

Chapter 15

Disgust and Consumer Behaviour



Philip A. Powell

It is difficult to find an exact opposite to an emotional experience as visceral and embodied as disgust, but attraction comes close. In consumer marketing, attraction is king. Products, brands, and advertising campaigns are all designed to *attract* consumers (Hammond 2008); via the halo effect, *attractive* actors are used to demonstrate the benefits of purchasable goods (Baker and Churchill 1977); product design is centred around *attracting* potential customers away from the competition (Crilly et al. 2004). Attraction sells and, on-the-face-of-it, one may conclude that disgust does not. As an emotion characterised by avoidance and rejection, it is true that disgust constrains markets (Roth 2007). However, the role of revulsion in consumer behaviour is much more layered. After all, what better motivation could there be to blow your wages on bleach than revolting TV-advert personifications of germs swarming around your house (Morales et al. 2012)? What about the products that utilise mixtures of humour and the grotesque to *appeal* to consumers, such as UK children book series “Horrible Histories” (Scanlon 2011)? And what of the market for highbrow art (and YouTube zit-popping videos) designed to induce morbid fascination (Menninghaus et al. 2017)? In this chapter, I argue that disgust, like all other discrete emotions, shapes consumer decision making. However, it does so not only by constraining consumption, but also by motivating it, under certain conditions. I discuss the association between disgust and sustainability, a significant societal problem driven by consumption; and consider the extent to which (and why) certain consumption habits elicit repugnance. Finally, I identify some outstanding research questions for researchers interested in disgust and consumer behaviour, and how they may be approached. Let’s start with the obvious.

P. A. Powell (✉)

School of Health and Related Research, University of Sheffield, Sheffield, UK

e-mail: p.a.powell@sheffield.ac.uk

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259

Disgust Constrains Consumer Behaviour

As discussed in detail elsewhere (see Bradshaw and Gassen, Chap. 3, this volume), the emotion of disgust evolved to motivate avoidance and rejection, particularly in the context of health, but has also expanded to the domains of sexual and moral behaviour (Tybur et al. 2013). In 2006, The Harvard Economist, Alvin Roth, published a working paper entitled “Repugnance as a Constraint on Markets”, which was published in the *Journal of Economic Perspectives* the following year, and has since been cited over 500 times (Roth 2007). The basic tenet of the piece was the observation that “repugnance”—loosely defined—is an irrational influence that limits the inclusion of particular kinds of transactions within markets, as they are considered too inappropriate or provoke societal repulsion. Roth notes a string of possible transactions that were once, or are presently, “repugnant” in the West. These range from the mundane charging interest on loans; to the contemporary disgust relevant marketing of horse and dog meat; to the fanciful dwarf-tossing (in the interests of avoiding ambiguity, that’s dwarf *throwing*). While these and other examples serve to illustrate that disgust can act as a constraint on markets, they also support the idea that economic repugnance is socio-culturally-defined and specific to *time* and *place*.

Despite its influence on subsequent generations of economic thought, a key issue with Roth’s approach is that his use of the term “repugnance” is imprecise. This matters because different emotional states have evolved specifically as responses to different classes of stimuli and have differing effects on cognitive and motivational systems, eliciting heterogeneous behavioural tendencies within economic exchanges (e.g., Lerner et al. 2004). Roth (2007) uses “repugnance” as a catch-all for negative affective reactions towards transactions perceived as socio-morally inappropriate, rather than an identification of the specific influence of disgust on markets *per se*. Indeed, in later works, Roth states that he and his colleagues “. . . use ‘repugnant’ in its economic sense [. . .] in a repugnant transaction the participants are willing to transact, but third parties disapprove and wish to prevent the transaction (rather than in its psychological sense of eliciting disgust among potential participants)” (Leider and Roth 2010). Other emotions, such as anger or contempt, have been shown to become confused with disgust in issues of socio-moral significance, with language blurring the distinction between the two (Herz and Hinds 2013; Nabi 2002; see also Giner-Sorolla, Chap. 8, this volume). Fear too has been argued by some to play as much, if not more, of a role in restricting consumption habits in certain areas, such as genetically-modified (GM) foods (Royzman et al. 2017). Further, different *kinds* of disgust (i.e., those elicited by moral versus pathogen-based elicitors) are likely to be effective in regulating different types of markets, ranging from the marketing of life insurance for children to atypically-shaped fruits and vegetables. Thus, while many examples used by Roth and his colleagues involve disgusting stimuli, their analysis is not specific to what we might actually term disgust.

Since Roth’s exposition of market repugnance, a number of more recent empirical works have explored and confirmed the idea that disgust responses, specifically, act

to constrain certain kinds of consumer behaviour. Much of this work has focussed on the food and drink market, which is unsurprising given disgust's origins as an emotion to reduce the health risks of oral ingestion (Rozin et al. 2009). Further, much of the evidence has been concentrated on new or emerging food technologies (Egolf et al. 2019). Regarding GM foods, a study by Scott et al. (2016) illustrated that "absolutist" opponents to GM (i.e., those that were opposed to GM regardless of the evidence on its risks and benefits) were more sensitive to disgust, and, further, that participants' disgust responses predicted their support for GM market restrictions. While the primacy of disgust in opposition to GM has been challenged by Edward Rozman and colleagues (Cusimano et al. 2018; Rozman et al. 2017), who argue for a core role of fear, a number of sources support disgust as a factor in reduced intentions to purchase or approve of GM foods (e.g., see Prokop et al. 2013; Townsend and Campbell 2004).

