



Reputation Reminders: When do Eye Cues Promote Prosocial Behavior?

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Abstract. The watching eyes effect has gained significant attention in recent years both from scientists and from policy makers and professionals in the field. The phenomenon posits that the mere presence of eye cues can promote prosocial behavior. However, there is a growing debate about the generality of the effect across various measures and contexts. This review seeks to combine various distinct -and formerly isolated- perspectives by identifying four key components for effective interventions based on the watching eyes effect: Anonymity, crowdedness, costs, and exposure. Eye cues need to reduce perceived anonymity, be placed in non-crowded places, target low-cost prosocial acts and appear for a short amount of time. Next to these conditions, we discuss implications for other cues to reputation and recommend directions that will stimulate further research and applications in society.

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How can one promote prosocial behavior? Although there are many variables that can promote cooperation, one broad category of variables can be labeled reputation (van Lange & Rand, 2022; Wu et al., 2016a). It refers to the notion that at least one other person can register the behavior and who enacts it. Implicitly or explicitly, when other people can register one's behavior, the person's behavior observed will feel observed. Numerous studies in the lab and the field have revealed that people are far more cooperative under public situations than private situations (see Wu et al., 2016a; van Lange & Rand, 2022). Clearly: Observability matters.

One case in point is a field study that demonstrated the power of observability in promoting public goods. Specifically, the finding uncovered a tripled participation in a blackout prevention program ("demand response" where the utility company turns down air conditioning intensity on hot days) by having written

their names on publicly posted sign-up sheets (Yoeli et al., 2013). Apparently, people feel immediately "observed" when the instructions require them to write their names on publicly shared sign-up sheets and become almost three times as cooperative compared to a situation in which they are not asked to write down their name.

In theorizing and experimental research the power of reputation has been linked to indirect reciprocity and signaling. The general principle is cooperation among strangers has evolutionary value because it allows one to reap the benefits from having a cooperative reputation, which is likely to yield beneficial patterns of cooperative rather than non-cooperative interaction. In contrast, those having a non-cooperative reputation are unlikely to yield benefits from social exchange. Indirect reciprocity, with reputation and signaling as key mechanisms, has been documented as the most prominent explanation for which cooperation among strangers evolved (Barclay & Willer, 2007; Nowak, 2006; van Lange & Rand, 2022). Moreover, the spreading of reputational information through gossip has been shown to promote cooperation in groups in a cost-effective manner (e.g., Wu et al., 2016b).

Given the power of observability and theoretical status of reciprocity, is it possible that the mere display of

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“watching eyes” on photos or posters can promote cooperation. For example, are people more likely to pay for their milk in a honest box if coffee (and milk) center at the university has a calendar displaying a face watching you rather than a plant? This was actually one of the seminal studies of its kind, and the answer was in the confirmatory: Yes, such displays of watching eyes can make you more likely to pay rather than “free-ride” by not paying (Bateson et al., 2006). An earlier finding had already demonstrated a similar finding in the context of an economic game, showing that watching eyes promote generosity (Haley & Fessler, 2005).

Since then, the watching eyes effect has become one of the most hotly debated topics in psychology. On the one hand, a number of studies have shown that such minimal cues to being watched can increase a range of cooperative behaviors, like prosocial fund-allocations in economic games (e.g., Baillon et al., 2013; Mifune et al., 2010; Rigdon et al., 2009), generosity and charitable donations (e.g., Fathi et al., 2014; Keller & Pfattheicher, 2011), or litter cleanup and pro-environmental acts (e.g., Bateson et al., 2015; Ernest-Jones et al., 2011). On the other hand, there is a growing number of null findings (e.g., Fehr & Schneider, 2010; Manesi & Pollet, 2017; Manesi et al., 2016; Northover et al., 2017; Vogt et al., 2015).

Importantly, the intuitive appeal of the simple, cost-effective interventions using watching eyes has sparked wide interest in the subject. For instance, in various countries, including the UK, the Netherlands, and Hong Kong, eye cues have been used in public spaces to discourage people from stealing bicycles, littering or to promote rule compliance. Despite the heightened interest, however, it is still unclear whether and under which circumstances eye cues can promote cooperation. Also, there has been no integrative framework that identifies the essential conditions for watching eyes effects to occur.

