beauty’? Understanding these abstract concepts is not as simple as understanding more concrete concepts such as ‘dog’. Cognitive psychology suggests that, like concrete concepts, abstract concepts are also built through generalizing across past experiences (consider the similarities between all of the situations which you would consider “peaceful”). However, research also suggests that abstract concepts are more contextually dependent than concrete concepts — whether someone has ability, for example, depends on your context; if you saw a toddler throw a ball up in the air and catch it on the way down, you might say she has ability, but you probably wouldn’t say that if it was a juggler doing the same. Or, depending upon your state of mind, an enclosed space might appear peaceful rather than constraining. Likewise, what counts as ‘beauty’ to you may not count as beauty to someone else. Relative to concrete concepts, abstract concepts therefore depend more on the *current* context for their full interpretation, whereas concrete things, depend more upon the accumulation of *past* contexts for interpretation (it is a balance that changes across different kinds of concept).

What does all this have to do with our experience of art? Dogs around the world are not all that different from one another. Once we’ve had sufficient experience of a bunch, we can pretty much generalize to any dog. Bowls of fruit are much the same. Once you’ve seen one, you’ve seen them all. Almost. There aren’t that many ways in which bowls of fruit change from one experience to another, and it’s an easy matter to understand what such things are, where they tend to be found, what you can do with them, and so on. Now imagine Caravaggio’s “Basket of Fruit” (c.1599; even if it were not depicted here, you would probably imagine something close — that is the beauty, so to speak, of figurative



art). According to what cognitive psychology has taught us about how we interpret the things we see or hear, the way that we interpret that fruit basket should be relatively similar regardless of our mood, the room in which the painting hangs, or the other paintings hanging in that room. The links between the stalk of an apple and the body of that apple, and between these and your stored generalized knowledge of apples, are so strong that those which form between the painted apple and the painting's surrounds are relatively less influential within the entire ensemble of associations that constitute the interpretation of what you see. That said, because our experiences shape our associations in the first place, there will be subtle, and some not so subtle individual differences depending on the particular experiences of each individual (e.g., some people may have never heard of fruit baskets).

But now imagine a Kline, Malevich or Kandinsky. Do such abstract paintings evoke interpretation, or feeling? Arguably, yes. They might evoke feelings of joy, or make us think about peace, ability, loyalty or indeed, beauty. How can they do this despite that these things are not so easy to depict in art? If we again apply our cognitive psychological theories of interpretation to abstract art, we would predict that their interpretation is, like that of abstract concepts, malleable and highly context-dependent. Whether you see Kline's "Chief" (1950) as a locomotive or as a muzzled dog may depend on whether you saw either of these on your way to MoMA. And like that dog you first saw as a toddler, or Caravaggio's apple, the associative links between the elements of an abstract painting and other things around it strengthen. But unlike with the dog or the apple, for the abstract painting, links with other incidental things are not 'drowned out' by those that form with prior experientially-based knowledge, as these latter links are not so strong as



in the case of, e.g., a depicted apple and your knowledge of apples. So those other things that constitute the context of the abstract artwork contribute to the ensemble of associations in the here-and-now that influence your interpretation, or feeling, on viewing the artwork. It is harder still to “see” Malevich’s “Head of a Peasant Girl” (1912-3), as an actual object until, that is, the context of the title evokes associations and a sense of interpretation.

Galleries seem to know these things, even if not in so many words. Go to any museum of art and the figurative artworks most likely hang one next to the other, often cramped along a wall. Not so for abstract art. Abstract art requires space. And whereas figurative art has endured over the centuries, abstract art is more fickle, engendering greater disagreement over its merits. While we have similar histories in respect of dogs and baskets of fruit, our histories in other respects differ, and these differences shape our experience of abstract art more than they do of figurative art. Moreover, our personal histories change over time. Thus, when we return to the gallery again, our accumulated experience has changed, and our new experience of the same artwork necessarily differs from the time before. And because cognitive psychology predicts that our interpretation of abstract art is more linked to the here-and-now than is figurative art, repeat encounters of abstract artwork may be more susceptible to intervening history than repeat encounters of figurative artwork (see Vessel & Rubin, 2010 for relevant empirical work).

Understanding how we appreciate works of art, and understanding the basic building blocks of our (mental) world, are not so different. By bringing together art and science, we can better understand art’s place in that mental world.

## REFERENCES

- Vessel, E. A., & Rubin, N. (2010). Beauty and the beholder: Highly individual taste for abstract, but not real-world images. *Journal of Vision*, 10(2):18, 1-14.