



Review Article

Artificial surveillance cues do not increase generosity: two meta-analyses

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ARTICLE INFO

Article history:

Initial receipt 28 May 2015

Final revision received 1 July 2016

Keywords:

Surveillance cues

Cues of being watched

Observation cues

Eyespots

Generosity

Meta-analysis

ABSTRACT

Many studies have seemingly demonstrated that anonymous individuals who are shown artificial cues of being watched behave as if they are being watched by real people. However, several studies have failed to replicate this surveillance cue effect. In light of these mixed results, we conducted two meta-analyses investigating the effect of artificial observation cues on generosity. Overall, our meta-analyses found no evidence to support the claim that artificial surveillance cues increase generosity, either by increasing how generous individuals are, or by increasing the probability that individuals will show any generosity at all. Therefore, surveillance cue effects should be interpreted cautiously.

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1. Introduction

People who know or believe their actions are being observed by others behave differently (e.g., Aiello & Svec, 1993; Bond & Titus, 1983; Latané, 1981; Putz, 1975; Risko & Kingstone, 2011; Triplett, 1898; Zajonc, 1965). For example, they are more generous (Kurzban, 2001; Satow, 1975), more helpful (van Rompay, Vonk, & Franssen, 2009), and more likely to participate in moralistic punishment (Kurzban, DeScioli, & O'Brien, 2007; Piazza & Bering, 2008). It has been hypothesized that this tendency is so deeply ingrained that even artificial cues of being observed are sufficient to impact behavior. The last decade has witnessed the introduction and development of a literature which seemingly supports this idea: Anonymous individuals shown mere images of watching eyes (or similarly artificial surveillance cues) behave more prosocially, as if they are being watched by real people.

However, when considering the artificial surveillance cue literature as a whole, the results are inconsistent, often conditional on (or moderated by) certain variables, and occasionally contradictory. In the present paper, we review the artificial surveillance cue literature, paying special attention to generosity, the topic most frequently investigated. We then describe two meta-analyses we conducted investigating the effect of artificial observation cues on generosity.

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Papers reporting surveillance cue effects describe several desirable behaviors. The dependent variables that have been studied by surveillance cue researchers are listed in Table 1. They include a variety of prosocial outcomes, such as increased generosity (e.g., Pfattheicher, 2015), reduced littering (e.g., Bateson et al., 2015), and increased voter turnout to an election (e.g., Panagopoulos, 2015). Researchers have also investigated the impact of surveillance cues on hand washing, free-riding, reported moral judgment, dishonesty, disposal of recyclables, reported religiosity, socially desirable responding, ambiguity aversion, antisocial punishment, bicycle theft, conservation attitudes, food choices, self-reported likelihood of helping or desiring revenge, self-rated possession of positive traits, probability estimation, prosocial lying, reciprocal altruism, the spotlight effect, survey participation, and third-party punishment.

1.1. Generosity

Many claimed surveillance cue effects are related to generosity. Researchers interested in whether artificial cues of being watched increase generosity have utilized the social discounting task (Sparks, 2010), charity donation paradigms (Ekström, 2012; Fathi, Bateson, & Nettle, 2014; Keller & Pfattheicher, 2011; Pfattheicher, 2015; Pfattheicher & Keller, 2015), and economic games such as the public goods game (Burnham & Hare, 2007) and the dictator game (e.g., Haley & Fessler, 2005).

In a dictator game, one of two players, the dictator, receives money and decides how to allocate it among him/herself and the second player. The second player merely accepts what the dictator offers, if the dictator offers anything at all. The dictator game was utilized by one of the first,

and possibly best known, artificial surveillance cue studies (Haley & Fessler, 2005). Half of the dictators were presented with a stylized image of eyes on their computer desktop; the other half were presented with a control desktop image. Dictators allocated more money, on average, in the eyes condition. Evidence for increased generosity due to images of watching eyes has been found in other dictator game studies as well (e.g., Baillon, Selim, & van Dolder, 2013; Oda, Niwa, Honma, & Hiraishi, 2011).

Some dictator game studies, however, did not reveal significantly increased generosity among dictators presented with images of eyes (e.g., Fujii, Takagishi, Koizumi, & Okada, 2015; Jolij & de Haan, 2014; Matsugasaki, Tsukamoto, & Ohtsubo, 2015; Sparks, 2010; Vogt, Efferson, Berger, & Fehr, 2015; White, 2015). One such experiment was conducted by Tane and Takezawa (2011). The authors suggested that their use of a dark, sound-proof room in which participants sat alone canceled out the watching eyes effects. This explanation is plausible; on the other hand, Tane and Takezawa's results are what one would expect them to be if observation cues have no effect on behavior.