Here, we present the first overview of meaningful conditions that can facilitate (or hinder) the watching eyes effect. We begin by discussing two mechanisms that underlie the effects of eye cues on human behavior: Attention and reputation. Next, we identify four key circumstances under which eye cues hold promise in eliciting the two mechanisms that, in turn, can promote prosocial behavior. Those four circumstances are: The perceived anonymity of the situation, the crowdedness of the place, the cost of the prosocial act, and the exposure time to eye stimuli. The four circumstances provide direction to future research, and increase knowledge about the societal contexts in which eyes may or may not promote prosocial behavior, thereby increasing the chances of developing successful interventions. As such, they can be regarded as general guidelines that are evidently subject to ongoing revision and scientific progress. Ultimately, we hope that this article will

inform interventions and future research, which may confirm, extend, or contradict our insights. At the same time, we should note in advance that these four circumstances are unlikely the only ones that matter. As argued by various people, the circumstances in which prosocial behavior, or norm-compliant behavior, varies in several important respects (see Smithson et al., 1983).

Watching Eyes Capture Attention and Elicit Reputational Concerns

Eyes, and especially watching eyes, attract human attention (Baron-Cohen, 1995; Emery, 2000; Langton et al., 2000; Senju & Johnson, 2009). Psychological studies have demonstrated that faces making eye contact capture and hold visual attention (Senju & Hasegawa, 2005; Senju et al., 2005), and elicit affective arousal, as expressed by increased heart rate deceleration (Akechi et al., 2013), galvanic skin responses (Nichols & Champness, 1971), and neural activation (Kawashima et al., 1999; Wicker et al., 2003). This sensitivity to eye contact is assumed to be innate, considering that human infants – as young as two to five days of age – show prolonged attention to others’ direct gaze and to configurations resembling eyes (Farroni et al., 2002, 2005). A reason why humans rapidly detect eye contact is that (in contrast to other primate species, like chimpanzees, that communicate mainly by relying on head direction cues) humans have evolved a distinctive sclera that allows communication and social interaction through eye gaze (Kobayashi & Kohshima, 1997; Tomasello et al., 2007). Interestingly, the perception of another person’s direct gaze (and the concomitant arousal) is not necessarily conscious and does not require prolonged focus of attention (Yokoyama et al., 2013, 2014). Moreover, under certain circumstances, even unconscious perception of another person’s direct gaze can promote cooperation (Luo et al., 2016). Nevertheless, increased attentiveness to eyes appears to play a powerful role in triggering the watching eyes effect.

Recent research suggests that it is indeed the attention-grabbing power of eye contact that makes people act prosocially in the presence of eye cues: Greater attentiveness to a picture of watching eyes has been found to be associated with greater generosity (Vaish et al., 2017). This seems plausible considering that watching eyes signal that the gazer is likely to approach and engage in social interaction (Adams & Kleck, 2005; Wirth et al., 2010). If watching eyes signal that social interaction is imminent, it should be adaptive for the individual to pay increased attention to the eyes of the gazer in order to infer their intentions and predict their actions toward the self (Kampe et al., 2003). But why would such increased attention to a direct gaze elicit prosocial behavior?

A prominent explanation is reputation management: The perception of eye contact is likely to elicit concerns about one's own reputation (i.e., what the other person thinks of me), which in turn can make individuals engage in prosocial reputation-management (Izuma, 2012; Oda et al., 2011). Some research has shown that the presence of actual observers (or other cues to social surveillance, like cameras) makes people cooperate and behave charitably (e.g., Andreoni & Petrie, 2004; Sproull et al., 1996; van Rompay et al., 2009). When others are watching, establishing a positive reputation (by displaying cooperative behaviors) can bring invaluable social rewards to an individual (like social approval, social inclusion and belongingness, high status within the social group, and increased value as a coalition partner or a mate, see, e.g., Barclay, 2004; Barclay & Willer, 2007; Milinski et al., 2002; Wedekind & Milinski, 2000).

This anticipation for social rewards is also reflected on the brain level as social surveillance is found to activate brain regions involved in reward processing, like the striatum (Izuma et al., 2008, 2010). Consistent with this notion, Oda et al. (2011) showed that expectations for social rewards explain the watching eyes effect on prosocial behavior: Upon exposure to eye images, participants expected that acting generously would enhance their reputation in the eyes of a third party. Yet, considering that such eye cues are fake cues to social surveillance (as no one can actually evaluate and reward an individual's prosocial behavior), why do humans still modulate their behavior when presented with images of watching eyes?

