

Surveillant Intentions and Intrinsic Motivation

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Alternative predictions about the influence of surveillance on intrinsic motivation were derived from cognitive evaluation and objective self-awareness theories. Adult Ss in Experiment 1 were assigned to surveillance conditions that implicated either controlling or noncontrolling surveillant intentions or to no-surveillance conditions. A behavioral measure revealed greater intrinsic motivation in the noncontrolling intention and no-surveillance conditions than in the controlling intention conditions ($ps < .05$). Experiment 2 examined why the lowest level of intrinsic motivation in Experiment 1 occurred when the surveillant did not specify a reason for watching Ss. Results indicated that such surveillance was interpreted as reflecting both surveillant distrust of Ss and the intention to evaluate Ss' performance. Evidence from the 2 studies supported cognitive evaluation theory rather than objective self-awareness theory.

Social influence strategies designed to regulate people's actions can have deleterious effects when used unnecessarily, that is, when people are intrinsically motivated to act. According to Deci and Ryan's (1985, 1987) cognitive evaluation theory, these effects occur as a result of constraint-induced shifts between extrinsic and intrinsic motivational subsystems. When self-perceived autonomy is negated by socially controlling events, intrinsic motivation is supplanted by extrinsic motivation. Consistent with this reasoning, events that are explicitly antagonistic to autonomous functioning, such as task-contingent incentives (e.g., Deci, 1971; Lepper, Greene, & Nisbett, 1973), externally imposed deadlines (Amabile, DeJong, & Lepper, 1976), and externally imposed evaluation contingencies (e.g., Harackiewicz, Manderlink, & Sansone, 1984) have been shown to decrease intrinsic motivation.

Other research demonstrates that more subtle constraints similarly can be detrimental to intrinsic motivation. Lepper and Greene (1975), for example, found that children who believed themselves to have been monitored by means of a video-camera during an initial play period evidenced lower subsequent intrinsic interest in the activity than did children who had not been monitored. This finding has been replicated with adults who were watched by a physically present surveillant (Pittman, Davey, Alafat, Wetherill, & Kramer, 1980) and by means of a videocamera (Plant & Ryan, 1985).

The effect on intrinsic motivation of being watched presumably occurs because surveillance is a commonly understood means of exercising social control (Deci & Ryan, 1987). People know that under some circumstances, being closely watched is linked to performance evaluation and attempts to compel distrusted persons to comply with rules. When managerial per-

sonnel monitor employees, they often do so to evaluate work quality and to enforce workplace rules (see Strickland, 1958). Likewise, teachers often watch their students to evaluate performance and to discourage misconduct (Borich, 1988). Sometimes surveillants explicitly explain their motives. A production line manager might directly inform workers that their productivity is being evaluated using surveillance, and a teacher might directly tell students that they are being watched to enforce no-talking rules. Sometimes intentions to control are not explicitly stated by surveillants but nevertheless can be inferred from contextual cues. People know, for example, that the responsibilities of teachers and workplace managers include performance evaluation and rule enforcement. When persons in such roles engage in surveillance, those watched can easily infer controlling intentions even when the surveillant does not directly express his or her motives. Whether explicitly stated or unstated but understood from contextual cues, controlling surveillant intentions should threaten the personal autonomy of those watched and produce corresponding reductions in intrinsic motivation.

We believe that controlling intentions were easily understood by subjects in previous research on surveillance. In Lepper and Greene's (1975) surveillance conditions, the experimenter "explained that he would . . . be able to see how well the child was doing on the puzzles" (p. 482). Subjects in the Plant and Ryan (1985) study similarly were told that they were being videotaped so that their puzzle-solving behavior could be "analyzed." Both of these stated reasons suggest that the surveillant's intention was to evaluate subjects' performance. Subjects in the Pittman et al. (1980) experiment, however, apparently were given no explicit rationale for the surveillant's presence. Why then did the surveillance condition lead to lowered intrinsic motivation when compared with the nonsurveillance condition? Because of the psychological research context and the power imbalance between the surveillant experimenter and the subjects, it seems likely that subjects would have readily inferred that the surveillant's intention was to evaluate them or to enforce compliance with instructions (see Orne, 1962; Rosenberg, 1969).