In other work, Siegrist et al. (2018) have provided experimental evidence for a role of perceived unnaturalness and evoked disgust in leading to lower acceptance of meat from in vitro cultivation (vs. traditionally slaughtered animals). Importantly, the provision of supplementary technical explanations about the production of cultured meat and its benefits was ineffective in reducing disgust reactions (Siegrist et al. 2018). Such data are consistent with the idea that disgust is often an unreasoned emotion (Russell and Giner-Sorolla 2011), and that people can exhibit absolutist (irrational) opposition to new technologies they find disgusting (Scott et al. 2016). Disgust responses have also been shown to restrict a willingness-to-pay for water recycled from wastewater (e.g., Powell et al. 2019; Rozin et al. 2015), with a perceived threat to health as a core, but not exhaustive, explanation (Powell et al. 2019). Taken together, the evidence outlined above suggests that disgust constrains novel food and drink markets, which may either represent an ostensible threat to health (e.g., in the case of recycled wastewater), and/or involve genetic or cellular processing and are perceived as unnatural or immoral (Siegrist et al. 2018).

In addition to novel food technologies, disgust has helped to shape the *types* or *variants* of otherwise accepted products consumers buy. Reminders of "animality" in Western meat products, including those that resemble animals and/or involve an emotional connection to humans, typically elicit increased disgust (Kubberød et al. 2008). Accordingly, cuts of meat are typically prepared to avoid such cues. Likewise, disgust sensitivity is a stronger predictor than pro-environmental attitudes and reported risk-taking behaviour of reduced willingness-to-pay for atypically shaped (non-prototypical) fruits and vegetables (Powell et al. 2019); an effect that is partially explained by perceptions of worse taste and unnaturalness.

A further line of research has shown that incidental disgust, for example in response to perceived contamination concerns, may reduce purchase intentions for otherwise desirable products (e.g., Guido et al. 2018). Faraji-Rad and Pham (2017) showed that induced disgust led to reduced willingness-to-pay for a carton of fruit drink (compared to a control condition), if participants had been primed with themes of uncertainty. Driven by the law of contagion (i.e., once in contact, always in contact) (Rozin and Nemeroff 1990), Argo et al. (2006) tested the effect of three tactile contamination cues (proximity to contact, time elapsed since contact, and

number of contacts) on product evaluations and purchase intentions of a target t-shirt in a university bookstore. Participants received a cover story that involved having them try on the t-shirt before rating it. The contamination cues were manipulated across three studies by having a confederate Sales Associate tell the participant that: the target item was on the sales rack, return rack, or being tried on in the dressing room (proximity cues); had been tried on just now or a few days ago (temporal cues); and/or had had one or a lot of people try it on (frequency cues). The researchers found that participants had significantly more negative evaluations, lower purchase intentions, and reduced willingness-to-pay, as proximity, time, and the number of contamination sources increased. Disgust ratings mediated this effect. Similar results have been found in more recent studies, using both tangible and intangible contamination cues (i.e., with and without perceptible residue) (Gérard and Helme-Guizon 2018), and across a variety of access-based services (i.e., where money is paid for temporary access to physical goods, including car-sharing and utility tools) (Hazée et al. 2019).

Much of the abovementioned research has focused on contamination in the context of pathogen disgust, that is a perceived or ostensible threat to health from potential infection, but there has been work on socio-moral disgust too. Chan et al. (2014) ran three experiments where participants were exposed to different moral violations (including incest, theft, and fraud) in multiple modalities, while being provided with a beverage to drink. The authors confirmed their hypothesis that participants drank less of the beverage (i.e., exhibited less oral consumption) when exposed to the moral violations, than in a control condition. Amar et al. (2018) explored in a series of studies how counterfeiting may affect product usage, of both counterfeit and genuine items resembling the counterfeit, as mediated by ratings of moral disgust. Consistent with the above studies, students endorsed language suggesting they found counterfeits more morally disgusting (e.g., “morally repulsive”) than genuine products (although still with an average rating on the lower end of a polarised Likert scale) (Amar et al. 2018). These studies are interesting and illustrate the deleterious effect counterfeiting may have on a market (although consumer behaviour was not assessed *per se*). Nevertheless, the extent to which these studies will replicate and extend to observable consumer behaviour and/or the extent to which they represent *genuine* feelings of disgust versus other affective reactions that are often conflated with disgust, such as moral anger (Herz and Hinds 2013), is unclear. On balance, it is likely that moral disgust (and the associated “contamination”) are likely to inhibit consumer behaviour at least to some degree. This effect is illustrated vividly by the reduced endorsement of products when they become associated with disgust-relevant moral violations, such as the paedophilic accusations levelled against pop star Michael Jackson (Johnson 2005).

