When products evolve personalities

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A new era of mass customization is coming, and it will revolutionize human sexual attraction and social interaction. It will expand the range of personal traits that we can display to potential mates and friends through our product choices. It will allow each consumer to put their intelligence, creativity, personality traits, and moral virtues much more conspicuously and distinctively into each product they acquire. It will transform our bodies, appliances, vehicles, houses, and social-network websites into visible displays of our most invisible qualities. In 21st century design, runaway uniqueness will replace runaway luxury. Here's how this will work.

Under current consumerist capitalism, people buy goods and services to advertise a limited range of personal traits: mostly wealth, virtue, and taste. Thorstein Veblen understood this a century ago, and called it conspicuous consumption. Throughout the 20th century, status-seeking consumers sought ever more sophisticated pseudo-useful techno-features (to advertise their wealth), semi-moral provenances (to advertise their virtue), and quasi-aesthetic designs (to advertise their taste.

Example 1: coffee with extra guarana and ginseng (pseudo-useful energy boosters), Fair-Trade imported from shade-grown organic plantations (semi-moral provenance), in a Starbucks cups with the fetchingly split-tailed Nereid logo (quasi-aesthetic in a nautical-bestial-fetish way).

Example 2: the BMW 550i sedan with the iDrive interface and head-up display (allegedly confusing techno-features), imported from comfortably post-Nazi, union-friendly Bavaria (semi-moral provenance), with Chris Bangle's 'flame surfaced' metalwork and angry-eyes headlamps (aesthetic in a scowly, post-modern way).

The consumer can acquire the product, whether coffee or car, without having to demonstrate any personal qualities beyond an ability to pay. From a strictly economic viewpoint, this is very efficient – the medium of exchange (cash, debit, or credit) suffices to yield the mutual benefits of exchange (revenues for Starbucks, caffeine for the customer). Value flows, the GDP grows.

However, products are much more than clusters of rational features that yield consumer utility. They are also, usually, signals of the consumer's personal traits. We are social primates with complex sex lives, so we want to choose our friends and mates carefully. Therefore, we want to know about other people's personal traits – and I mean 'traits' in the full-blown biological sense of genetically-rooted, stable, individual differences.

General intelligence is one key human trait. It differs markedly across individuals, but is fairly stable within each individual. It is highly heritable, highly valued in social and sexual partners, and highly predictive of success across almost every domain of life (education, employment, mental health, physical health, marital stability, social sensitivity, aesthetic creativity). When we meet people, we want to assess how bright they are, and we are surprisingly accurate at doing

so from just a few minutes of conversation. Given the importance of educational credentialism, intelligence is by far the most important predictor of wealth in our cognitive meritocracy. So, the acquisition and display of premium-brand products with avant-garde design becomes mainly a signal of general intelligence – an intelligence-indicator.

That's fine as far as it goes, but there are two big problems with thoughtfully-designed but mass-produced products as indicators of personal traits.

First, mass-produced products are largely redundant as intelligence-indicators. We can assess people's intelligence indirectly, through the products they display, which reveal the native intelligence that allowed them to excel in school and work. Yet, as recent social psychology research shows, we can also assess people's intelligence directly, and more accurately, by just talking with them for a few minutes. We don't need someone's conspicuous consumption to tell that they are bright; we can just chat.

Second, mass-produced products are weak at displaying other personal traits that we care about. For example, recent personality psychology research shows that there are five main personality traits that differ across people, aside from intelligence. These 'Big Five' personality traits can be remembered with the acronym 'OCEAN':

- Openness = imaginative, creative, novelty-seeking, aesthetically responsive (vs. practical, conventional, closed-minded)
- Conscientiousness = persistent, reliable, goal-oriented, ambitious, perfectionist (vs. impulsive, fun, zany, flaky)
- Extraversion = energetic, engaged, gregarious, action-oriented (vs. passive, shy, deliberate, dreamy)
- Agreeableness = kind, considerate, friendly, generous, cooperative (vs. assertive, self-interested, suspicious)
- Neuroticism = worried, anxious, depressed (vs. calm, emotionally stable, resilient)

These Big Five traits are hugely important in getting along with families, friends, mates, co-workers, and oneself. Low agreeableness and high neuroticism predict miserable marriages. High extraversion and low conscientiousness predict sexual infidelity. Each of the Big Five traits is a moral virtue and a basis for assortative socializing and mating: extraverts think gregariousness is morally good and desirable in friends and mates; introverts think reticence is morally good and desirable. We want to assess these personality traits almost as much as we want to assess intelligence – but modern products are poor at conveying reliable information about one's personality traits and moral virtues.