According to Deci and Ryan's (1987) model, the imputation of controlling motives to surveillants should be a necessary

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condition for the shift from intrinsic to extrinsic motivation. Surveillant intentions that are perceived as noncontrolling should not undermine intrinsic motivation. There are at least two common types of surveillance that do not implicate controlling intentions of the surveillant. One example of noncontrolling surveillance is garden-variety people watching. The park bench surveillant is understood to be watching people to satisfy his or her curiosity, not to exercise control over those being watched. Another type of noncontrolling surveillance occurs when a person is watched as an incidental consequence of the surveillant's primary intention. When an apartment building security guard watches people in recreational areas of the building by means of video monitors, his or her intention is to protect tenants from harm and to limit access to the area by unauthorized nontenants. Tenants understand that the intention is not to exercise control over them, even though they are incidentally under the same surveillance that is designed to detect danger and interlopers. When people infer or are told of these types of noncontrolling surveillant intentions, there should be no threat to their personal autonomy, and intrinsically motivated activities (e.g., playing in the park or swimming in the apartment pool) should not be undermined.

Our general prediction drawn from Deci and Ryan (1987) is that surveillance perceived as arising from controlling intentions will undermine intrinsic motivation, whereas intentions perceived as reflecting noncontrolling intentions will leave intrinsic motivation intact. Research clearly shows that controlling versus noncontrolling intentions differentially influence intrinsic motivation in other contexts. For example, rewards used to extrinsically control people's activities produce decreased intrinsic motivation, whereas the same rewards administered in a noncontrolling fashion do not (e.g., Enzle & Ross, 1978; Enzle, Roggeveen, & Look, 1991). Because of this related evidence, it is fair to ask whether there is reason to think that surveillance does not depend on perceptions of the surveillant's motives. We believe in fact that there is another cogent explanation for the existing evidence on surveillance and intrinsic motivation.

The same events that are used to operationalize surveillance in intrinsic motivation studies (videocameras and physically present observers) play an important but very different role in tests of Duval and Wicklund's (1972) objective self-awareness theory (see also Gibbons, 1990). According to Duval and Wicklund (1972) and Wicklund (1975), cameras and observers are likely to heighten people's self-focused attention, thereby producing a state of objective self-awareness in which people evaluate the goodness of fit between the ideal self and the real contemporaneous self. Duval and Wicklund (1972) proposed that negative affect results when self-evaluation reveals that the real self is discrepant from the ideal self. The theory assumes that the usual outcome of self-evaluation is the perception of discrepancy and the accompanying experience of negative affect (see Gibbons, 1990). Pretty and Seligman (1984) have shown that exogenously induced negative mood decreases intrinsic interest in temporally contiguous activities. If surveillance in intrinsic motivation experiments does instigate objective self-awareness, as it is assumed to do in objective self-awareness studies, then decrements in intrinsic motivation could be due to the negative affective consequences of objective self-aware-

ness rather than the influence of extrinsic control on self-perceived autonomy.

The objective self-awareness explanation is a plausible alternative for all previous experiments in the literature that have tested the effect of surveillance on intrinsic motivation (Lepper & Greene, 1975; Pittman et al., 1980; Plant & Ryan, 1985). Experimental operations used in intrinsic motivation research (the presence of cameras and live observers) to investigate the effects of extrinsic sources of control theoretically should have produced heightened objective self-awareness as well. The current research was designed to evaluate the relative merits of these competing accounts.

Experiment 1

Subjects in Experiment 1 engaged in a play activity under one of several surveillance and no-surveillance conditions. Intrinsic motivation was measured during a subsequent free-play period. We contrasted two no-surveillance conditions with surveillance conditions designed to represent controlling and noncontrolling surveillant intentions, and we examined explicitly stated controlling surveillant intentions versus unstated but inferable controlling intentions. We also explored an interesting question suggested by Plant and Ryan's (1985) surveillance operationalization: Does anticipated future evaluation of current performance undermine intrinsic motivation?

Controlling Versus Noncontrolling Surveillant Intentions

Subjects in one stated controlling intention condition learned that the surveillant was watching them to evaluate their performance (*contemporary performance evaluation*). This explicitly expressed intention to evaluate subjects' performance was designed to conceptually replicate the reason given to subjects for surveillance by Lepper and Greene (1975). Subjects in a second stated controlling intention condition (*distrust*) learned that the surveillant's purpose was to enforce compliance with the experimental instructions. Surveillance for the purpose of rule enforcement should imply that the surveillant distrusts the person who is watched (cf. Strickland, 1958). The current research provides the first direct test of the hypothesis that surveillant distrust has a negative effect on the intrinsic motivation of those who are watched. We also included an unstated controlling intention condition to replicate the Pittman et al. (1980) surveillance condition and to pursue our speculation that people readily infer controlling evaluative or distrusting surveillant intentions in contexts characterized by unequal power relationships (Orne, 1962). We predicted that subjects in these controlling surveillant intention conditions (contemporary performance evaluation, distrust, unstated intention) subsequently would evidence less intrinsic interest in the target activity than would subjects in the no-surveillance conditions.