To this end, disgust and its associated elicitors are often the opposite emotion that marketers want associated with their products. Take, for example, the relatively recent introduction of insect-based foods into the UK market. Many, if not all, producers avoid physical images of insects, a reliable disgust elicitor (La Barbera et al. 2018), on their packaging. Instead, companies use ground up flours and processed insect protein to facilitate the marketing of these types of goods

(an activity that I have called “masking”—see Powell 2017). In an attempt to promote product adoption and sales, elicitors of disgust are deliberately avoided.

More broadly, in more conventional markets, the presentation of products has become increasingly sterile. The selection, washing, and packaging of fresh produce has been designed to remove any elicitors of disgust (e.g., dirt and grime) (Curtis 2007) and so our disgust response has acted to shape consumer markets in the way products are presented. Disgust has also been used strategically to discourage consumer behaviour in certain target areas, where excess consumption is viewed as problematic. Examples include anti-obesity campaigns (i.e., products with high amounts of sugar and/or fat content) (Lupton 2015); smoking (Cameron and Williams 2015)—a behaviour which has become increasing moralised over time (Rozin and Singh 1999); and excess alcohol consumption (Collymore and McDermott 2016). Yet, given disgust’s oral origins, most research into disgust and consumer behaviour has been restricted to the food and drink domain. Despite some initial probing investigations (e.g., Hazée et al. 2019), much less is known, for example, about how disgust affects consumer behaviour in real-time across broader retail environments. While it is clear that disgust acts as a constraint on consumption, there would appear to be some situations where disgust may promote consumer behaviour, an area to which we next turn.

Disgust Promotes Certain Consumer Behaviours

If you are inclined, on a cold, dark, soggy evening, you could kill a few minutes searching YouTube for “Domestos germ adverts”. You will be rewarded with a selection of advertisements for the popular toilet cleaner that involve the cartoon personifications of microbes, designed to have the kind of characteristics that are intended to make you want to expunge them maniacally. These things are created to be ugly, slimy, spotty, and asymmetrical—think 50 shades of green. These are all characteristics that are known to activate our disgust response (Oum et al. 2011), and advertisers are counting on stimulating disgust to help motivate you to buy their products to expel these repugnant abominations from your home.

As the above example illustrates, as well as constraining markets, disgust can encourage consumer behaviour. A headline-grabbing paper by Di Muro and Noseworthy (2013) showed that people were more likely to spend more using, and take more chances with, worn and dirty bank notes than fresh and clean ones (except when in-front of social others), and that feelings of contamination and/or disgust (and pride) explained these effects. The researchers concluded that the *appearance* of money matters, and that consumption could be stimulated by people’s disgust-fuelled desire to reject literal “dirty money” (see also Galoni and Noseworthy 2015). While the marketers’ desire for promoting the circulation of “dirty money” has failed to materialise, disgust can stimulate consumption in at least three other, non-mutually-exclusive situations. First, when the consumer product has been designed to solve a problem that elicits disgust in the consumer (e.g., McAteer 2019). Second,

disgust may be leveraged in advertising to attract attention and promote salience, in order to improve the advert's effects on sales, even when the product itself does not solve a disgusting problem (e.g., Hubbard 1993). Third, and perhaps the most interesting, is the possibility that a disgusting characteristic of a product is what the consumer finds appealing about it in the first place (e.g., Menninghaus et al. 2017). Let us explore these ideas in succession.

First, disgust is a motivator of consumption for products designed to address problems that elicit disgust in either the consumer or people around the consumer. Examples of these kinds of products include cleaning products (McAteer 2019), new and/or disposable (versus reusable and remanufactured) variants of consumer goods (Abbey et al. 2015), and cosmetics that mask physical features known to elicit disgust in others (such as deodorants to reduce body odour) (Ubel et al. 2017). In a Polish study, Helka and Stefanowicz (2016) investigated the effects of disgust cues on attitudes towards, and willingness-to-buy, a new face cream. Exposure to a poster of a disgusting skin disease, versus a poster of a rat (non-associated disgust condition) or an advert for a private university, was associated with more positive attitudes towards the cream and a greater willingness-to-buy, whereas the irrelevant disgust poster was not. Elsewhere, Chan (2019) tested whether visualising causal sex (vs. visualising a romantic walk or yesterday's events) influenced consumer responses to hygiene products, including toothpaste, soap, and face scrub. In three studies, the authors found increased product liking and an increased willingness-to-pay for the hygiene products in the casual sex condition than comparator conditions (see also Tybur et al. 2011). The implications are that situations that make people feel dirty or disgusted may promote the consumption of products that are marketed as delivering cleanliness. The common factor in these works is that disgust promotes consumer behaviour when products are designed to *remedy* a disgusting problem.