In response to this question, it has been proposed that brain systems involved in the detection of human presence and social surveillance "misfire" in the presence of eye cues (Burnham & Hare, 2007). Indeed, humans appear to have an eye-detection system that is activated automatically and involuntarily in response to eye-like stimuli (Emery, 2000; Haxby et al., 2000). This faulty perception of social presence and the "irrational" prosocial response that follows are likely to be caused by a mismatch between ancestral conditions and modern environments. In the evolutionary past that humans lived in small kin-based hunter-gatherer communities, something that looked like a pair of watching eyes usually *was* a pair of eyes belonging to a real observer (who was likely to be a kin or in-group member).

Failing to respond in a cooperative fashion when being watched would most likely result in serious consequences for the individual (e.g., deprivation of social rewards or even punishment, Fehr & Gächter, 2002; Kawamura & Kusumi, 2017; Wedekind & Milinski, 2000). In stark contrast, in modern, technologically advanced environments, there are abundant social cues that may not necessarily entail social monitoring (e.g.,

images of direct gazing faces on magazines, billboard advertisements and the internet). But such cues most likely serve as implicit reminders of observability – a condition that is evolutionary pertinent to gaining a cooperative rather than noncooperative reputation, as we noted earlier.

Conditions for the Watching Eye Effect

Despite the fact that there is a consensus in the field about the mechanisms driving the watching eyes effect (i.e., attention and reputation), there is little agreement about the circumstances under which such eye cues can indeed modulate human behavior (e.g., Northover et al., 2017). Moreover, there has been no attempt to "translate" the conditions under which those mechanisms are activated into conditions for successful interventions. In other words, when do eye cues make people act prosocially? Below, based on existing findings from the literature in this area, we identify for the first time four major preconditions for the watching eyes effect.

Anonymity

If people need to (consciously or unconsciously) notice the eye cues and feel concerned about their reputation, then we should expect that successful interventions are those that can make people feel less anonymous by eliciting a sense of being watched. Research supports this proposition (Manesi et al., 2016; Pfattheicher & Keller, 2015; Tane & Takezawa, 2011). For instance, images of watching eyes can indeed make people experience an elevated sense of being observed and negative emotions that are associated with a heightened state of awareness, like anxiety, distress, and nervousness (Panagopoulos & van der Linden, 2017; Pfattheicher & Keller, 2015). This seems plausible as being observed by another person can lead to increased self-awareness and anxiety, especially for socially anxious individuals that seek social approval (Duval & Wicklund, 1972; Tsuji & Shimada, 2015). Likewise, the watching eyes effect on prosocial behavior appears to be stronger for people experiencing increased levels of arousal and heightened public self-awareness (i.e., awareness of how other people view and perceive them, Hesslinger et al., 2017; Pfattheicher & Keller, 2015).

Importantly, and although there might be individual differences in responses to those eye cues, it appears to be that it is the watching component of the eyes that makes people inclined to modulate their behavior (presumably by making them feel less anonymous). Manesi et al. (2016) demonstrated that people behave more prosocially in the presence of watching eyes (i.e., eyes with direct gaze) as compared to eyes that are looking

away or not looking at all (i.e., averted or closed eyes). This suggests that it is the watching component of the eyes that removes the veil of anonymity and makes people concerned about their reputation. Practically, a way to make people aware of (and more susceptible to) watching eyes could be to use attention grabbing eye stimuli displaying a direct gaze. Indeed, although even minimal configurations resembling eyes have been found to modulate human behavior (Powell et al., 2012; Rigdon et al., 2009), it is likely that watching eyes that are highly effective in capturing attention (such as eye cues that are high in realism) are more powerful in enhancing prosocial behavior (Krátký et al., 2016). Furthermore, this effectiveness depends on external conditions that can diminish visual attention and self-awareness, like darkness (Tane & Takezawa, 2011). Thus, only if eye cues create a persuasive impression that they can actually observe and identify an individual, will they serve as a powerful tool to enhance prosocial behavior.