Subjects in two stated noncontrolling intention conditions learned that the surveillant was watching because he was personally interested in how people would approach the activity (*curiosity*) or because he needed to ensure that the video equipment worked properly (*incidental intention*). These surveillant intentions should not threaten the autonomy of those being watched. Subjects in the noncontrolling intention conditions

therefore were expected to show greater intrinsic motivation than those in the controlling intention conditions and equivalent interest to those in the no-surveillance conditions.

Immediate Versus Anticipated Future Performance Evaluation

An additional stated controlling intention condition was included to test the possibility that surveillance need not be contemporaneous with activity to have a deleterious effect on intrinsic motivation. Plant and Ryan's (1985) description of their surveillance condition suggests that subjects did not expect to be watched during the experimental session. Subjects were told that a videotape was being made and would be viewed and evaluated at a later time. If subjects in the Plant and Ryan study did not believe that there was contemporary evaluation of their performance, then the undermining effect of surveillance would have been due to anticipated future performance evaluation. As a direct test of this possibility, subjects in our *future performance evaluation* condition were told that they would not be watched concurrently. They learned instead that a videotape supposedly made during the session would be viewed at a later time to assess the quality of their performance.

Cognitive Evaluation Versus Objective Self-Awareness Explanations

A pair of no-surveillance conditions was constructed to test the cognitive evaluation and objective self-awareness explanations of surveillance effects on intrinsic motivation. In one of these conditions, subjects saw no camera when they engaged in the play activity. In the other no-surveillance condition, a videocamera was present, but subjects were led to believe that they would neither be watched nor be evaluated. Although the latter condition represents a lack of surveillance, the procedure is consistent with Duval and Wicklund's (1972) hypothesis that objective self-awareness can be aroused by the mere presence of self-focusing stimuli such as cameras. The objective self-awareness interpretation would be supported if intrinsic motivation decreased in the no-surveillance-camera-present condition relative to the no-surveillance-no-camera condition. The no-surveillance-camera-present condition unconfounds self-focusing cues from threats to self-perceived autonomy, a confounding present in all previous intrinsic motivation research on surveillance effects.

Another comparison of the objective self-awareness and cognitive evaluation accounts involves the controlling and noncontrolling surveillant intention conditions. Cues that theoretically could produce objective self-awareness (the videocamera and the surveillant) were present in all of our surveillance conditions, including the noncontrolling intention conditions in which personal autonomy theoretically should not be threatened. If the cognitive evaluation account is correct, the controlling surveillance conditions should result in lower intrinsic motivation than the no-surveillance conditions, whereas the noncontrolling surveillance conditions should be functionally the same as the no-surveillance conditions. If the objective self-awareness theory interpretation is correct, however, all surveillance conditions should result in decreased intrinsic motivation

when compared with the no-surveillance-no-camera condition, regardless of whether the surveillant's intention was controlling or noncontrolling.

Method

Subjects

Subjects were 85 male and female university students who participated in partial fulfillment of an introductory psychology course requirement. Data from 5 subjects were deleted because of suspiciousness of the experimental intent. Suspiciousness was unrelated to experimental condition. The remaining 80 subjects were randomly assigned in equal numbers to the six treatment and two control conditions.

Apparatus and Materials

A large assortment of brightly colored Lego building toys (e.g., blocks, doors, windows, axle-wheel assemblies, trees, and people) were arrayed on a table in the subject's cubicle. Next to these materials were line drawings of a house and a construction crane. The Lego toy was chosen for use in the experiment because it has a very high base rate of spontaneous activity engagement in our subject population. On an adjacent table were an audiotape player, three audiocassette tapes (labeled *Etch-A-Sketch*, *Lego*, and *Labyrinth*), and a specially designed speaker enclosure. The enclosure housed a speaker driven by the audioplayer as well as a miniature silent videocamera. The videocamera was not visible through the grill cloth, but produced a high-resolution image of the subject's table surface by means of long depth of field focusing through the loose-weave grill cloth. An attache case containing another videocamera was situated next to the speaker enclosure. An *Etch-A-Sketch* toy and *Labyrinth* game were prominently displayed on a third table. These items were present to support part of the cover story and to justify the experimenter's absence during a free-play measure of intrinsic motivation. A corner of the room was furnished with an easy chair, lamp, and coffee table. Copies of the two current local newspapers and of *Time* and *Newsweek* were situated on the coffee table and provided alternative activities for subjects during the free-play period.