Second, disgust is seemingly paradoxical, in that it promotes rejection and avoidance but also attracts attention, presumably in an adaptive manner to alert an organism to potential pathogen threats (van Hooff et al. 2013). Some elicitors of disgust, such as death and mutilation and sexual behaviour, also have a degree of shock value. Such attention-attracting and shocking qualities have been used in advertisements, to promote contemporary social issues, make a statement, and deliver the impression of brands having a social conscience, to target consumers. The classic example of this is the adverts of the clothing company, *Benetton*, in the 1980s, which featured, amongst other things: coloured condoms, a priest and nun kissing, immigration, people dying of AIDS, child labour, and pigs rooting in piles of rubbish (Hubbard 1993). These adverts did not show any products, yet were designed to position "the company as a concerned, socially-active, cutting edge and global fashion apparel company" using provocative (and disgust eliciting) images that "attract attention, make a statement, and create dialogue and action" (Hubbard 1993, p. 46).

While it is difficult to measure the success of such "shockvertising" campaigns, which is likely to differ depending on the target audience (Hubbard 1993), it is clear that when utilising disgust advertisers should proceed with caution. Empirical work has shown that disgust in adverts can simply lead to more negative attitudes towards

adverts, and not necessarily greater brand recall, than non-disgust equivalents (Dens et al. 2008). A fine-line must be trod between (a) the extra attention and “buzz” afforded by controversial, shocking, and potentially disgusting adverts and (b) the role of revulsion in promoting product avoidance. For example, in a study testing two adverts for a beef sandwich from a hypothetical fast food chain (one featuring the sandwich, and one featuring it alongside raw meat), Shimp and Stuart (2004) found that the advert with raw meat was associated with more negative purchase intentions and that reported disgust fully mediated this effect. Marketers should thus ensure that any disgust elicited from an advert is not attributed to the product itself, but to the problem for which the product (or brand, or company itself) seeks to raise attention and potentially alleviate.

Third, experiences of disgust that are elicited by products themselves may lead to sales in certain circumstances. This includes consumer goods, such as popular media products, which often blur the line between humour and disgust, including the successful UK children’s book series “Horrible Histories” and the US TV show “Jackass”. In this context, revolting scenarios are used to engender blended emotions of disgust and humour to appeal to target consumers, particularly children and adolescents (Oppliger and Zillmann 1997). Related to this is the “buzz” that can be generated by viral media and advertising campaigns that feature elements of the grotesque (Rubenking 2019). Such media is likely successful in generating attention and sales because the disgust stimuli does not present a perceived health or moral threat to the consumer; observers are more likely to find someone else drinking a “sweatsuit cocktail” humorous than if they have to chug it down themselves (Hemenover and Schimmack 2007). Nevertheless, the appeal of disgust in these contexts is contrary to the idea that disgust solely promotes aversion; something that Nina Strohminger has called “hedonic disgust” (Strohminger 2013, 2014). The role of hedonic disgust, and how it may operate in consumer behaviour, for example in the taboo and fetish market, is under-researched. However, initial investigations into “morbid fascination” by Suzanne Oosterwijk and colleagues have shown that people prefer *social* negative images over decontextualised morbid, or neutral, images (Oosterwijk 2017), and that supraliminal morbid fascination may recruit different brain regions than disgust or fear states *per se* (Oosterwijk et al. 2016).

In the context of the art market, Wagner et al. (2014) found more positive ratings of the same photos when framed as art photographs than documentary photographs, while the level of disgust ratings were identical, suggesting context matters. A distancing-embracing model for the enjoyment of negative emotions in art, including disgust, has since been proposed by Menninghaus and colleagues, where the link between negative emotions and aesthetic pleasure is mediated by mixed affective states and emotion regulatory processes (Menninghaus et al. 2017). Although this possibility needs empirical work in traditional consumer contexts, under the right conditions, disgust sells.

Therefore, in at least the three ways outlined above, disgust (or Roth’s “repugnance”) is more than just a market constraint, but also a market facilitator under particular conditions. The ways that disgust can both inhibit and facilitate consumer behaviour are summarised in Table 15.1. Both of these influences have implications for significant social issues with consumerism at their core. None of these issues is as

Table 15.1 Examples associated with disgust that constrain or facilitate consumer behaviour

Factor	Example
Constraints	
1. Product elicits disgust as a perceived threat to health or viewed as physically atypical	Oddly-shaped fruit and vegetables (Powell et al. 2019)
2. Product elicits disgust as it is perceived to represent a violation of social-moral values or viewed as unnatural	Meat from in vitro cultivation (Siegrist et al. 2018)
3. Product elicits disgust because it is associated with a person, brand or company that elicits disgust	Music associated with accused paedophiles (Johnson 2005)
4. Obtaining the product <i>with money</i> elicits disgust, as a perceived socio-moral violation	Selling organs online (Roth 2007)
5. Consumer perceives that the product has been contaminated by other people (or counterfeits)	Used or remanufactured goods (Abbey et al. 2015)
6. Disgust is used strategically in advertising to discourage consumption of a product	Anti-smoking campaigns (Cameron and Williams 2015)
7. Consumer is incidentally in a disgusted state (i.e., not elicited by the product itself)	Lower ratings of products when disgusted (Motoki and Sugiura 2018)
Facilitators	
1. Product is designed to solve a problem that elicits disgust in the consumer or others connected to them	Cleaning products (McAteer 2019)
2. Disgust is used effectively in shock advertising campaigns, i.e., to promote a brand as one with a social conscience	Benetton advertising campaigns (Hubbard 1993)
3. Product elicits mixed (blended) emotions of disgust <i>and</i> positive states, like humour or atheistic pleasure (hedonic disgust)	Art with disgusting content (Menninghaus et al. 2017)
4. Advertisements induce morbid curiosity or fascination that promotes circulation and consumption	Viral YouTube videos (Rubenking 2019)
5. Money is physically dirty and encourages consumer to spend (i.e., to get rid of it)	Worn bank notes (Di Muro and Noseworthy 2013)