In line with this notion, there is evidence that when those fictitious cues to observation are accompanied by explicit messages of surveillance, interventions in real-world settings can be very powerful: For instance, Nettle et al. (2012) showed that a picture of penetrating watching eyes paired with a message of surveillance (i.e., “You are being watched”) decreased bicycle thefts at a university campus by 62%. Based on these, future interventions could benefit by using persuasive eye cues (i.e., penetrating watching eyes) that are paired with messages of surveillance (e.g., “You are being watched”) and are placed in environments facilitating observation (e.g., well-lit places or in the center of a room).

Being Alone

Does the presence of other people influence the watching eyes effect? Some evidence suggests that the presence of fewer people in the vicinity can facilitate the watching eyes effect. For instance, a study in a supermarket demonstrated that during busy weeks, eye cues increased donations to charity boxes by about 30% whereas during quiet weeks, they increased donations by about 60% (Powell et al., 2012, see also Ekström, 2012; Oda & Ichihashi, 2016). Likewise, other studies have shown that the presence of few (rather than many) people in real-world settings can enhance the watching eyes effect on other cooperative behaviors, such as reduced littering (Bateson et al., 2015; Ernest-Jones et al., 2011; but see Bateson et al., 2013).

There is a strong logic for why crowdedness may weaken or eliminate the watching eye effect. In a crowded setting, minimal cues to being watched are unlikely to attract more attention than real people.

Indeed, neuroimaging and cognitive research shows that people process full faces faster than individual facial elements (Taylor et al., 2001), and that they are more susceptible to gaze cues from real people than static facial stimuli (Pönkänen et al., 2010). Indeed, individuals are more likely to engage in mental-state attributions and to experience increased public self-awareness when they look at live faces (versus static facial cues, Pönkänen et al., 2011). Thus, the difficulty to notice those minimal cues to being watched could explain why, in the presence of actual people, the watching eyes effect is attenuated or eliminated. Real people probably attract all the attention and most likely promote conditions of observability sufficiently strong. The images of eyes are likely to be hardly unnoticed and if noticed are unlikely to add to observability to further promote reputational concerns.

Another explanation is that crowdedness can cause *deindividuation*, which is the impression that the focus of attention has shifted away from the self (Diener, 1980). Being part of a crowd can lead a person to submerge in a given group of strangers, and experience a lowered sense of personal accountability and responsibility (Baumeister et al., 2016; Garcia et al., 2002; Postmes & Spears, 1998). Under appropriate circumstances, this decrease in self-awareness and evaluation apprehension can reduce adherence to cooperative and prosocial norms and may even encourage rule violations and antisocial behavior (Postmes & Spears, 1998).

Taken together, the above explanations suggest that being surrounded by strangers (or even being lost in the crowd) could draw one’s attention away from minimal cues to being watched and sometimes make one feel more anonymous and thus less observable (in big crowds). We speculate that the most ideal circumstance for watching eyes to be effective is in situations where no one else is around: When being alone. These situations may include not only bathrooms, but also empty streets, non-crowded parks, or the various spaces where other people are minding their own business.

Costs

Another important condition for the watching eyes effect is the cost of the prosocial act. Most forms of prosocial behavior involve costs for the actor (in terms of energy, money, risk, effort, or other valuable resources, Manesi et al., 2019; Penner et al., 2005). Prosocial behavior can range from low-cost prosocial acts (which are rather normative, require little effort and often confer direct benefits to the actor) to high-cost prosocial acts (which can be less habitual, require greater energy and may have no obvious benefits for the actor (see van Lange & van Doesum, 2015; van Doesum et al., 2021). For instance, everyday helping

behavior is shown to be less costly than acts of moral courage (Greitemeyer et al., 2006). Importantly, literature shows that various interventions aimed at increasing prosocial behavior are often more effective for low-rather than high-cost prosocial acts (Fischer et al., 2006; Niesta Kayser et al., 2010). Although this issue has not received adequate attention, the existing findings suggest that eye cues should serve as an effective reinforcement of low-cost prosocial behavior.