For example, people high in openness tend to be more interested in art, design, and culture. One can display such interests by, for example, reading an issue of *Icon* magazine while commuting on the Victoria Line. However, a low-openness faker seeking to impress a high-openness potential mate could do the same. The magazine is rather indiscriminate and unreliable as an openness-indicator.

The new era of mass customization will make it easier to display one's true personality traits, by allowing consumers to take a more active role in designing their products. The key is to put the customer's tastes and preferences – which reflect their personalities – into the product-design loop. This was very hard to do until recently, because most people are poor at articulating their

preferences in ways that can be cashed out in specific product designs. The common run of consumer has trouble describing the forms, colors, textures, and features they would find most appealing. (This is why verbally-based market research and focus groups don't work.)

However, consumers can often recognize what they like when they see it. This opens the possibility of interactive product evolution through a software interface, in the following way.

In the early 1990s, artists Karl Sims, William Latham, and Stephen Todd were already developing 'genetic algorithms' – a type of computer software that mimics natural selection – that could allow design-naïve consumers to interactively evolve rather beautiful computer graphic images. In the first 'generation', the software generated a 'population' of random 'genotypes' – computer-graphic elements and equations that specified the brightness and hue of every pixel in a 2-D image. Consumers simply looked at the resulting array of images and picked the one they liked best. That 'fittest' image would then be copied in the computer, with various random mutations added to its underlying genotype, resulting in a new generation of images displayed on the computer screen. Again, consumers would pick the image they liked best, and it would be copied with some mutations. Thus we have the basic elements of Darwinian natural selection: selection (of the images by the consumer), replication (copying of the image genotypes by the computer), and mutation (random errors in the image genotypes introduced by the computer).

Sims, Latham, and Todd found that this sort of interactive evolution empowered consumers to evolve complex images that they liked, but that they could never have produced themselves using paint and canvas. They just needed a good eye, not a talented hand.

So far, this sort of interactive consumer-driven evolution remains a minor research theme in computer science, but it could revolutionize mass customization, and make products much more accurate indicators of personal traits. For this to happen, designers must shift from specifying particular design prototypes, to specifying the basic design 'genes' that could underlie a whole grammar of possible, manufacturable designs. The consumer would take some time at the point of sale (an interactive evolution kiosk in a retail store, or a website) to evolve their own most-favored, unique design for a particular type of product. Then, the product would be created to the consumer's specifications through standard methods of computer-controlled manufacturing, robotic assembly, and rapid prototyping.

At first, interactive consumer-driven design evolution would be most appropriate for fairly low-tech products that can be assembled flexibly from basic elements (e.g. textiles, clothes, furniture, holiday packages, mortgages), or cast in homogenous materials from rapid-prototyped 3-D printer designs (e.g. jewelry, eyeglasses frames, plastic toys, ceramics), or printed directly on surfaces (e.g. wallpaper, printed fabrics, bumper stickers). The designer's challenge would be to ensure that any design that the consumer evolves can actually be manufactured and delivered, at a profit, without violating laws concerning intellectual property or consumer safety. This method would be less suitable for producing complex, dangerous, high-tech products such as automobile engines, cardiac pacemakers, or aircraft landing gear.

Bringing consumers into the design loop as agents of interactive evolution could hugely increase the diversity, originality, and richness of human material culture. It would also make it much easier for consumers to design, customize, and acquire products that reflect their own personalities, values, and tastes. For example, suppose that book-buyers could use an interactive evolution kiosk in their local Blackwell's to design a custom leather cover for their new Harry Potter book, which would be manufactured on-site by a computer-controlled leather-

tooling machine. Aggressive teenage boys might end up with spiky black covers depicting the horrific face of Voldemort, whereas agreeable older women might end up with Art Nouveau pastel covers depicting the fey Luna Lovegood. In each case, the cover would more clearly reveal the reader's personality.

This is a whimsical example, but the general point is serious. Designers need to accept that most products in developed societies are bought as signals of the consumer's own intelligence and personality traits – not as signals of the designer's creativity and taste. Designer narcissism needs to make way for consumer narcissism – which is where the money has always been, anyway.

Designers of the future will no longer produce collections of specific product designs from which consumers select their favorite. Nor will they add a few superficially customizable features to such limited product ranges. Rather, designers will develop complex design vocabularies and grammars that consumers can explore, probably through interactive evolutionary software, to realize products that best express their personal 'identities' and 'styles' – i.e. their intelligence, Big Five personality traits, and other biological traits that matter to their social audience.

This will be the deepest form of mass customization, and the most radical manifestation of mass creativity.