

Expertise affects aesthetic evolution in the domain of art.

Evidence from artistic fieldwork and psychological experiments

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Abstract

An unmade bed. A cigarette glued to the wall. A replica of a soup can box. Drippings on a canvas. Can an evolutionary approach help us understand the production and appreciation of, sometimes perplexing, modern and contemporary art? This chapter attempts at this by investigating two hypotheses about the evolution of human aesthetics in the domain of art. The first hypothesis, commonly called evolutionary aesthetics, asserts that aesthetic preferences, such as those for particular faces, body shapes and animals, have evolved in our ancestors because they motivated adaptive behavior. Artworks (e.g., those depicting facial beauty) may exploit these ancestral aesthetic preferences. In contrast, the second hypothesis states that aesthetic preferences continuously coevolve with artworks, and that they are subject to learning from, especially prestigious, other individuals. We called this mechanism prestige driven coevolutionary aesthetics. Here I report artistic fieldwork and psychological experiments we conducted. We found that while exploitation of ancestral aesthetic preferences prevails among non-experts, prestige driven coevolutionary aesthetics dominates expert appreciation. I speculate that the latter mechanism can explain modern and contemporary art's deviations from evolutionary aesthetics as well as the existence and persistence of its elusiveness. I also discuss the potential relevance of our findings to major fields studying aesthetics, that is, empirical aesthetics, and sociological and historical approaches to art.

Keywords

evolutionary aesthetics, prestige bias, coevolutionary aesthetics, art appreciation, artistic research, expertise, cultural evolution theory

Introduction

Everyone will recognize the uncomfortable experience of being confronted with some piece of modern or contemporary art you cannot wrap your head around. To me at least it happens once every while. For example, I recently visited an exhibition in a reputed gallery and one of the less minimalistic works was an ordinary filter cigarette glued to the wall. The gallery owner asked me what I thought about the exhibition. For the first time I didn't feel intimidated by the fanciness of a professional art gallery and admitted I was quite puzzled by it. To my surprise, she said she was puzzled too but that she was not supposed to actually say this as a gallery owner. This anecdote illustrates the fact that even art experts are sometimes perplexed by modern and contemporary art.¹ Regardless of the consequences for the meaning and value of artworks, which I'll touch upon in the discussion, I find this fascinating. Why did we at some point decide to start making art that does not seem to make sense to an expert audience, let alone to the general audience?

The issue is also intriguing from an evolutionary standpoint. Evolutionary psychology predicts that aesthetic preferences are shared among all people and evolved in our evolutionary past under natural (and sexual) selection. For example, it has been suggested that faces we find more attractive indicate higher biological fitness. A preference for such faces is adaptive because it enhances our social and sexual partner choices. All else being equal, you would therefore expect that a picture of a beautiful face is appreciated to a greater degree than a portrait of a less attractive face. But, as shown by the studies I will discuss next, it appears that a contemporary art expert is no longer supposed to simply follow the dictates of our ancestral aesthetic preferences.

One possible explanation for experts' and modern and contemporary art's deviation from ancestral preferences may be provided by cultural evolution theory. Cultural evolution theory predicts that when an individual is uncertain about which cultural habits (such as art preferences) it should adopt, it will copy those associated with prestige because prestige may indicate quality. So, maybe, "prestige biased learning", as this mechanism is referred to, has taken over the role of ancestral aesthetic preferences, at least among art connoisseurs. Prestige bias implies that the individual copies preferences without actually knowing why; it simply trusts in the reliability of prestige. Thus, if all art experts (which includes the artists themselves) apply prestige bias, it might explain why modern and contemporary artworks often deviate from ancestral preferences and why elusive art persists.

In this chapter I will first briefly discuss our artistic fieldwork that illustrates this issue. Then I will explain in more detail what evolutionary psychology and cultural evolution theory predict about human art preferences. Next, I summarize empirical findings that support our contention about deviant expert appreciation and the elusiveness of modern and contemporary art. I conclude with a discussion of how all of this relates to empirical aesthetics and to sociological and art-historical approaches of art.

¹ Modern art includes artistic work produced during the period extending roughly from the 1860s to the 1970s, and denotes the style and philosophy of the art produced during that era, while more recent artistic production is often called contemporary art (or postmodern art).

Art observation post

It is conventional practice among primatologists to avoid interfering with the behavior of wild primates while observing them in their natural habitat. The idea behind this custom is simply that primatologists want to measure primates' *natural* (i.e., undisturbed) behavior. However, this is not always easily achieved. For example, I did field work on the social behavior of spider monkeys (*Ateles geoffroyi yucatanensis*) in their natural habitat in Yucatan, Mexico, as a field assistant. As I was with the monkeys, day after day, months on end, they started to recognize me and greeted me in the mornings with their typical whinny vocalization. As a lonely gringo far from home, it was hard to control myself and not greet these cheerful monkeys in return.

Later on I studied a primate species that has been called "*Homo aestheticus*" or "the artful species" (Davies, 2012; Dissanayake, 1995). These names are well-deserved since "art behavior", or producing and appreciating art, is an integral part of its behavioral repertoire (Dissanayake, 1988). For the sake of maintaining a certain distance and avoiding any disturbance to the behaviors under scrutiny, I asked Gert Verpooten to build an observation post. As you can see in Figure 1 its design was not intended to be aesthetically pleasing or recognizably artistic, it was purely functional (easily disassembled and watertight).² I used it for the first time during a biennial art event in Amsterdam organized by the Sandberg Institute. Despite its non-aesthetic camouflage, some visitors approached my post and greeted me. They inquired: "Studying Dutch art monkeys?" Again it was hard to control myself and not greet these primates, this time *Dutch art monkeys*, in return.

Another opportunity for collecting data arose with the first edition of the Canvascollectie, a Belgian national art contest. Participation in this contest enabled me to observe a professional art jury while they were making judgments. Despite the camouflage, the post survived several selection rounds and was one of the 250 works (out of an initial 14,000) that made it into the final exhibition at the BOZAR (the center for fine arts in Brussels) (Fig. 1b). The BOZAR exhibition lasted three weeks and offered another opportunity to collect data on the art behavior of the hordes of visitors. Since I was unable to keep watch for the entire period, I organized a crash course in measuring behavior at an art center (Monty, Antwerp) in order to recruit volunteers. About ten of them took turns in observing art from inside the post. They collected data on the interaction of visitors with the artworks in sight. The post looked out on a room exhibiting a giant teddy bear, a conceptual video-installation, abstract artworks and figurative paintings (Fig. 1c).

I have not statistically analyzed any of these collected data (yet), but two observations already stood out during the BOZAR exhibition. Firstly, we had the impression that, of all the artworks within our view, the teddy bear achieved by far the longest average viewing time. Secondly, the study was informative in another, perhaps unusual way. The fact that our observation post was *itself* selected by the professional jury conferred on it the status of art, despite its purely functional design. As I will discuss in the next section, the popularity of the

² To be clear, whether something is aesthetic or not, depends on the concept of the aesthetic, naturally. Does the concept also comprise the possibility of *conceptual* beauty in addition to the more traditional perceptual beauty? For instance, someone might find an "anti-aesthetic" statement, such as Duchamp's influential artwork "Fountain" (an ordinary urinal) intellectually quite beautiful, in a similar way as someone might find a mathematical proof beautiful.

teddy bear is consistent with evolutionary psychology's predictions about art preferences. In contrast, the fact that an observation post – in its purely functional and non-aesthetic appearance – was selected by the contest's jury can barely be explained by this account. In contrast, I will argue in the following section that cultural evolution theory is well-suited to explain the appreciation of artworks that deviate from ancestral preferences such as our observation post.