Increasing research evidence shows that eye images can enhance various forms of prosocial behavior that are relatively inexpensive, easy to perform and (generally) expected from the individuals, such as cleaning up one's own litter in public settings (Bateson et al., 2015, 2013; Ernest-Jones et al., 2011), paying for one's drinks (Bateson et al., 2006), complying with the law (Nettle et al., 2012), and voting in elections (Panagopoulos & van der Linden, 2016; Panagopoulos, 2014a, 2014b). Other forms of low-cost prosociality affected by eye cues are the tendency to embrace proenvironmental attitudes (Manesi et al., 2015), to split resources and responsibilities between oneself and a peer relatively fairly (e.g., Haley & Fessler, 2005; Manesi et al., 2016; Nettle et al., 2013; Rigdon et al., 2009, but see Matsugasaki et al., 2015), to tell the truth (Oda et al., 2015), and to comply with hand hygiene practice (Beyfus et al., 2016; Pfattheicher et al., 2017). It is evident that all those prosocial acts are rather habitual and require little energy or financial cost from the individual.

In contrast, eye images have also been shown to have a reduced (or no) effect on prosocial acts that are more costly or confer no direct benefits to the actor, such as sharing one's resources with an outgroup member (Mifune et al., 2010), donating to support outgroup others in distant lands (Lennon et al., 2017; Manesi et al., 2019; Saunders et al., 2016), or going out of one's way to return a lost letter (Manesi & Pollet, 2017). Furthermore, eye cues do not affect one's willingness to engage in a bystander intervention in a threatening situation or to support financially a broke stranger (Carbon & Hesslinger, 2011). Eyes also do not increase the inclination to lie for prosocial reasons (and, thus, bear the risk of being caught and punished for the sake of unknown others, Oda et al., 2015). Based on these, eye cues should modulate behavior when the potential gains outweigh the costs of acting prosocially: Being seen to engage in small acts of kindness (or to follow the rules) can increase the chances of receiving social rewards (or avoiding social penalties) without incurring substantial costs. An eye image in those cases could serve as a reminder of how individuals are expected to behave in such everyday situations.

This is in line with the broader literature, which shows that cues to cooperative norms have stronger effects on prosocial behaviors that are relatively

inexpensive and easy to enact (rather than expensive or difficult for the actor, Abramson et al., 2018; Diekmann & Preisendörfer, 2003; Tyler et al., 1982). Hence, as the costs increase, the rates of cooperation and prosocial behavior tend to drop. This is because when confronted with a request for a high-cost prosocial act, individuals often engage in *defensive denial* (Tyler et al., 1982), a cognitive state in which the individual perceives the situation as not urgent and the personal responsibility for prosocial action as not crucial. In such situations, prosocial behavior tends to occur due to other, more affective factors, such as empathy or prosocial values (Abramson et al., 2018). This may explain why individual differences in prosociality (compared to eye cues) have been found to be a stronger predictor of certain high-cost prosocial acts (e.g., donations to outgroup disaster victims far away, Manesi et al., 2019; Saunders et al., 2016).

Noticeability

The watching eyes effect can be strong but is vulnerable to habituation. Recent research shows that, for reputational concerns to occur, attentiveness to eye cues should be approximating 0.88 seconds (see Vaish et al., 2017). Looking at eye cues for a shorter amount of time might result in not noticing them and, thus, experiencing no urge to manage one's reputation. Yet, prolonged exposure to them might also fail to reduce perceived anonymity. Although the cut-point above which eye cues are not effective anymore has yet to be identified, in a meta-analysis, Sparks and Barclay (2013) found that only short exposures to eye cues can modulate human behavior. Indeed, unpredictable or abrupt displays of eye images (shortly before deciding whether or not to enact certain prosocial behavior) and frequent alternation of eye images can have a strong effect on prosocial behavior in controlled and field settings (e.g., Burnham & Hare, 2007; Ekström, 2012; Haley & Fessler, 2005; Manesi et al., 2016).

This agrees with the broader research on social presence, which shows that other reminders of observability can have a transient effect on prosocial behavior (Nasiopoulos et al., 2015). Nasiopoulos and colleagues (2015) demonstrated that participants wearing an eye tracker (and, thus, feeling that their gazing behavior is being observed) tended to engage in socially desirable (gazing) behavior (by following the rules and allocating their attention to stimuli that they were instructed to); yet, the effect was temporary as the socially desirable behavior waned after habituation to the eye tracker. Similarly, research in ecology shows that reminders of surveillance in nature, such as naturally occurring eyespots on certain species, can only temporarily create the impression of observation and serve as an antipredator

mechanism (i.e., eyespots can scare predators by resembling the eyes of the predators' own enemies, Stevens, 2005). Since the novelty of the eyespots fades with time and such stimuli have no consequences for the predators (as they pose no actual threat), habituation to them occurs inevitably and rapidly.