perhaps of as much contemporary significance as environmental sustainability, and the need to curb people's consumption of disposable goods in order to help reduce the associated greenhouse gas emissions driving climate change. While countries like China may be the most significant *producers* of greenhouse gases as manufacturers of consumer goods, the *consumer* carbon footprint is much higher in other rich Western countries, like Luxemburg, that consume many of these products (Caro et al. 2015). We explore the effect disgust may have on sustainability, via consumer behaviour, next.

Disgusted Consumers Are Bad for a Sustainability Agenda

Mixed affective states and forays into hedonistic disgust aside; disgust, above all, is an emotion of rejection. Perhaps more to the point, an emotion that promotes rejection and disposal presents a problem for movements towards *reduced*

consumption and environmental sustainability. I wrote about this issue in a piece for *The Conversation* in 2017 (Powell 2017). Key features of disgust, including its conservativeness for triggering false alarms and ideational quality, mean the “yuck factor” can be a tricky customer when it comes to encouraging sustainable consumer behaviour. Indeed, there is evidence suggesting that disgust contributes to a disposable consumer culture.

A recent European survey study exploring the role of sensitivity to disgust on food behaviour found a small but significant positive association between level of food disgust sensitivity and a higher frequency of food waste behaviour (Egolf et al. 2018). Disgust has also been identified as a barrier to food-based recycling activities such as kitchen caddy food waste composting in Australia (Ames and Cook 2020). Evidence shows that the disgust response promotes selective consumption, including, for example, sanitised and prototypical versions of organic products, such as fresh produce (Jaeger et al. 2018). Further, a body of research exploring the effects of contamination concerns on consumer behaviour illustrates how consumers may be put off from engaging with the second-hand market and buying used goods (Argo et al. 2006; Gérard and Helme-Guizon 2018; Hazée et al. 2019). Consumer comments found on online message boards about charity shops illustrate this phenomenon: “Honestly, I think buying clothes and shoes 2nd hand is quite gross!” and “I’ve picked up some real bargains on good brands. But some of my friends think its (sic) absolutely disgusting and shameful”.

What is more, revulsion can be a potential barrier to *new* sustainability initiatives that may inadvertently elicit disgust in consumers, including alternative, more sustainable sources of protein (e.g., insect-based proteins) (Gmuer et al. 2016; La Barbera et al. 2018), and the production of products from reclaimed ingredients (Herbes et al. 2018). This includes the use of biomethane, refined from biogas derived from organic waste, which can be re-introduced into the consumption cycle. An example of this is the fuel used in the UK “bio-bus” which was launched in the West Country in 2015 and has since been adopted elsewhere. Again, the disgust lexicon was apparent online: “I bet the exhaust fumes stink” and “I think this is kind of disgusting. . . a bus running on human waste”. Herbes et al. (2018) studied consumer attitudes towards bio-based packaging and found evidence of consumer disgust as an obstacle: “Because I find it disgusting”; “The thought of using manure for producing food packaging arouses a feeling of disgust in me”; “Because it stinks”; and “Kind of disgusting—A little unsanitary to me”. Meng and Leary (2021) investigated consumer purchase intentions for clothing made from recycled plastic bottles, finding that participants were less likely to purchase a t-shirt made from used plastic bottles (than unused plastic bottles or cotton) and this effect was moderated by disgust sensitivity. In a recent study, we showed that people who were more sensitive to disgust were willing to pay less for drinks and medicines that contained reclaimed ingredients from sewage, including fizzy drinks with recycled sources of carbon dioxide (Powell et al. 2019).

Thus, overcoming the “yuck factor” in certain novel and technologically viable sustainability solutions may be important for encouraging their widespread uptake. Powell (2017) outlines at least three ways to do this. First, the product (and