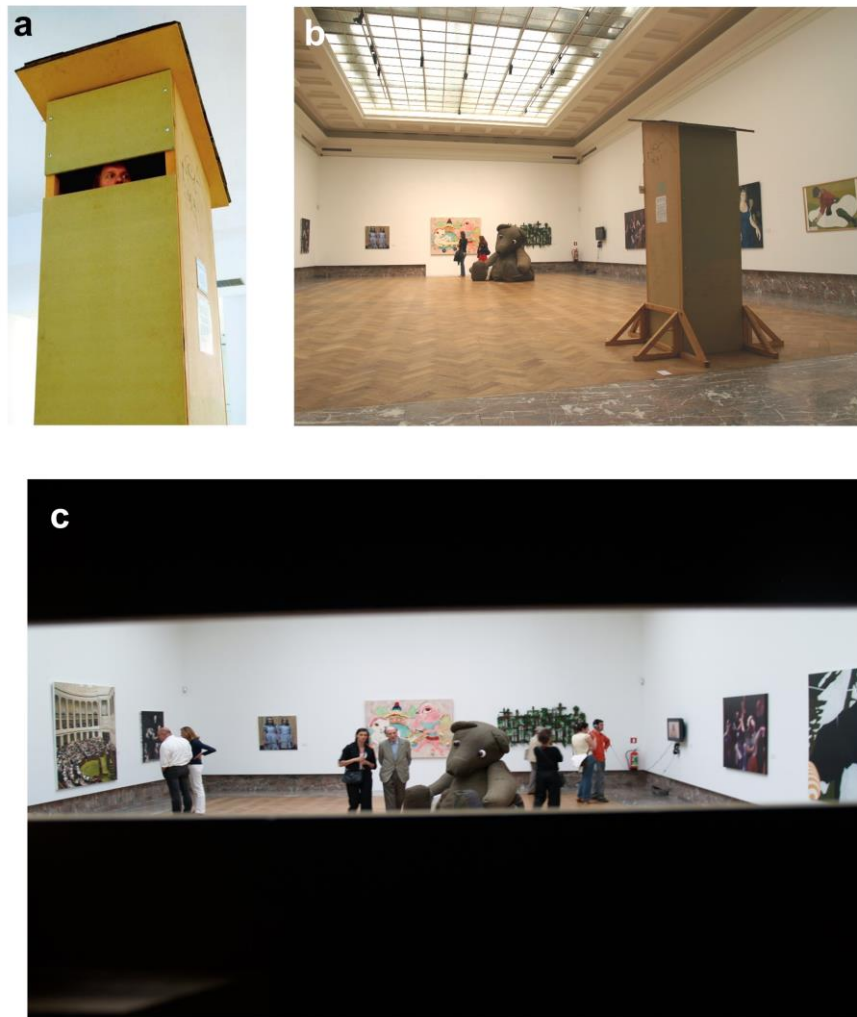


Figure 1. Fieldwork with the art observation post. (a) Front view during a preselection round at M HKA (the contemporary art museum of Antwerp, Belgium), (b) back view and (c) inside view during the final selection of the Canvascollectie, a Belgian national art contest, in the BOZAR (the center for fine arts in Brussels).

Evolutionary psychology

Evolutionary psychology seeks to identify which human psychological traits are evolved adaptations – that is, the functional products of natural selection and/or sexual selection in human evolution. Evolutionary

psychologists have employed this “adaptationist approach to the evolution of the human mind” to explain the evolution of aesthetics as well (Renoult, 2016). Evolutionary psychological theories in which the aesthetic preferences of *Homo sapiens* are argued to have evolved in order to enhance survival and reproductive success are the subject of a research program dubbed “evolutionary aesthetics” (Dutton, 2003; Volland & Grammer, 2003). Hereafter I refer to it as *standard evolutionary aesthetics* to distinguish it from other evolutionary approaches to aesthetics. Standard evolutionary aesthetics hypothesizes that beauty experiences, evoked by particular elements of the human environment, are unconsciously realized avenues to high fitness in human evolutionary history (Thornhill, 2003). In support of this view, research is often cited that suggests that aesthetic preferences for certain landscape, animal, and human features may have been selected to guide, respectively, habitat choice, hunting and predator avoidance and peer and mate choice (Barrett, 2015; Falk & Balling, 2010; Little, Jones, & DeBruine, 2011; New, Cosmides, & Tooby, 2007; Orians & Heerwagen, 1992; Windhager, Atzwanger, Bookstein, & Schaefer, 2011; Yang et al., 2012). While hypotheses about evolved landscape preferences appear somewhat controversial, at least in the form of the savanna hypothesis (a naturally selected preference specifically for savanna-like environments in which *Homo sapiens* is thought to have evolved; Joye & De Block, 2011; Renoult, 2016), the universality of attentional biases and preferences in humans toward particular human and non-human animal figures and features is empirically well-supported and seems theoretically sound (Altman, Khislavsky, Coverdale, & Gilger, 2016; Verpooten & Nelissen, 2010; Windhager et al., 2011; Yang et al., 2012). The claim that these preferences are ancestral and biological rather than cultural in origin is further evidenced by the fact that humans and animal figures appear as dominant themes in prehistoric rock art and sculpture around the globe, some of which have been dated to be around 40,000 years old (Hodgson & Watson, 2015). Moreover, (personalization disabled) Google image searches with the terms “drawing” and “sculpture” illustrate that these very same themes have remained prominent to the present day (see Fig. 2). More systematic, cross-cultural evidence of the present prominence of these themes comes from several large polls, conducted by the conceptual artists Melamid and Komar. They assessed what people want to see in art, as part of the artists’ so called “People’s Choice series, 1994-1997”. Their findings demonstrate – inadvertently, because they were not testing evolutionary hypotheses - that across cultures people’s art preferences tend to converge on the very same aesthetic preferences predicted by evolutionary psychology. In particular, their surveys showed a near-universal preference for pictures of lush landscapes with greenery, blue skies and water, as well as for human and animal figures (Dissanayake, 1998; Dutton, 2009; Pinker, 2002). This was illustrated by the “Most Wanted” paintings the artists made based on their findings per country and which looked surprisingly similar across countries and continents (Dissanayake, 1998).

At present it remains unclear and therefore hotly debated whether art has evolved as a mere byproduct of these ancestral aesthetic preferences or whether it has served any evolutionary functions in itself. However, it is clear that the “proper” functions of ancestral aesthetic experiences and motivational systems are not preserved when they are elicited by artworks (Sperber & Hirschfeld, 2004). After all, we cannot mate with a portrait or seek refuge in a painted landscape. Therefore, it has been argued that the most parsimonious explanation for the evolution of art is that it has evolved as an evolutionary byproduct of these ancestral

aesthetic preferences (Verpooten & Nelissen, 2010). Thus, I will hereafter refer to this hypothesis as the *byproduct hypothesis* (Pinker, 2002).