Procedure

Subjects participated individually in the sessions. Each subject was met by Experimenter 1 and was seated at the table on which the Lego materials were arrayed. The subject was told that the purpose of the research was to investigate adults' evaluations of the educational potential of currently popular toys for children (Lego, *Etch-A-Sketch*, and *Labyrinth*). Experimenter 1 then indicated that the Lego toy had been randomly selected for the current session. Experimenter 1 explained that the subject was to become familiar with the Lego toy during a 10-min period by constructing the small house and crane shown in the line drawings. Subjects learned that it was important to spend the entire 10-min period using the Lego materials, although it was not necessary to complete both of the objects. The ostensible purpose of this initial activity period was to provide subjects with sufficient experience with the Lego materials to enable them to complete a questionnaire about the toy's educational potential. Experimenter 1 indicated that he would play an audio recording that would signal the start and conclusion of the 10-min period.

Experimenter 1, who had until this time been blind to the subject's condition assignment, surreptitiously consulted a slip of paper that had been prepared by an assistant. The slip indicated whether the subject was assigned to the no-surveillance-no-camera condition or to one of the remaining seven conditions in which the unconcealed video-

camera would be used. If the subject had been assigned to one of the latter seven conditions, the specific condition was not identified, thereby permitting Experimenter 1 to remain blind for an additional period of time to those seven conditions.

No-surveillance-no-camera condition. If the slip designated the no-surveillance-no-camera condition, Experimenter 1 reminded the subject that the purpose of the research was to obtain judgments about the educational potential of children's toys. He then started the audioplayer and left the subject's cubicle through a door leading to an interior room of the laboratory suite, telling the subject to knock on the door after the taped instruction to stop. The tape recorded start signal occurred 45 s after the audioplayer was activated.

If Experimenter 1's slip showed that the videocamera was to be present, he removed the camera from the attache case, placed it on the table adjacent to the subject's table, connected it to a cable that had hitherto been concealed, ostensibly focused it on the surface of the subject's table, and appeared to activate it. While doing so, Experimenter 1 told the subject that his or her activity with the Lego toy would be videotaped during the 10-min period. He gave a general explanation for the videotaping that did not involve surveillance, saying that he would "keep the videotapes because they can sometimes be used by developmental psychologists in our department in their research about how children learn from watching videos." Experimenter 1 also restated the ostensible focus of the study as being the subject's answers to the questions about the educational potential of toys. He then started the audioplayer and secretly consulted another slip of paper that indicated the subject's exact condition assignment. The experimenter then delivered one of the following statements as he left the subject's cubicle, each prefaced by "During the videotaping . . .":

No-surveillance-camera-present. ". . . I won't be able to watch you, so please knock on the door over here when you hear the taped instruction to stop."

Surveillance-distrust. ". . . I'll be watching you on a TV monitor to make sure you follow instructions. Please knock on the door over here when you hear the taped instruction to stop."

Surveillance-contemporary performance-evaluation. ". . . I'll be watching you on a TV monitor to see how well you do. Please knock on the door over here when you hear the taped instruction to stop."

Surveillance-future performance-evaluation. ". . . I won't be able to watch you while you're doing this, but next week I'll use a TV monitor to see how well you did. Please knock on the door over here when you hear the taped instruction to stop."

Surveillance-unstated-intention. ". . . I'll be watching you on a TV monitor. Please knock on the door over here when you hear the taped instruction to stop."

Surveillance-curiosity. ". . . I'll be watching you on a TV monitor; I'm really kind of curious to see what people do. Please knock on the door over here when you hear the taped instruction to stop."

Surveillance-incidental-reason. ". . . I'll be watching you on a TV monitor to make sure the videotape system is working properly. Please knock on the door over here when you hear the taped instruction to stop."

As the experimenter asked the subject to knock on the door, he exited the cubicle. The taped start signal occurred shortly after his departure. Experimenter 1 was thus blind to all surveillance and one of

the no-surveillance conditions until immediately before the induction and left the subject immediately after the induction.

During the 10-min initial activity period, subjects were videotaped by means of the concealed camera. After the 10-min period, the taped instructions indicated that the subject should disassemble the objects and then notify the experimenter that he or she was finished. When the subject knocked, Experimenter 1 reentered the cubicle. If the subject was in a condition involving the exposed videocamera, Experimenter 1 quickly returned that camera to the attache case. In all eight conditions the experimenter took the attache case and exited the cubicle through a second door into the building corridor. Although Experimenter 1 was not blind during this time, he made no eye contact with the subject and successfully avoided conversation by appearing to be in a hurry.