associated brand or company) is altered or presented in such a way so that any disgust cues are masked. The problem with this approach is that you still have the psychological essence of, for example, knowing the carbon dioxide in your fizzy drink came from human waste. Nevertheless, masking disgust cues does matter. An experiment marketing “treated wastewater” as “recycled water” showed that people were more willing to use, and willing to pay more for, the latter than the former (Menegaki et al. 2009). Second, educational and marketing techniques can be used to encourage cognitive reappraisal in the consumer, so that they regulate (and overcome) automatic disgust reactions. While some work has shown promise for reappraisal in disgust regulation (e.g., Olatunji et al. 2017), we recently found little support for a moderating role of dispositional disgust reappraisal on the effect of disgust responses predicting willingness-to-pay for more sustainable alternatives (Powell et al. 2019). The jury is thus out on whether reappraisal may be helpful in this context. Finally, inducing antithetical emotional states to disgust, such as compassion for the product(s) and/or the environment, may be helpful in reducing disgust’s influence. Such an approach has been shown to be beneficial in other areas (e.g., in healthcare) (Reynolds et al. 2019), and unpublished data from our research group suggests appeals to compassion may be beneficial in increasing willingness-to-pay for atypical fruit and vegetables (but not as beneficial as positive appeals to comparable taste and superior pro-environmental qualities). Regardless of the technique employed, there is some room for optimism, in that disgust is reduced in situations of scarcity, illustrated by the dampened food-related disgust to less-than-appetising dishes exhibited by people in food-deprived states (Hoefling et al. 2009).

While disgust presents certain challenges for consumer sustainability, it is important to note that it does not have to be entirely antagonistic towards this endeavour. In particular, if used strategically, analogous to public health campaigns, disgust can be used as a tool to help *increase* sustainable living. This could be achieved, for example, by presenting graphic depictions of disposable waste in a way that elicits disgust (e.g., large piles of rotting rubbish) or by associating the mass production of disposable consumer goods with, for example, disgusting pollutants. One significant contribution to global greenhouse gases is meat farming, so highlighting the disgusting elements of this practice, including both their living conditions as well as the death and butchery of animals, could be useful from an environmental perspective. Such an approach brings with it the threats of unappreciated paternalism and threats to the livelihoods of people relying on these markets, which would need to be balanced against any uses of disgust to promote sustainable consumption. In an interesting twist on the negative perceived contamination of clothing made from used plastic bottles, described above, Meng and Leary (2021) demonstrated that such an effect could be used *positively* and increase willingness-to-pay if the source of contamination was an attractive member of the opposite sex. Used responsibly, there are opportunities for disgust (and the associated principles of contamination) to be leveraged to help promote sustainable consumption habits—but what do we actually know about consumption patterns and their link to revulsion? Let us find out.

Certain Consumption Habits Are Disgusting

The economic psychologist Stephen Lea and his late colleague Paul Webley introduced the hypothesis that money functions both as a tool and a *drug*, with characteristics that mimic that of other known addictive substances (Lea and Webley 2006). While the drug metaphor is useful in understanding how people respond to money, it is, as acknowledged by the authors themselves, an imperfect analogy. One of the ways the drug metaphor breaks down is that addicts of other addictive stimuli are often viewed with disgust (Harris and Fiske 2007), while those who pursue money, and display markers of legitimatised wealth, tend to receive higher social status (Kraus et al. 2017). Part of this polarisation may be due to the behaviours that are associated with these respective addictions, with the former typically associated with actions that violate socio-moral purity norms and represent a potential health threat. Rich, successful people too, while often revered, can become the target of disgust-based criticism when associated with immorality, such as corruption or money earned through unfair means (Deigh 2006). Consider, for example, the ugly cartoon portrayals of “fat cat” bosses and bankers, who pursue money at the expense of others’ welfare (see Fig. 15.1). Here, disgust is used to promote and reflect societal antipathy towards these actors, emphasising characteristics known to elicit the emotion, including fatness and ugliness (which are also physical

Fig. 15.1 “Fat cats” who pursue greed at the expense of others’ welfare are viewed with disgust. (Image available for reuse, Wikimedia Commons, https://commons.wikimedia.org/wiki/File:The_Subsidised_Mineowner.jpg)



manifestations of characterological greed). While wealth per se is not a repulsive characteristic (it is often the opposite), the *greedy* pursuit or consumption of money (or any other desirable resource) in a manner which suggests illegitimacy appears to trigger disgust, and particularly so if it has deleterious effects on others (Kempen 2017). In this sense, the “dirty money” discussed above in relation to *physically dirty* currency takes on its *metaphorical* connotations as being representative of wealth acquired through corrupt or ill-gotten means, and is consequently less desirable (Stellar and Willer 2013; Tasimi and Gelman 2017).

One of the reasons that greedy consumption habits may trigger disgust is that they are often seen as reflecting an unequal and unfair distribution of resources, which violate socio-moral boundaries (Chapman et al. 2009). A number of empirical studies using economic games have shown that people experience disgust in response to unfair offers (e.g., Chapman et al. 2009) and that disgusted participants are more likely to reject offers perceived as unfair (e.g., Moretti and di Pellegrino 2010). Socio-moral disgust reactions then may affect consumption transactions when elements of unfairness are salient and help regulate in-group resource consumption. The extent to which such responses represent a manifestation of visceral disgust specifically (rather than shared variance between discrete emotional states, often unaccounted for in empirical studies), is a question for further research to untangle. Nonetheless, based on these and other complementary findings (including a tendency for people primed with disgust to cheat more on economic tasks) (e.g., Winterich et al. 2014), it has been posited that disgust might stimulate a mind-set related to resource scarcity (as an emotion that promotes self-protection) (Schnall 2017). Indeed, an emerging fMRI study indicated that stimuli depicting food *wasting* behaviour was associated with activation in brain regions previously identified as important in moral and physical disgust (Marczak et al. 2019). One can easily imagine the disgust reactions if food wasting or rich indulgences were juxtaposed with images of starving children. Note here the potential self-other hypocrisy, given that felt disgust is typically associated with increased fussiness around food (Egolf et al. 2018; Motoki and Sugiura 2018). Indeed, if the “resource scarcity” theory is supported empirically, this would mean that not only is disgust directed towards others with bad moral character (Giner-Sorolla and Chapman 2017; see also Giner-Sorolla, Chap. 8, this volume), but it may stimulate unethical and selfish consumption behaviour in the self.