The relative popularity of the giant teddy bear we observed during our artistic fieldwork is consistent with the suggestion that aesthetic preferences result from natural/sexual selection in the past, in this particular case, an evolved preference for animal figures.³ But what about our observation post itself and its selection by a professional jury? What about a cigarette glued to the wall of a highly reputed gallery? What about an unmade bed ("My bed", Tracey Emin, 1998)? Or a replica of a soup can box ("Campbell's Tomato Juice Box", Andy Warhol, 1964)? Or a urinal ("Fountain", Marcel Duchamp, 1917)? These are just a few examples of an abundance of modern and contemporary artworks which have been produced in the last 100 years or so that seem to defy the rules of standard evolutionary aesthetics. Does this mean that modern and contemporary art fall outside the scope of the study of the evolution of human behavior? Some evolutionists seem to think so. Pinker (2002), for example, considers modern art a "denial of human nature" because it does not appear to appeal to our ancestral aesthetic preferences. However, modern art is only a denial of human nature if human nature is considered to be restricted to ancestral psychological adaptations, as standard evolutionary psychology asserts. Yet, another, less well-known (possibly because more complex) but upcoming evolutionary approach to human behavior has a somewhat different and perhaps less narrow view on human nature. It takes into account both past and current selective forces and acknowledges the role of culture in shaping human evolution; it considers culture as an integral part of human biology. This approach is called cultural evolution theory. In the next section I will explore whether cultural evolution theory can provide an evolutionary framework for understanding how and why modern and contemporary art often deviate from ancestral aesthetic preferences, or standard evolutionary aesthetics.

³ This is not to say that other aspects might have played a role in the popularity of the bear as well, such as its monumentality

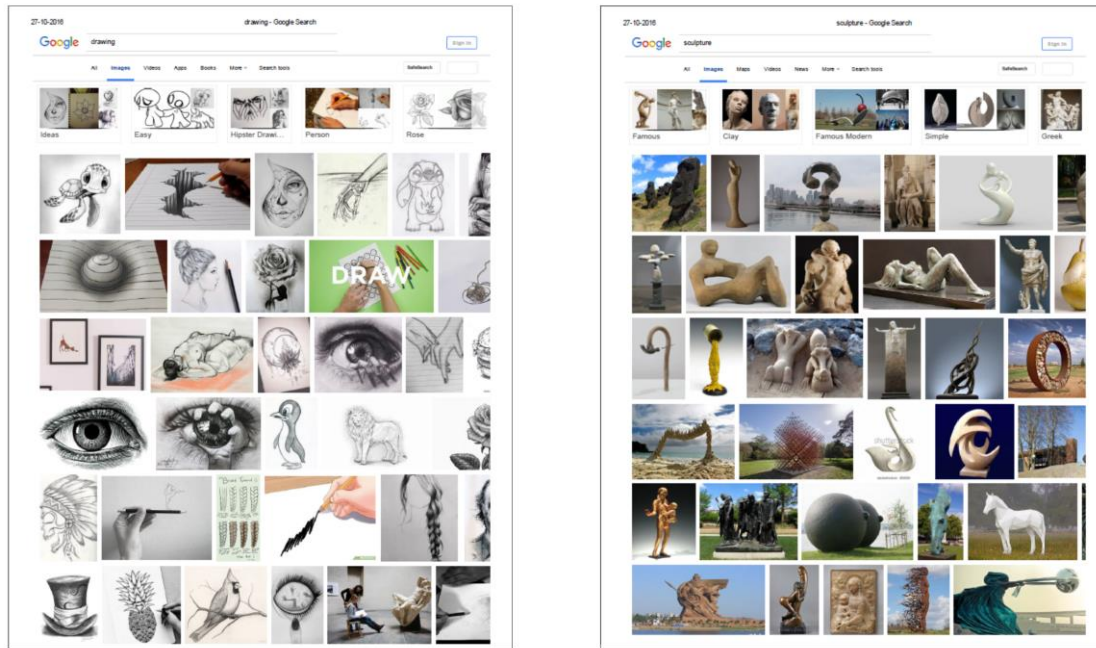


Figure 2. Google image searches with terms “drawing” (left) and “sculpture” (right) demonstrate that even today (October 27, 2016) human and animal figures feature as the most popular artistic themes.

Cultural evolution

Cultural evolution theory (aka dual inheritance or gene culture coevolution)⁴ is a growing body of theoretical and empirical work that seeks to explain the evolution of human behavior. In that sense, it is not unlike evolutionary psychology, and indeed, they are largely overlapping research areas (Lewens, 2015). However, unlike evolutionary psychology, its focus lies on how individuals acquire “cultural information” (mostly adaptive behaviors, skills, preferences, etc.) by social learning, that is, learning from conspecifics. While evolutionary psychology typically leaves culture out of the “evolutionary equation”, cultural evolution theory posits that the non-genetic transmission of information significantly impacts human evolution and behavior. Therefore it is argued that culture should be considered conjointly with genetic influences. Thus, cultural evolution theory considers the human behavioral phenotype as the outcome of both genetically and culturally inherited information. A classic case in point demonstrating that culture and genes interact during human evolution is the selection for alleles enabling the adult capacity to digest milk (lactose tolerance). Adult lactose tolerance has been selected several times and independently in human evolution in response to independent instances of the cultural innovation of dairy farming, while non-dairy farming peoples across the world have remained lactose intolerant. This particular process has been called culture driven gene culture coevolution, and provides

⁴ Next to the dual inheritance or “Californian” school, there is a “Paris” school of cultural evolutionists (i.e., cultural attraction theory) (Sterelny, 2016). While the focus of the Paris school also lies on explaining the evolution of human behavior and culture, their ideas are closer to standard evolutionary psychology than the Californian school. Here I focus on the Californian school.

convincing evidence of the impact of cultural transmission on human evolution (Richerson, Boyd, & Henrich, 2010).

Even though, generally speaking, genetic and culturally inherited information are thought to interact during human evolution, it should be acknowledged that their relative roles in shaping human behavior depends on the behavioral domain. And this is not specific to humans. Song from songbirds, parrots and hummingbirds, for instance, is by definition socially learned (without exposure to conspecific song the song does not come to full expression), while calls (such as alarm calls) are typically innate (Fitch, 2006). Thus, just as bird calls, human aesthetic preferences for particular human, animal and landscape features are not socially learned, but likely innate or at least “prepared” (Ohman & Mineka, 2001), as discussed in the previous section. However, this does not seem to hold for modern and contemporary art. A lot of the artworks you find in today’s reputed galleries are as difficult to grasp as to aesthetically appreciate. Its appreciation requires extensive training and learning; the art world has become a specialized domain of knowledge and skills even with respect to “mere” appreciation of art. Because standard evolutionary psychology pays comparatively little attention to behavior shaped by learning from others, it has a hard time reconciling modern and contemporary art (and its appreciation) with evolution.