Likewise, in humans, prosocial responses to eyelike stimuli are bound to decline when such eyelike stimuli remain uninformative and non-consequential for a prolonged amount of time. Hence, a major reason why exposure time matters is that social surveillance needs to have immediate consequences for the individual, in the form of social rewards or sanctions, to elicit prosocial behavior. In line with this notion, the presence of real observers has been found to have substantially smaller impact on people's prosocial inclination when their behavior is consequence-free (versus consequential, Bradley et al., 2018). In a meta-analysis, Bradley et al. (2018), demonstrated that being observed increased participants' willingness to make prosocial fund allocations in an economic game under the condition that their decisions could influence how others would respond to them at a later game. Given the above reasoning and empirical evidence, interventions based on the watching eyes effect can be designed such that exposure to eyes is short (e.g., use rotating posters that alternate between different eye cues and/or non-watching stimuli) and occurs just before one's behavior takes place (e.g., place the eye images right above the drinks and the honesty box for payments or use a sensor that displays eye cues when detecting human presence). More research is required to determine the precise exposure time that creates optimal conditions for the effect to occur.

Future directions

It is important to note that next to these four central preconditions, there are likely more factors modulating the effect. Yet, more empirical evidence is needed to establish the significance of such factors in the watching eyes effect. For instance variables such as individual differences or culture may affect which individuals are more susceptible to eye cues. To date, research has only examined the role of specific characteristics such as chronic public self-awareness and prevention focus (Keller & Pfattheicher, 2011; Pfattheicher, 2015) whereas there has been no thorough cross-cultural research on watching eyes effects.

Although susceptibility to eye contact is innate and universal among humans (Farroni et al., 2002; Kobayashi & Kohshima, 1997; Senju & Johnson, 2009), there are important cultural differences in perception and interpretation of a direct gaze (Akechi et al., 2013; Uono & Hietanen, 2015). For example, as compared to high-

contact cultures (e.g., South Americans or Arabs), low-contact cultures (e.g., Northern Europeans or Asians) generally engage less frequently in direct eye contact (Kleinke, 1986). Furthermore, in comparison with Western European cultures, in East Asian cultures, eye contact is more likely to be perceived as a sign of anger, inapproachability or rudeness (Akechi et al., 2013; Argyle & Cook, 1976). In the Islamic culture, exposure to (female) eyes is less common due to eye-covering practices and that has been found to affect social behavior (Pazhoohi, 2016; Pazhoohi et al., 2017). On the other hand, certain other cultures are more exposed (than others) to eye-like symbols, such as "evil eye" charms (which are superstitiously believed to bring good luck in Christian Mediterranean countries and the Balkans) or symbols of supernatural monitoring (e.g., the "all seeing eye of God" found in religious temples, Bowie, 2000). Given such differences in terms of exposure, responses and (possibly) connotations of eyes and eye-like symbols, it is possible that interventions based on watching eyes vary in their effectiveness and have different implications in different cultures.

Furthermore, it is still unclear whether there are age differences in response to watching eyes interventions. So far, there are only few studies involving children and those studies report no significant effects (Fujii et al., 2015; Vogt et al., 2015). Although children as young as five years old are found to manage their reputations by displaying prosocial behavior in the presence of real observers (Engelmann et al., 2012; Leimgruber et al., 2012), eye cues appear to not increase generosity among five- or eight-year olds. Assuming that the four proposed conditions are taken into account, it is important to explore whether age serves as a boundary condition for the phenomenon. This is because nudges for enhancing cooperation and low-cost prosocial behavior (e.g., rule compliance, hand-washing behavior, helping behavior or reduced cheating) can be particularly meaningful for young age groups whose personality is still forming. Considering that the need for positive self-presentation tends to increase with age and peaks in adolescence (Aloise-Young, 1993; Engelmann & Rapp, 2018), it is likely that reputational concerns in the presence of real observers develop early in life; yet, susceptibility to minimal cues to being watched might develop later on. A more thorough exploration of watching eyes effects across different age groups could offer valuable insights.

Implications for Other Reputational Cues

Although there are important avenues for future exploration, the discussed conditions can be important not only for the watching eyes effect but also for other potential cues to reputation, such as security cameras.