One of the most interesting phenomena associated with money and transactional human behaviour is how certain trading activities appear to elicit disgust *only* when they involve monetary exchange. Consider, for example, the donation of organs (one of Alvin Roth’s archetypal repugnant markets) (Roth 2007). With consent and when given freely, the practice of organ donation does not typically elicit disgust in others (except perhaps in a minority of absolutist moral-opposed individuals). However, when paid for, such an exchange becomes repugnant and is inhibited. The same distinction is made in many areas of the world between freely-given and bought sexual activity. Indeed, a number of social practices have arisen to *avoid* the exchange of payment in return for risqué goods, including the “charity girls” of the early twentieth century, who would receive goods (not money) and give sex as “a

gift” (not a commodity) (Schilke and Rossman 2018). Schilke and Rossman (2018) use the term “obfuscated exchange” to describe this irrational human behaviour. Obfuscation may occur wherever resources are exchanged in a scenario where people would otherwise object to that exchange occurring within a market context, finding it morally reprehensible. Why money taints otherwise viable resource-sharing behaviour is not fully understood, but may involve issues of legality and social, cultural, and moral norms; power balances; and issues of unfairness and perceived exploitation and coercion. For example, offering to pay more for the same “repugnant” good than the seller suggested is judged as more ethical, while *incentivising* the sale of a greater amount of the good is judged as less ethical, especially when the seller is poorer and assumingly more vulnerable to exploitation (Ambuehl et al. 2015). While fascinating, the effects of money rendering an otherwise acceptable exchange of resources disgusting is under-researched. We turn now to explore some other unknowns between disgust and consumer behaviour.

The Unknowns on Disgust and Consumer Behaviour

The work reviewed above suggests disgust can be both a constrainer and facilitator of consumer behaviour, that it may be a barrier to sustainability, and that certain consumption patterns elicit revulsion. However, there is still much to learn on how disgust links to consumerism. First, we need to *mind the metaphor*: the extent to which disgust has been empirically demonstrated to influence, and be influenced by, consumer decision-making is often conflated with the effects of other correlated negative affective states, including fear and anger. For example, the extent to which the average person feels *genuine, visceral* moral disgust to counterfeit fountain pens (Amar et al. 2018), or finds used power tools physiologically disgusting due to potential contamination (Hazée et al. 2019), is questionable, and requires further investigation (which includes outcome measures beyond self-report ratings). This is analogous to the problem identified in moral psychology, whereby self-reports of disgust and disgust language can be used to describe situations that are best characterised by an emotional experience of anger (Herz and Hinds 2013; Nabi 2002). Other areas of research suggest a critical role for fear, over and above disgust, in consumer scenarios where disgust, if measured in isolation, has been shown to be an important factor (Cusimano et al. 2018; Royzman et al. 2017).

What is typically missing in disgust-based consumer research are the complementary measures of correlated discrete emotions (or even negative affective states), that would allow researchers to isolate a unique role for disgust (see also Consedine, Chap. 2, this volume). This problem is most apparent in the use of self-report measures of emotion. While disgust does not have to be measured by self-report alone (Chapman et al. 2009; Marczak et al. 2019), there is a notable absence of alternative modalities of assessment in this area of research. Additional studies employing alternative modes of assessment, which are reliably and uniquely associated with disgust, such as levator labii activation in facial EMG (Vrana 1993) and

the electrogastrogram (Meissner et al. 2011), may help to strengthen the evidence that it is disgust, and not shared variance with other negative affective states, that is driving observed effects. It would be interesting to know, for example, the extent to which money or greed is *physiologically* disgusting. More advanced self-report measures, such as ecological momentary assessments (e.g., Vansteelandt et al. 2005), could also add another layer of knowledge about how disgust factors into consumer decision-making in real-time retail environments. Most work exploring consumer disgust has centred on oral consumption and it would be nice to see some novel research probing beyond this.