Cultural evolution theory, on the other hand, focuses its empirical and theoretical efforts on understanding how learning from others shapes the human behavioral phenotype. Thus, since modern and contemporary art require extensive learning, cultural evolution theory seems, in principle, much better placed than evolutionary psychology to elucidate modern and contemporary art. Cultural evolutionists considers many different kinds of social learning strategies, but one of the most sought after - and also possibly the most effective one - is the strategy to preferentially copying the cultural repertoire of influential or prestigious individuals (Boyd & Richerson, 1985; Henrich & Gil-White, 2001; Henrich & McElreath, 2003). Imagine a hunter gatherer individual arriving in a new environment, with no knowledge about how to extract food from this local environment. He does not know which local plants are edible, nor how to track down and hunt animals. Probably the most efficient strategy to quickly acquire adaptive survival skills and knowledge is copying the cultural repertoire of the most successful and admired (prestigious) individuals of the people living in that environment. Thus, the logic behind this strategy is that prestige functions as an indicator of locally “better-than-average” information. Empirical evidence shows that, for instance, individuals in hunter gatherer societies indeed preferentially learn from prestigious hunters (Henrich & Broesch, 2011). Quite relevant with respect to the current issue, cultural evolution pioneers Boyd & Richerson (1985) advanced the hypothesis that this “prestige biased learning” strategy gave rise to the evolution of aesthetics. Thus they offered an alternative explanation for aesthetics to the standard evolutionary aesthetics from evolutionary psychology. Their scenario goes as follows. The degree of prestige of a “cultural model” (an individual from whom may be learned) works as an indirect indicator of the quality of cultural information this cultural model has (say hunting or farming skills) to potential social learners. Thus, according to Boyd & Richerson (1985) prestige is analogous to a characteristic of a sexual ornament, such as the length of the peacock tail, which functions as an indirect indicator of the genetic quality of its bearer to the opposite sex (the peahen). However, the indicator trait (i.e., the degree of prestige or the

ornament's signaling characteristics, respectively) can cease to reliably indicate "better-than-average" information and hence becomes arbitrary, due to a process that has been called Fisher's runaway process. In this process preference for the indicator trait remains intact even though the indicator trait does not indicate any quality anymore. It is this latter process that Boyd and Richerson (1985, p. 278) envisioned as driving the cultural evolution of aesthetics: "Much as peacock tails and bowerbird houses are thought to result from runaway sexual selection, the indirect [i.e., prestige] bias runaway process will generate traits with an exaggerated, interrelated, aesthetically pleasing but afunctional form".

A similar proposal - albeit not framed within cultural evolution theory - has recently been made by Prum (2013). This evolutionary biologist also supports the view that Fisher's runaway process can explain the evolution of aesthetics. Specifically Prum (2013) elaborates on the similarities between runaway sexual selection and Danto's concept of the artworld. Danto (1964) proposed the concept of "artworld", which denotes the social and cultural context within which theories of art⁵ evolve (i.e., change), specifically to address the fact that some modern artworks deviated from what was at the time considered aesthetic (which roughly corresponds to the above-mentioned ancestral aesthetic preferences predicted by evolutionary psychology). Prum (2013) recast Danto's concept of the artworld into the Fisher's process, which he dubbed "coevolutionary aesthetics". The resulting framework holds that, within artworlds, artworks coevolve with their evaluations. This means that as evaluations change within a population, artworks change accordingly and vice versa. The coevolutionary framework implies that artists do not create art in a vacuum, inspired by the muses and separated from their audience, but that the audience has a decisive influence on how art changes over time. This makes perfect sense. It has been reported that influential art critics, dealers or museum directors can have strong selective influences on the directions in which art changes (Thompson, 2008; Wolfe, 1975). In fact they might well have stronger impact than most artists themselves. Yet, artists are naturally also part of the audience and as such they significantly influence both their own artistic production and the productions of other artists. As a result, anyone with some influence over others in an artworld, be it an artist or not, may have an impact on artistic change. Modern and contemporary art have evolved in the "international artworld"⁶, which is a highly competitive, winner-take-all, environment. For instance, income and influence inequality is exceedingly large in the international artworld. This causes large differences in esteem and prestige. In such a situation, prestige may have a large impact on artistic preferences, beliefs and opinions of its members, which in turn drive artistic evolution.

Based on Boyd and Richerson's (1985) and Prum's (2013) accounts of coevolutionary aesthetics, we can speculate whether prestige biased learning might be used by insiders of the modern and contemporary art

⁵ A theory of art is a cognitive structure or capacity that critically affects the outcome of the evaluation of art (Danto, 1964; Prum, 2013).

⁶ Also sometimes referred to as the "global art world", the international artworld is an intricate international network of artists, dealers, auction houses, collectors and institutions, predominantly engaged in modern and contemporary art (e.g., Hart, 1995).

world to gain access to highly specialized information about art. And if this happens, whether it could account for contemporary and modern art's elusiveness and its divergence from standard evolutionary aesthetics. While the general audience basically seems to ignore that art has become a specialized domain and seems to go on judging modern and contemporary artworks based on ancestral aesthetic preferences - and is therefore often shocked, disturbed, or bothered by it because it does not match their aesthetic expectations -, insiders want to learn and gain insight in an attempt to wrap their heads around its peculiarities. However, modern and contemporary art are exceedingly difficult to grasp. Understanding and appreciating modern and contemporary artworks may be quite challenging because, due to the premium on originality and innovation, artists are incentivized to produce artworks that each time differ from existing ones. Rarely more of the same is produced. To keep track of relevant artistic developments, it makes perfect sense to use shortcuts to quality for anyone whose career depends on it. Prestige bias could be such a shortcut. As a consequence, an art insider or expert (i.e., professional artists, curators, dealers, critics, museum directors, etc.) would estimate that, all else being equal, an artwork has a higher chance to be of high quality if it is part of a highly prestigious collection, such as the New York Museum of Modern Art (MoMA) collection. The artwork would be definitely relevant for the international artworld *simply* because it is part of a highly reputed collection. The influence of MoMA's reputation on experts' appreciation of artworks is exactly what we investigated in a series of works presented in the next section. But before turning to these studies, I should address one other issue. The reader may have concerns about some circularity in my contention above. I predicted that experts, some of them carrying prestige in the international artworld, will themselves use prestige to evaluate artworks. This circularity might seem problematic at first glance. Why someone so skillful or knowledgeable that she carries high prestige in the global art community would use prestige bias herself? You would assume that she does not need a shortcut to the hidden quality that prestige offers, because she already knows what is out there. Yet the reasoning would be illogical *only if* there is an objective artistic quality that prestige reliably indicates. However, if modern and contemporary art largely evolve according to the Fisher process, as Prum (2013) and Boyd and Richerson (1985) both contend, rather than the quality indicator mechanism, then there is no real hidden quality to find, except the prestige itself. In other words, preferences of art experts might be caught up in a self-reinforcing feedback loop as described by the runaway process. Eventually, any evidence that even (top)experts use prestige bias would support dynamics of artworld evolution typical of a runaway version of prestige biased learning rather than a quality indicator version of prestige biased learning.

Based on this brief presentation of what evolutionary psychology and cultural evolution theory have brought to the study of aesthetics and the arts, we make several predictions about the evolution of art. First, we predict that the general audience, that is non-experts or laypeople, will conform to the byproduct hypothesis of art appreciation. This means that they will appreciate artworks to the degree that the content of these artworks appeals to human ancestral aesthetic preferences. Furthermore, we predict that the appreciation of artworks by experts, whose careers may depend on understanding specialized art, will be positively influenced by the association of artistic prestige with those artworks. Moreover, their appreciation might not depend on the presence of content appealing to ancestral aesthetic preferences.

