

The Work of Art in the Age of A.I. and Neuroscience

Hal Hodson (a technology reporter for New Scientist) published an article in the November 2012 issue of that magazine titled 'Computers identify what makes abstract art move us'. Hodson's opening gambit is that we don't yet fully understand why exactly it is that one particular set of visual information stimulates us in a certain visceral way. If what is getting taught to art students is anything like the prevailing critical thinking today then not only do we not understand, but we don't want to know.

Why? Well, in critical theory we presume that the mental response of the 'reader' to the 'surface of the cultural text in question' (including visual art) is almost entirely subjective, denying the possibility of faithfully communicating through art. To question this position and to argue that scientific experiments could reveal a universal relationship between features of visual art and mental responses feels like suggesting to medieval scholastics that earth is a globe when they insist it's flat.

This denial of any objectivity in the perception of art is tied up with the history of critical theory. Among others, French theorist Roland Barthes's made a new intellectual attack on the assumptions and logic of Modern institutions. His essay 'The Death of the Author' (1967) sent shock waves of relativism through schools of Humanities – and some of those shock waves were very political, or politically useful. For instance, it was hard to argue for biblical literalism in the face of complete relativity of meaning. But the attack didn't stop with the humanities and the church. Postmodernism was born and if you were, artist or not, still arguing that the author's intention or biography were speaking through 'His' texts, you were quickly labelled an intellectual dinosaur.

Barthes' essays did not just change how people considered the interpretation of cultural texts. It changed artistic expression. Since the prevailing philosophy left no place else to go imaginatively as an artist except deep down inside the individuated self, artists now felt they had no choice but to go on their own inner journey, to discover their own style, and continually refine this for themselves. With artists no longer believing in any possibility of communicating with their audience, art became the atomized, egoistic, naval-gazing modern practice we recognize as and call art in our culture today. The Barthes moment, you could say, didn't just kill off the author; it is killing off art itself. Today, artists and perceivers alike are scared of being on the receiving end of anti-modernist witch-burning if we try to speak through, or learn from, artwork.

Of course, Barthes' and related work did us a service in showing that subjectivity plays an important part in the interpretation of a cultural text. However his ideas also caused an extreme shift away from objectivity; too extreme, we think. Is the reader's mental response really entirely subjective? If not, then we should be able to reveal the objective aspects of artistic expression in well-controlled experiments.

The New Scientist article goes on to cite abstract artist Wassily Kandinsky (1866 – 1944) who said that the emotional effects of abstract art are "objective, determined by the characteristics of the colours and their interactions". And recent experimental work has put Kandinsky's conclusion to the test. Nicu Sebe, from The University of Trento (Italy), identified the shared emotional responses of a large number of people that were looking at certain shape-colour combinations (very much like abstract paintings). A computer program then learned the correlations between emotional response and visual information. When fed with new visual art examples and set the task of predicting what emotional responses these new examples would trigger, the program achieved 80% accuracy. Okay, this was limited to abstract art, and to emotions. But still. 80%. The indications are that not only is some of our mental response objectively determined by simple physical features, but that *most* of our emotional response, at least to abstract paintings, is not in the realm of subjectivity but of objectivity. Kandinsky was proven largely right.

We believe that a misunderstanding of 'subjectivity' is behind the persistence of postmodern critical theory. Unless you believe that a free-floating entity called self - like Descartes' homunculus - is the origin of perception you have to admit that perceptions and their emotional content are a result of the way our ongoing brain activity operates on sensory input. For instance, if you lose your amygdala (a small brain structure near the centre of the line between your ears) you will lose all ability to experience fear, no matter how scary Edward Munch's painting may be. Fear is a situational response, but it has objective physical reasons. Indeed, there is a lot of evidence that the emotional responses to some facial expressions, like smiles, are hard-wired into the human brain (Ekman, 2006). Mental responses of this kind can be universal to all humans, and can be studied objectively, even though they are local to the person's brain. What is *subjective* about the mental response to a piece of visual art is the difference in sensory and emotional processing in the viewers' brain; but that doesn't necessarily or even usually make it subjective in Barthes' sense.

To turn results like Nicu Sebe's into artistic tools will require a different approach by artists. If Intentists want to get heard they may have to stop campaigning outside galleries, stop trying to out-do the philosophers and cultural theorists at their own game (they're fundamentalists; they're not listening), and get behind the science of visual communication as it unfolds and tells us new things about how to be more precise and "intentist". What is of interest for an artist in a world where aesthetic universals are known is the interplay between artwork (colour, form, texture) and brain activity (areas of the brain to do with sensory, emotional and language processing). This emerging science may eventually give us a new way to learn and teach visual art that is less philosophical or historical and more ostensible.

We can also see this new knowledge taking artists out of the intellectual cul-de-sac they have found themselves in of late in terms of what they feel able to

communicate and share. If, as the author of a cultural text, you can, after all, encode an intended signal into the surface of the cultural text, and have that signal decoded pretty faithfully in the mind of the reader, then this subdues much philosophical debate on the matter.

The science is there to back it up; art can be intentionally constructed to invite certain feelings forward, and if we know how to produce those results with greater accuracy, what may emerge is conscious knowledge of how art contributes to our mental capital, our wellbeing; leading to a new mastery of the craft fit for an age of AI and neuroscience. The more sophisticated our knowledge gets in this way, the more sophisticated our approaches to subjects, media, and styles can be, and the less formulaic the origination of visual stimuli can be when we approach our craft with specific intention. After that, if you still think that an author's intentions can never speak through her or his choice of form, colour, texture, composition, and so on, then it's you who will have become the intellectual dinosaur.

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Further reading

'Affective image adjustment with a single word' Xiaohui Wang, Jia Jia, Lianhong Cai, The Visual Computer, October 2012

Darwin and Facial Expression. (2006). Darwin and Facial Expression. Malor Books.

Walter Benjamin, 'The Work of Art in the Age of Mechanical Reproduction' ('Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit'), 1936.

Links

<http://www.newscientist.com/article/mg21628916.000-computers-identify-what-makes-abstract-art-move-us.html> - the article in full.

<https://itunes.apple.com/gb/app/emotion-modifier/id571639316?mt=8>

The Emotion Modifier app by Jian Gong, available on iTunes

<http://www.thepaintingfool.com/> - computer program and aspiring artist.