Second, we need to *explore effective regulation*. To the extent that disgust is deleterious to consumer behaviour and societal progress, there is much more work to be done into the effective regulation of the emotion. We are still unclear on the best ways to regulate and manage disgust, particularly in a consumer context. Indeed, evidence suggests disgust may be a particularly difficult emotion to regulate (Olatunji et al. 2007). In regulating disgust in consumers, framing may have some promise (e.g., Menegaki et al. 2009). Initial investigations on disgust regulation in other fields, such as mental health, show some potential for cognitive reappraisal (e.g., Fink et al. 2018; Olatunji et al. 2017), while other studies support good old-fashioned exposure and habituation (e.g., Rozin 2008). As work has shown that disgust can be a barrier to the consumption of pro-social, sustainable alternatives (Powell et al. 2019) and the circular economy (Argo et al. 2006; Gérard and Helme-Guizon 2018; Hazée et al. 2019; Meng and Leary 2021), the literature would benefit from additional experiments on disgust regulation in applied settings. Effective regulation also applies in situations where disgust should be divorced from market decision-making (i.e., in deciding what products are permissible to marketise). This is in itself a thorny issue with its own unknowns; in which situations is a repugnant market irrationally impeded by disgust? While some behaviour in repugnant markets, such as obfuscated exchanges, is clearly irrational, it is perhaps difficult to argue that people should not feel disgusted by, for example, a marketised forum for the selling of children (with the exception of exhausted parents).

Third, we need to do more work on *hedonic disgust*. Most research has focussed on the negative side of disgust. Less has considered how disgust, blended with other more appealing emotions, or as part of the fetish market, may actually attract consumers. Is the disgust elicited in a hedonic context the same kind of disgust that repels people from eating mouldy sandwiches, or is it fundamentally distinct, for example, when it is blended with humour or aesthetic pleasure? Work using fMRI suggests that morbid fascination is associated with differential brain activity than revulsion (Oosterwijk et al. 2016), and observed behaviour suggests that something different is going on phenomenologically. Mixed methods research further exploring hedonic disgust and why people are drawn to it, what they experiencing when they find products with elements of disgust appealing, and how such elements can be leveraged in the market to generate appeal, would be useful. Initial work in design has produced a framework for designing “rich” experiential states, including the grotesque, which include negative emotions like disgust, blended with positive states such as fascination (Fokkinga and Desmet 2013; Menninghaus et al. 2017). I expect

such frameworks to be further enriched over time, with inputs from affective and consumer psychology.

Finally, we need to critically examine the *resource scarcity theory* (Schnall 2017) in consumer behaviour and assess how it holds up to further scrutiny. To recap, the basic tenets of this theory are: i) disgust evolved to stop us getting ill and has been exapted to function in response to broader socio-moral threats or violations; ii) as disgust operates to protect against pathogen threats and threats to one's moral character, we can consider it a "self-protective emotion"; iii) because disgust is a "self-protective emotion", it instils a mind-set of "resource scarcity" in resource transactions (Schnall 2017). While some evidence is consistent with this theory, including disgust elicited to unfair resource distribution by others (Chapman et al. 2009; Moretti and di Pellegrino 2010) and cheating behaviour benefiting the self (Winterich et al. 2014), a number of other observations are not. For example, experienced disgust is typically associated with a reduced flexibility in consumption, including atypical foods (Powell et al. 2019), which is not what we might expect if resources were thought to be scarce. Indeed, disgust has been shown to be more likely to be *reduced* during times of necessity (scarcity), such as when people are deprived of food or living in a harsher environment (Batres and Perrett 2020; Hoefling et al. 2009), which appears contrary to the idea that heightened disgust stimulates a resource scarcity mind-set.

Furthermore, the work suggesting people like to spend physically dirty money, because it disgusts them is not consistent within a resource scarcity framework (Di Muro and Noseworthy 2013; Galoni and Noseworthy 2015). There are a few ways these differences could be reconciled, including by considering that disgust may not be a unitary emotion, but consists of subcomponents that may have differing effects on behaviour (Simpson et al. 2006). Further, instead of resource scarcity, disgust may promote a self-focused attitude associated with elevated self-importance, or a "holier-than-thou" mind-set, which reflects the pattern of evidence reviewed above. Further work will be required to disentangle these different theoretical interpretations. It is worthy of note that this "unknown" is related to the first, to the extent that we could also think of other emotions, such as fear, as self-protective, in that they help us to avoid and escape from danger. So more theoretical development is required that delineates the unique role for disgust in resource consumption behaviour.

Conclusions

Over a decade ago, in 2007, Alvin Roth published a now highly cited paper arguing that repugnance constrains markets (Roth 2007). In this chapter we have explored how disgust, just like Roth's broader construct of economic repugnance, indeed does act as a constraint on consumer behaviour, but also how, and under which conditions, it serves to facilitate it. In doing so, we have learned that the relationship between disgust (or "repugnance") and consumer behaviour is much more complex

than it may first appear. The disgust emotion is a barrier to certain sustainability initiatives in the consumer sector, but it is also a potential tool to be leveraged, strategically, to encourage pro-social and pro-environmental consumption behaviour. Further, the emotion may play a critical role in helping to ensure fairness within the intra-social distribution of resources, although there is a risk of disgust encouraging selfish economic behaviour, perhaps as a result of an extended form of a self-protection mind-set. Unknowns on disgust and consumer behaviour include the unique role for the emotion over and above other, correlated negative affective states, and the phenomenology of, and necessary conditions for, pleasurable, or hedonic consumer disgust. While initial models are being developed to provide guidance on how producers and marketers can “design for disgust” within the consumer industry, we still have much to learn. I look forward to being suitably grossed out in the future.

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