Experiments

To date, we have conducted three studies to test our predictions about art appreciation. The first two have been published recently (Verpooten & Dewitte, 2017). The third study has not been published yet, but we have done preliminary analyses. In all three studies we measured the participants' expertise to distinguish between experts and non-experts in study 1 and 2, and to zoom further in on experts with different degrees of expertise in study 3. At the end of each experiment we gave to participants a subjective expertise survey that included questions such as "How often do you go to an exhibition?" (slightly modified from Leder, Gerger, Dressler, & Schabmann, 2012). We also let them take part in a short art quiz as an objective measurement of expertise. Participants were then presented with pictures of artworks and were asked to express their appreciation of artworks on a Likert scale. The scale pairs numerical values (ranging from 1 to 7 or 1 to 5) with subjective evaluations of liking (ranging from "not at all" to "very much").

In each study we manipulated two variables among both experts and non-experts: the "biological relevance" of the content of artworks and the artistic prestige of their associated context. Biological relevance refers to the extent to which the content fitted to naturally and/or sexually preferences as predicted by evolutionary aesthetics. We predicted that biological relevance would have a positive effect on non-expert appreciation. Biological relevance was always manipulated *within* subjects. As a result, each participant evaluated pictures that varied in biological relevance. In contrast, we manipulated artistic prestige *between* subjects in order to conceal this manipulation from them. To do so, participants were randomly assigned to two groups: one group was told that the works of art they were going to evaluate were part of the MoMA collection and that the MoMA is one of the most prestigious museums of modern art in the world. The other group received no information relative to the context. They were simply told that they would get to see and evaluate artworks. We predicted that experts' appreciation of a given picture would increase if they were told that it was an artwork from the prestigious MoMA collection. We did not expect any effect from content (biological relevance) on expert appreciation.



Figure 3. Some examples of portraits that we used as stimuli in study 1 & 2, depicting faces previously rated as being neutral (left) and attractive (right) (Schacht et al. 2008).

Facial beauty in (purportedly artistic) pictures

In study 1 and 2 the stimuli we used were not actual artworks, but rather pictures of faces that were previously produced for the purposes of research into face perception (Schacht, Werheid, & Sommer, 2008). We presented participants with neutral and attractive faces (based on previous ratings: Schacht et al., 2008; see fig. 3), thereby manipulating biological relevance given that facial beauty correlates with fitness and is therefore biologically relevant in a peer and a mate choice context (Little et al., 2011). As predicted, and in line with Komar and Melamid's findings, non-experts appreciated the (purportedly artistic) pictures featuring attractive faces more so than those in which the faces were only moderately attractive. Pinker (1997) put forward that art evolved as a byproduct by "pushing", so to speak, naturally selected "pleasure buttons". In order to test this hypothesis about the underlying motivational system of non-expert appreciation we also surveyed participants' aesthetic pleasure while evaluating the artworks, by asking the participants to express how aesthetically pleasing they found the artworks we presented to them (again on a Likert scale, which pairs numerical values of 1 to 7 or 1 to 5 with statements ranging from "not at all" at the lowest possible value to "very much" at the highest). Consistent with Pinker's pleasure button hypothesis we found that aesthetic pleasure mediates⁷ the positive effect of biological relevance on non-expert appreciation. This was not the case for the experts. Furthermore, experts appreciated the portraits with neutral faces even more than those with attractive faces, irrespective of the MoMA manipulation. Hence, as predicted, they clearly diverged from standard evolutionary aesthetics and from preferences of non-experts.

The predicted prestige effect was observed, as expected, in both studies 1 and 2. The prestigious MoMA context had no effect on non-expert appreciation. In contrast, experts who were grouped in the MoMA

⁷ We showed this using mediation analyses. A mediation is a hypothesized causal chain in which one variable affects a second variable that, in turn, affects a third variable. The intervening variable, M, is the mediator. It "mediates" the relationship. In psychology mediation is commonly used to investigate hypothesized "underlying" mechanisms.

condition – and who were therefore tricked into believing that the portraits belonged to the MoMA collection— appreciated the portraits (both the neutral and attractive one’s) more than did experts who were not included in the MoMA condition. We also measured admiration for the artist, as prestige biased social learning is associated with social emotions such as admiration, devotion and respect (Henrich & Gil-White, 2001). We asked the participants to express how admirable they found the hypothesized artist who made the purported artworks we presented to them (again on a Likert scale). Our analyses supported our expectation that admiration mediated the effect of prestige on expert appreciation. Consequently, the results of these two studies satisfied quite well our predictions. The main findings are displayed in figure 4.

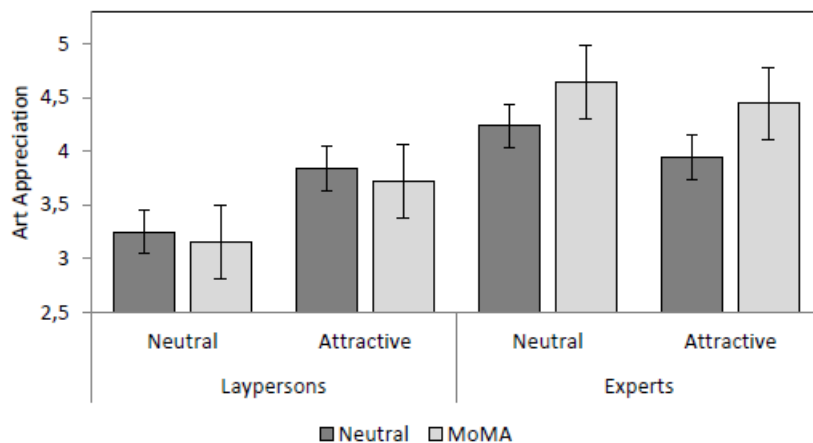


Figure 4. A histogram showing the effects of depicted facial beauty (neutral vs. attractive) and of prestige (neutral vs. MoMA) on non-expert and expert appreciation in study 2. Non-experts appreciated ostensible artworks exhibiting attractive faces more so than did experts, who preferred neutral faces to attractive faces. Contrary to non-experts, experts were positively affected by prestige. The error bars show the standard error of the mean (from Verpooten & Dewitte, 2017).

(In)animate objects in MoMA-artworks

The third study is again a collaboration with Siegfried Dewitte. We managed to recruit more than a thousand highly experienced participants, mainly via a large European museum. Our second study indicated that people recruited through this European museum scored on average about twice as high on our expertise scales than the general population. We could therefore assume that the majority of them were art experts. Thus this large sample allowed us to investigate expert appreciation in more detail. In this third study, we manipulated biological relevance in a different way. This time we used real artworks from the MoMA collection as stimuli and selected visual artworks that either clearly pictured animals, such as a pig, or artworks that clearly depicted inanimate objects, such as a chair (see Fig. 5). Since research showed that people exhibit evolved attention and preference for animate entities because they are biologically relevant (Altman et al., 2016; New et al., 2007; Yang et al., 2012), we were confident of being able to manipulate biological relevance in this way. The analyses I here present are preliminary, however I include them because they indicate some clear patterns that are relevant to the issues discussed in this chapter.