Surveillance cameras have been found to effectively enhance prosocial behavior (van Bommel et al., 2014; van Rompay et al., 2009); yet, their effect is likely to wane when the perceived anonymity is high or exposure time is long. For instance, when the cameras create the impression that they are turned off or they remain motionless, it might cause people to habituate to this monitoring cue. Furthermore, in crowded places, surveillance cameras might go unnoticed. Therefore, closed-circuit television (CCTV) systems could be more effective when they appear to be active and they are installed in places that are highly visible from many parts of a public area. (Still, it is important to note that cameras can be at conflict with one's sense of freedom or privacy, and sometimes they may actually cause aggression against the camera – a form of reactance by which people seek to eliminate the cameras.)

Given that reactance effects are easily activated when people feel that their autonomy is constrained, such effects may even to some degree occur when people recognize why they see a poster or any other reminder of eyes cues (for an illustration, see Van Vugt et al., 1996; see Brehm, 1966; van Lange et al., 2013). That is, even subtle interventions by the government or authorities can be viewed negatively (e.g., manipulative), as they may constrain concerns of autonomy (and perhaps a basic feeling of privacy). At the same time, a recent study conducted in Vienna suggests that such concerns may not be very strong. In that study, the researchers compared various messages displayed on posters in the effectiveness to reduce littering at the entrance of apartment buildings (Gangl et al., 2022). Results show that the financial intervention (monetary information) hardly had any effect on littering whereas the norm-based intervention (depicted injunctive norm) led to more littering compared to the control condition. In contrast, the posters that were least intrusive or normative were more effective. In particular, reputation-based intervention (i.e., a poster displaying watching eyes) and ecological-based intervention (i.e., a poster displaying a nature picture) reduced littering over time. Thus, it is plausible that subtle reminders of reputation in the form of watching eyes hardly trigger reactance, whereas the ineffectiveness of a more normative message ("you should not litter") may be explained by some reactance. This may well explain why the implicit reminders of reputation and nature are relatively more effective.

Turning back to the benefits of observability, certain environmental properties, which are found to reduce perceived anonymity, could be more effective in promoting prosocial behavior when they are implemented under the proposed conditions. For instance, as compared to darkness, illumination (i.e., bright light) is shown to make people feel more identifiable and accountable for their acts (Zhong et al., 2010); this, in turn, leads to increased

ethical and prosocial behavior (Chiou & Cheng, 2013; Steidle & Werth, 2014; Yap, 2016). Considering that illumination is shown to facilitate suppression of socially undesirable impulses (Steidle & Werth, 2014), bright light may be particularly effective for enhancing low-cost prosocial acts (e.g., respecting rules, paying for one's drinks, cleaning-up one's own litter, etc.). On the other hand, the use of bright light might be less powerful in encouraging people to engage in prosocial behavior that is more costly. Furthermore, prolonged exposure to bright light might cause habituation and, therefore, using light strategically in places where norm violations are likely to occur (e.g., right above an honesty box) could increase the effectiveness of the intervention.

Conclusion

Images of watching eyes can serve as a cost-effective and simple intervention to promote prosocial behavior. Despite its intuitive appeal and convenience, it cannot be treated as a one-size-fits-all solution for every societal issue, and it does not ensure modulation of human behavior under all circumstances. We suggest that for compelling interventions, eye cues need to reduce perceived anonymity by creating a persuasive impression (likely at a subconscious level) that they can actually observe and identify an individual (anonymity). Watching eyes are more likely to be effective for low-cost cooperation or when other competing forces are absent (costs). Furthermore, the sense of being watched is more likely to be elicited in quiet, uncrowded places, ideally with no real faces around ("alone"). And finally, being watched is more likely to be more effective in promoting prosocial behavior when exposure to eye cues is short or sudden (noticeability). Under those circumstances, eye cues could help regulate violations of social norms by promoting small acts of kindness and adherence to simple rules that can help maintain or promote a well-functioning society. Even under the "ideal" circumstances, it seems unrealistic to expect extremely powerful effects (see Manesi et al., 2016). Instead, the effects of watching eyes are likely to be small, sometimes even trivial or close to zero. But then again, the costs of such an intervention in society are trivial as well, so that displays of watching eyes in the ideal circumstances still are cost-effective!

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