1.2. Inconsistencies in the literature

When considering the artificial surveillance cue literature as a whole, many studies have obtained nonsignificant results (Bolton, Rivas, Prachar, & Jones, 2015; Cai, Huang, Wu, & Kou, 2015; Carbon & Hesslinger, 2011; Fehr & Schneider, 2010; Fujii et al., 2015; Jolij & de Haan, 2014; Kuliga, Tanja-Dijkstra, & Verhoeven, 2011; Matland & Murray, 2015; Matsugasaki et al., 2015; Northover, Pedersen, Andrews, & Cohen, 2016; Pedersen, 2016; Raihani & Bshary, 2012; Sparks, 2010; Sparks & Barclay, 2015; Tane & Takezawa, 2011; Vogt et al., 2015; White, 2015; and L. Tiokhin, personal communication, January 7, 2016) and significant results are often conditional. Significant results hinge on the methods of data analysis, participant or surveillance cue traits, or specific features of the environment. While conditional effects are often illuminating, we are concerned that the conditions on which surveillance cue effects seemingly depend differ from study to study.

For example, some studies have suggested that surveillance cue effects are augmented by, or dependent on, the number of people in the vicinity. Powell, Roberts, and Nettle (2012) investigated the effect of

surveillance cues on generosity in a supermarket study. Buckets located at checkouts were used to collect donations to a charity. Half of the buckets displayed an image of eyes and the other half displayed an image of three stars. Donations were 48% higher to eyes than control buckets. Observation cues apparently affected donations more strongly when there were fewer customers present. During slow weeks, the eyes buckets received 59% more in donations per thousand customers; during busier weeks, the eyes buckets received only 28% more. In another field experiment, litter was left on fewer cafeteria tables when photographs of eyes were placed on the walls (Ernest-Jones, Nettle, & Bateson, 2011). This was especially true when the cafeteria contained relatively few people. Finally, Ekström (2012) placed images on recycling machines in Swedish supermarkets. Customers used the machines to recycle cans and bottles and were given a choice of whether to keep the money earned or donate it to a charity. An image of eyes was displayed for half the time and a control image of flowers was displayed the other half. When considering only the days on which few recycling customers visited the stores, there was a 30% increase in the amount of money donated in the surveillance cue condition, but overall, there was no difference in the amount donated by customers when the machines displayed eyes compared to flowers.

These three studies suggest that surveillance cues may be redundant in the presence of large numbers of people. This is theoretically sensible inasmuch as it seems likely that an individual in this situation is already receiving surveillance cues from the crowd of real people in the vicinity. The possibility that the noise of a large crowd distracts individuals and decreases the likelihood of the surveillance cue being noticed has not been ruled out, however (Ekström, 2012). Nonetheless, another field study of littering behavior found the opposite conditional effect: Bicyclists on a university campus who were exposed to images of watching eyes were less likely to litter than those who were not exposed to observation cues, but only when there was a greater number of people in the vicinity (Bateson, Callow, Holmes, Redmond Roche, & Nettle, 2013). Thus, the moderating effect of crowd density is unclear.

In some studies, the watching eyes effect was found when the data were analyzed in certain ways, but not in others. In a dictator game experiment conducted by Raihani and Bshary (2012), dictators shown surveillance cues were more likely to give something rather than nothing, but dictators shown surveillance cues did not give more money on average; in fact, they gave less compared to control groups. Nettle et al.

Table 1
Dependent variables of surveillance cue studies.

Dependent variable	Studies
Generosity	See Tables 2 and 4
Hand washing	Beyfus et al., 2016; Bolton et al., 2015; Carbon & Hesslinger, 2011; Kuliga et al., 2011, September
Voting participation	Matland & Murray, 2015; Panagopoulos, 2014a, 2014b, 2015
Free-riding	Bateson et al., 2006; Brudermann, Bartel, Fenzl, & Seebauer, 2015; Manesi, Van Lange, & Pollet, 2016
Littering	Bateson et al., 2013; Bateson et al., 2015; Ernest-Jones et al., 2011
Moral judgment	Bourrat, Baumard, & McKay, 2011; Northover et al., 2016; Sparks & Barclay, 2015
Dishonesty	Cai et al., 2015; Hoffman et al., 2015
Disposal of recyclables	Francey & Bergmüller, 2012; Franzen, Berner, Paulenz, & Steiner, 2015
Religiosity	Northover et al., 2016; Rutjens & van Elk, 2015
Socially desirable responding	Pfafftheicher, 2015; White, 2015
Ambiguity aversion	Baillon et al., 2013
Antisocial punishment	Baillon et al., 2013
Bicycle theft	Nettle, Nott, & Bateson, 2012
Conservation attitudes	Manesi et al., 2015
Food choices	Bittner & Kulesz, 2015
Likelihood of desiring revenge	Carbon & Hesslinger, 2011
Likelihood of helping	Carbon & Hesslinger, 2011
Possession of positive traits	Northover et al., 2016
Probability estimation	Baillon et al., 2013
Prosocial lying	Oda, Kato, & Hiraishi, 2015
Prosocial punishment	Horita & Takezawa, 2014
Reciprocal altruism	Fehr & Schneider, 2010
Spotlight effect	Pfafftheicher & Keller, 2015
Survey participation	Pedersen, 2016

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