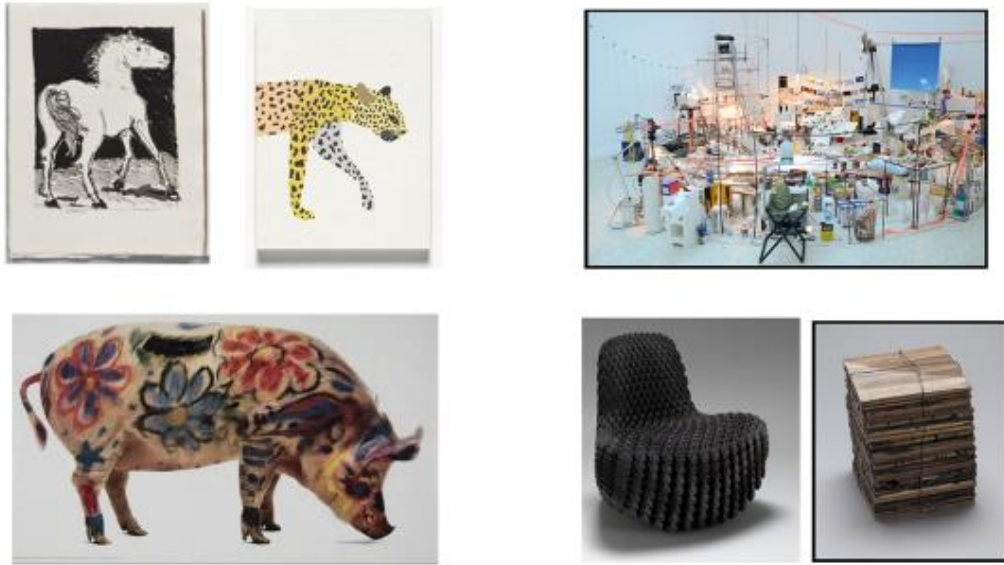


Figure 5. Some examples of artworks that we used as stimuli in study 3. Artworks depicting animals (left) and inanimate objects (right). Retrieved from <http://www.moma.org>

We found a strong main effect of the variable animacy on appreciation such that, overall, participants appreciate the artworks depicting animals to a higher degree than artworks depicting inanimate objects. However, this effect of animacy is moderated by expertise: the more experienced the participants are, the less they are positively influenced by the presence of animals in the artworks. Figure 6 displays these findings. As figure 6 suggests, there might even be an inverse effect of animacy on appreciation of the most experienced experts, such that these “top experts” might even prefer artworks depicting non-animate objects. Further analysis will allow us to determine whether this is the case or not. At any rate, the present analyses indicate that biological relevance does not increase top expert appreciation.

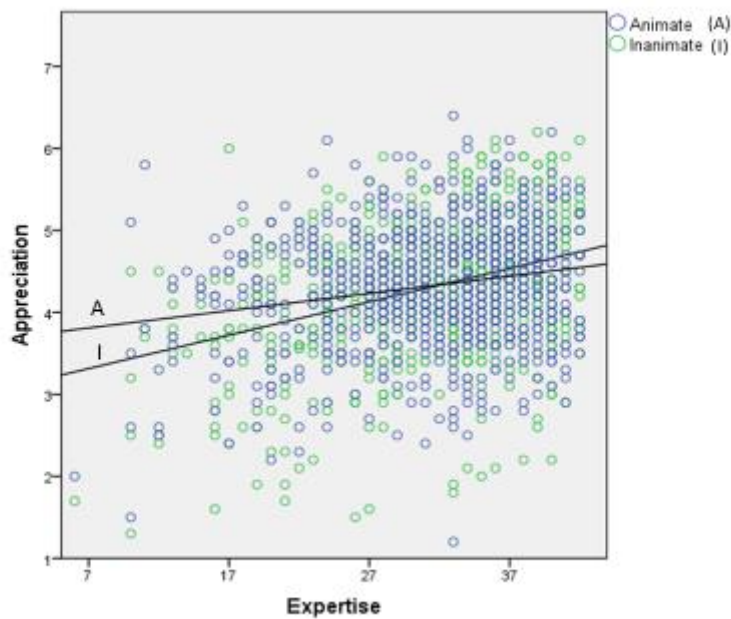


Figure 6. A scatter plot with fit lines showing the effect of animacy in relation to expertise on the appreciation of artworks in study 3. The fit lines show that as expertise of spectators increases, appreciation of artworks depicting inanimate objects (e.g., a chair) increases relatively to appreciation of artworks depicting animate objects (e.g., a lion) (Verpooten & Dewitte, unpublished data).

As for prestige, we found that situating the artworks in the context of the MoMA produced a positive effect on the appreciation of experts, as in Study 2. This effect is not moderated in any way by expertise, which indicates that even top experts are positively influenced by the prestige manipulation. As mentioned, this is consistent with the runaway version of prestige, which Boyd and Richerson (1985) linked to the evolution of aesthetics, rather than with the quality indicator version of prestige. Furthermore, our preliminary analyses indicate that prestige moderates the effect of animacy on appreciation, such that it decreases the differences between appreciation of animate and inanimate, possibly by increasing the appreciation of artworks depicting inanimate objects. Moreover, we found a significant three-way interaction between prestige, animacy and expertise that points in the same direction. We have not yet delved into this statistics either, but figure 7 already shows that this three-way interaction may be caused by the fact that the overall positive effect of prestige is strongest on the least experienced experts' appreciation of inanimate objects. We did not find any interactions between prestige and biological relevance in the previous studies, yet finding them in study 3 does seem to make sense: inanimate objects are least biologically relevant and require strongest efforts in terms of using prestige biased learning to be appreciated, especially among the least experienced who tend to appreciate the artworks depicting the animate objects more. Hence, these interactions may provide additional support for our prediction that experts actively use prestige bias to increase their appreciation of artworks that deviate from standard evolutionary aesthetics.

Apart from the interactions between biological relevance and prestige (and expertise), the reader may have noticed another potential difference between studies 1 and 2 when compared with study 3 with respect to the

variable biological relevance. In study 3, less experienced experts' appreciation remains subject to biological relevance, whereas in studies 1 and 2 this was not the case. Several explanations are possible. For instance, it may be that the distinction between inanimate and animate objects in study 3 is a stronger manipulation of biological relevance than the distinction between neutral and attractive faces in studies 1 and 2. As a result, despite the use of prestige (to deviate from Evolutionary Aesthetics), biological relevance continues to have a positive effect on the appreciation of the least experienced or "regular" experts. Further analysis of the data set in study 3 should allow us to objectify this observation.

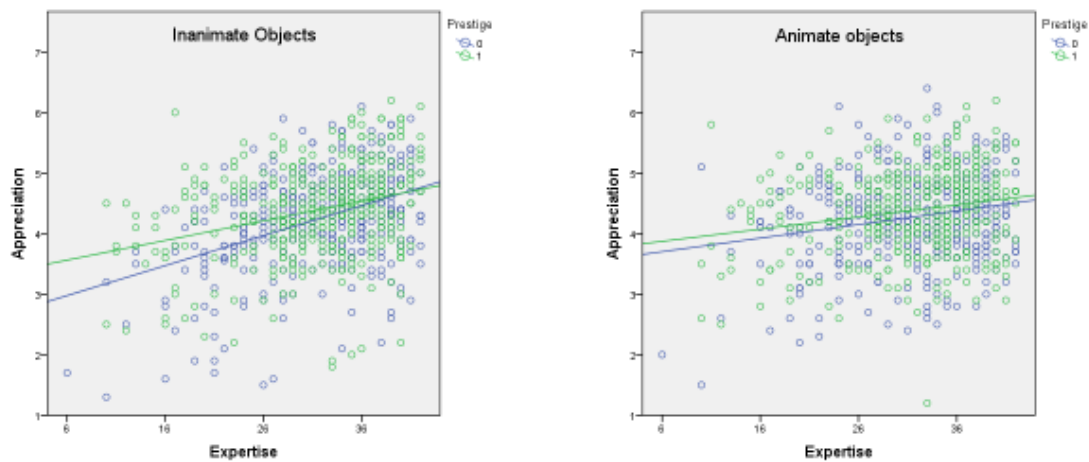


Figure 7. Two scatter plots with fit lines showing the effect of prestige (MoMA) on appreciation in relation to expertise for artworks depicting inanimate (left) and animate objects (right). The plots' fit lines illustrate three findings of study 3 with respect to prestige. Taken together, they firstly demonstrate the overall positive effect of prestige on appreciation, secondly they show how prestige decreases the difference between the appreciation of inanimate and animate objects and thirdly they illustrate that prestige has a particularly large effect on the appreciation of inanimate objects among the least experienced experts (Verpooten & Dewitte, unpublished data).

Discussion

I began this chapter with our art observation post and described how we used it to do fieldwork. In hindsight, we combined two types of field research from the standpoint of anthropology and the social and behavioral sciences. On the one hand, we collected quantitative data about human art behavior in its natural setting, such as a national art contest. This outsider and top-down method is referred to as the *etic* approach in these research fields. On the other hand, in a way, I simultaneously participated as an artist and was regarded as such by members of the contemporary art world. This enabled me to do what anthropologists call "participant observation" of art experts of all kinds (artists, gallery owners, curators, art critics, etc.). This insider and bottom-up method corresponds to the *emic* approach in which fieldwork privileges viewpoints obtained from

within the social group under analysis, that is, from the perspective of the subject (Headland, Pike, & Harris, 1990). Next to informative first hand experiences as an artist, participating in art events created the opportunity to talk to members of the contemporary artworld about their experiences and thoughts about how the contemporary international artworld operates. Based on discussions, experiences and observations, I speculated that appreciation deviated from non-expert appreciation and I also suspected that prestige played a role in this deviation.

To test these hypotheses, we went back to using the *etic* method and conducted studies in experimental psychology probing art appreciation. With respect to non-experts or general audiences, the studies corroborated earlier cross-cultural findings about art appreciation (Dutton, 2009): studies 1 and 2 suggested that non-experts appreciate art based on naturally and/or sexually selected aesthetic preferences for facial beauty, which is in accordance with standard evolutionary aesthetics. In contrast, we found that facial beauty and appreciation were negatively correlated among experts. In study 3 we found that animacy is positively correlated with appreciation among experts, however expertise moderates the effect of animacy on appreciation such that among top experts animacy becomes uncorrelated (or perhaps even negatively correlated) with appreciation. Furthermore, experts, including top experts, increase their appreciation of artworks if they are told that the artworks they are rating belong to the prestigious MoMA, while non-experts are not influenced by the prestige of the context of the artworks. Thus, our findings on expert appreciation lend support to our contention that experts have learned to deviate their appreciation from evolutionary aesthetics by engaging in, most likely among other things, prestige biased social learning. The contemporary artworld consists of communities of art experts who exert influence on the direction in which art changes by selectively preferring art (art critics, artists), literally selecting art (curators, dealers, collectors, etc.) or by selectively producing it (artists). In other words, artworks coevolve with their evaluations, and especially with evaluations by prestigious entities such as well-respected experts or institutions such as the MoMA. This is what we have called prestige driven coevolutionary aesthetics (Verpooten & Dewitte, 2017). This implies that expert appreciation could, in principle, explain why modern and contemporary art deviates from naturally selected aesthetic preferences and hence evolutionary aesthetics. But how precisely does prestige biased learning achieve this effect?

A first possible explanation is that the divergence from standard evolutionary aesthetics is driven by the need of experts to distinguish themselves from non-experts (cf. Bourdieu, 1979). For instance, if art expert preferences were to coincide entirely with non-expert preferences, this might undermine their relevance and thus their career. A second possibility is that experts want to resist the easy reward of pleasure based on standard evolutionary aesthetics and instead prefer art based on an indicator of quality, that is, prestige. This mechanism might be comparable, on a generic level, to the resistance of exploitation of sensory biases in sexual selection, which also has been shown to lead subsequently to the quality indicator mechanism to take over (Garcia & Lemus, 2012; Garcia & Ramirez, 2005). A third possibility is that art experts seek an intellectual challenge and therefore prefer art that is hard to grasp (this mechanism may account for the divergence from biological relevance among experts, but is hard to reconcile with the use of prestige) (Van de Cruys &

Wagemans, 2011). A fourth possibility is that deviations from standard evolutionary aesthetics among experts result from random outcomes of the runaway version of prestige bias. For example, if a highly reputed institution, say the MoMA, within an artworld promotes art that, for some arbitrary reason, slightly deviates from standard evolutionary aesthetics, members of this artworld are predicted to adapt their art preferences according to MoMA's promotions in order to stay up to date. If, as a result, deviations from previous aesthetic standards become generally preferred, that is, they become the norm, this can lead to new preferences for even further deviations from these initial slight deviations from standard evolutionary aesthetics. Without going into technical details, the essence of the runaway process is thus that initial slight deviations can become really exaggerated in a self-reinforcing feedback loop of runaway prestige biased learning (cf. Boyd & Richerson, 1985). As explained above, our preliminary finding that even the most experienced experts resort to prestige bias supports this final possibility. However, it is conceivable, perhaps even likely, that some of these possible mechanisms operate sequentially or even in tandem. Further experiments could be conducted to determine which of these particular mechanisms are accountable – and to which extent - for the patterns with respect to biological relevance and prestige we found.

In summary, we found that non-expert appreciation is consistent with standard evolutionary aesthetics, while expert appreciation corresponds to prestige driven coevolutionary aesthetics. The latter mechanism can explain deviations from standard evolutionary aesthetics as well as the existence and persistence of elusive modern and contemporary art. The fact that our art observation post also deviates from standard evolutionary aesthetics, but was nevertheless selected by a professional art jury, is consistent with our contention that coevolutionary aesthetics prevails among art experts.

Relation to Empirical Aesthetics and social/historical accounts of art appreciation

Our findings may have relevance beyond aesthetic evolution in relation to art. In a recent paper Bullo and Reber (2013) discuss the lingering divide between psychological and socio-historical approaches to art appreciation which hampers scientific progress. The psychological approach focuses on mental (empirical aesthetics) and neural processes (neuroaesthetics) involved in the appreciation of artworks (Leder, Belke, Oeberst, & Augustin, 2004; Leder & Nadal, 2014). Much like evolutionary psychological accounts of art (Boyd, 2009; Dutton, 2009; Pinker, 2002), this approach holds that the appreciation of artworks depends on universal human psychological characteristics. However, the historical approach to art contests psychological methods and views. Its defenders (scholars from aesthetic contextualism, sociology of art, art history and art criticism) contend that the sensitivity of art appreciators to the contexts of an artwork determines their evaluation of that work. These contexts include individuals associated with the artwork such as the producing artist, curators and dealers (Bloom, 2010), the social context (Bourdieu, 1979), and the art-historical context (Gombrich, 1951) or artworld (Danto, 1964). Even though the divide between the psychological and historical approaches to art has traditionally been wide (cf. the infamous “Two Cultures” in academia), there is a growing consensus that in order to advance our understanding this divide will need to be bridged (Bullo & Reber, 2013).

In order to bridge the divide, psychological researchers should and are starting to acknowledge that appreciation of an artwork does not only depend on the experience of its formal characteristics (which is an idea from modernism which is now considered outdated by contemporary art experts), but also, crucially, on sociohistorical and art-historical context aspects. Art experts (art theorists, historians, and philosophers of art), on their part, should acknowledge that art appreciation is not entirely idiosyncratic, as they often assume, but that universal psychological rules exist that do influence art appreciation.⁸ Our findings might contribute to the (partial) integration of psychological and socio-historical approaches. Firstly, our data show that the universal psychological characteristics that are examined by standard evolutionary aesthetics have above all an effect on the art appreciation of *non-experts*. Yet, we find that expert appreciation diverges from this and may even run against standard evolutionary aesthetics. Secondly, traditionally, empirical aesthetics considers the exposure afforded by “daily life” to be a major determinant of non-expert appreciation (Cupchik & László, 1992). Yet, our data suggest that this is not the case. We find support for the standard evolutionary aesthetics prediction that ancestral, naturally and/or sexually selected aesthetic preferences play a much greater role in art appreciation than daily life does. For example, in study 3 we find that even regular experts appreciate artworks picturing animals we commonly do not encounter in our daily lives, such as a leopard, more so than artworks depicting objects that are highly relevant in our daily lives such as a building or a chair. Next, I will hone in on artistic understanding, which contextual aestheticians and art historians consider an essential part of art appreciation.

Artistic understanding

Bullot and Reber (2013) argue that artistic understanding of an artwork based on knowledge of its art-historical context is a requirement for its appreciation. Our theoretical and empirical work does not necessarily contradict this, but it does suggest some major caveats. Firstly, it seems that being familiar with the art-historical context is only important for appreciating art that *requires* you to know its context in order to appreciate it. This may be the case for hard to grasp modern and contemporary art. This kind of art is often hard to understand and appreciate without any context information. Take the prototypical example of Duchamp’s Fountain again. To someone who does not know the artist’s intentions and the social and art-historical relevance of that influential artwork, it is merely an ordinary urinal. Without understanding, there cannot be a proper appreciation of that work. But context information is, logically, much less important to appreciate art that appeals directly to standard evolutionary aesthetics, that is art that depicts, for instance, attractive human or non-human animals, as the majority of popular art, ethnic and prehistoric art does. The things that need to be understood in order to appreciate these latter kinds of art are usually more limited. For example, even though we do not know what the potential cultural significance or symbolism of a prehistoric figurine such as the famous Venus of Willendorf (c.25,000 BCE) was, we can appreciate it as art nonetheless, thanks to its direct appeal to standard evolutionary aesthetics (Dutton, 2009). Thus it seems that only modern and contemporary art, which has coevolved with expert evaluations, requires artistic understanding to be

⁸ The fact that appreciation varies substantially between individuals does not preclude underlying human universals. Evolutionary researchers stress that human universal psychological characteristics are most often plastic, which means that they can change adaptively in response to particular environments.

appreciated. However, the runaway hypothesis about expert appreciation may imply a further caveat concerning artistic understanding. If experts trustingly use prestige to base their appreciation on and if prestige is in fact arbitrary, that is, not referring to any objective quality, as indicated by our finding that even top experts use prestige, then artistic understanding may be illusory. As the gallery owner I mentioned in the intro to this chapter admitted, experts sometimes do not grasp contemporary art, even when they have access to all of the context information. In such a case, appreciation is not based on artistic understanding, but it might be based on an illusion of understanding, which may in turn be based on the runaway version of prestige. It thus remains an empirical question to what extent artistic understanding is real or an illusion of understanding maintained by runaway prestige bias. An interesting development in this respect is that some art experts now seem to prefer art that they do not understand. As artist Pae White quite literally puts it: “My favorite art is the art I don’t understand” (Grosenick & Riemschneider, 2005, p. 330). Thus, elusiveness seems to have become an artistic quality in itself. This makes perfect sense if you consider that elusiveness indicate some hard to grasp but valuable meaning, as predicted by quality indicator prestige. However, elusiveness is equally consistent with the possibility that the artwork is baked air, as predicted by runaway prestige. Again, the degree to which modern and contemporary art corresponds to the former or latter possibility is an empirical question, albeit one is probably hard to answer.

Conclusion

In this chapter I reported research we have conducted in the domain of art. I began with a description of the art observation post that was used to collect data on art behavior in the field. We found that the post itself was considered to be art by art experts even though it did not seem compatible with standard evolutionary aesthetics, a subfield of evolutionary psychology. I then argued that cultural evolution theory, and in particular prestige biased social learning, might be better suited to explain the fact that experts regarded the observation post as an artwork as well as the fact that they appreciate modern and contemporary art that does not correspond to standard evolutionary aesthetics. I summarized and discussed psychological studies that we conducted and that, overall, lent support to the hypothesized role that prestige bias plays in the appreciation of modern and contemporary art, its divergence from standard evolutionary aesthetics and its elusive manifestations. I suggested a number of specific mechanisms that may be associated with this divergence. Their relative roles should be further scrutinized theoretically and empirically. I concluded with a discussion of our findings in relation to empirical aesthetics and to social and historical approaches to art.

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Captions of figures

Fig. 1. Fieldwork with the art observation post. (a) Front view during a preselection round at M HKA (the contemporary art museum of Antwerp, Belgium), (b) back view and (c) inside view during the final selection of the Canvascollectie, a Belgian national art contest, in the BOZAR (the center for fine arts in Brussels).

Fig. 2. Google image searches with terms “drawing” (left) and “sculpture” (right) demonstrate that even today (October 27, 2016) human and animal figures feature as the most popular artistic themes.

Fig. 3. Some examples of portraits that we used as stimuli in study 1 & 2, depicting faces previously rated as being neutral (left) and attractive (right) (Schacht et al. 2008).

Fig. 4. A histogram showing the effects of depicted facial beauty (neutral vs. attractive) and of prestige (neutral vs. MoMA) on non-expert and expert appreciation in study 2. Non-experts appreciated ostensible artworks exhibiting attractive faces more so than did experts, who preferred neutral faces to attractive faces. Contrary to non-experts, experts were positively affected by prestige. The error bars show the standard error of the mean (from Verpooten & Dewitte, 2017).

Fig. 5. Some examples of artworks that we used as stimuli in study 3. Artworks depicting animals (left) and inanimate objects (right). Retrieved from <http://www.moma.org>

Fig. 6. A scatter plot with fit lines showing the effect of animacy in relation to expertise on the appreciation of artworks in study 3. The fit lines show that as expertise of spectators increases, appreciation of artworks depicting inanimate objects (e.g., a chair) increases relatively to appreciation of artworks depicting animate objects (e.g., a lion) (Verpooten & Dewitte, unpublished data).

Fig. 7. Two scatter plots with fit lines showing the effect of prestige (MoMA) on appreciation in relation to expertise for artworks depicting inanimate (left) and animate objects (right). The plots' fit lines illustrate three findings of study 3 with respect to prestige. Taken together, they demonstrate the overall positive effect of prestige on appreciation, they show how prestige decreases the difference between the appreciation of inanimate and animate objects and they illustrate that prestige has a particularly large effect on the appreciation of inanimate objects among the least experienced experts (Verpooten & Dewitte, unpublished data).