As Experimenter 1 left the subject's cubicle, Experimenter 2 (who was blind to all conditions) entered, picked up the Etch-A-Sketch toy, and attracted the subject's attention by asking for the audiocassette labeled *Etch-A-Sketch*. Experimenter 2 said that he and Experimenter 1 were going to start a session with a participant in another laboratory using the Etch-A-Sketch and that they would return later to complete the subject's session. Experimenter 2 then left the subject's cubicle by the hallway door, carrying with her the Etch-A-Sketch and audiocassette. A 10-min free-play period commenced when Experimenter 2 closed the door, with the subject's activities recorded by the concealed videocamera. At the conclusion of the free-play period, Experimenter 2 reentered the subject's cubicle through the hallway door, apologized for the delay, administered a postexperimental questionnaire, probed the subject for suspiciousness, and then conducted a complete debriefing.

Measures

A judge blind to condition assignments scored all of the videotapes for percentage of the construction task completed during the initial 10-min period and for free-play activity during the subsequent 10-min period. Percentage completion was judged relative to line drawings of the objects. The free-play measure was the total time subjects spent playing with the Lego toy, with play defined as the manipulation of one or more Lego pieces. A second judge who was also blind to conditions independently scored a randomly selected subsample ($n = 25$) of the videotapes.

The postexperimental questionnaire included a number of buffer items consistent with the cover story. Process measures included 9-point bipolar ratings of the extent to which subjects perceived themselves to have been passive versus active and externally directed versus self-directed during the initial activity period.

Results

Preliminary analyses were conducted with subject gender included as a variable. There were no significant main effects or interactions involving gender.

Reliability of Videorecording Judgments

Interjudge correlation coefficients were significant for both measures. For the initial activity period, the correlation between judges for percentage completion of the task was .96, $p <$

¹ Pilot testing showed that the experimenter's explanation about making the videotapes for use by developmental psychologists, his assertion that he could not watch subjects, and his request that subjects notify him when they finished the task combined effectively to assure subjects in this condition that they were not under surveillance.

.001. The interjudge correlation was .99, $p < .001$, for the free-play measure of intrinsic motivation.

Performance During Initial Activity Period

To ensure that experimental treatments were not confounded with performance differences during the initial activity period, an analysis of variance (ANOVA) was conducted on the judge's estimates of task completion. This analysis yielded a nonsignificant treatment effect, $F(7, 72) < 1$. Mean completion was 81.89%. All subjects spent the entire 10-min period working on the two objects.

Intrinsic Motivation

A one-way ANOVA conducted on time spent in free play out of the total 600 s yielded a significant treatment effect, $F(7, 72) = 8.32$, $p < .001$. The means for this effect appear in Table 1.

Duncan's multiple range test revealed that differences among the means closely conform to predictions derived from Deci and Ryan's cognitive evaluation theory. Controlling intentions for surveillance led to reduced intrinsic motivation, whereas noncontrolling intentions had no discernible effect. Mean free play times for the contemporary performance evaluation ($M = 231.90$ s), future performance evaluation ($M = 272.20$ s), distrust ($M = 324.00$ s), and unstated intention conditions ($M = 156.70$ s) were all significantly lower than those in the two no-surveillance conditions ($ps < .05$). The means for the two no-surveillance conditions, which varied presence versus absence of the objective self-awareness cue, did not significantly differ ($Ms = 464.80$ s and 459.40 s, respectively, for the no-camera and camera-present versions). The contemporary and future performance evaluation conditions did not differ significantly from each other. Evaluative intent produced comparable decrements of intrinsic motivation whether subjects believed their performance was currently being watched and evaluated or would be watched and evaluated at a later time. It is interesting to note

that the lowest of the controlling intention means is that for the unstated intention condition, which significantly differs from the distrust condition mean ($p < .05$), although not from the means for the contemporary and future performance evaluation conditions.

Surveillance undertaken for noncontrolling reasons produced very different results. Subjects in the noncontrolling curiosity ($M = 462.90$ s) and incidental intention ($M = 491.80$ s) conditions spent significantly more time in free play than did subjects in the four controlling intention conditions ($ps < .05$). The means for the two noncontrolling intention conditions did not differ from those for the two no-surveillance conditions.

Personal Autonomy

Mean scores were computed for each subject's self-ratings on the passive versus active and externally directed versus self-directed scales. Higher numbers on this composite 9-point scale represent greater self-perceived personal autonomy. An ANOVA revealed a significant treatment effect, $F(7, 72) = 15.31$, $p < .001$. The means, shown in Table 1, closely parallel those for the measure of intrinsic motivation. Subjects in all of the no-surveillance and noncontrolling intention conditions expressed significantly greater self-perceived autonomy than did subjects in the controlling intention conditions ($ps < .05$). The two no-surveillance conditions did not significantly differ from the two noncontrolling intention conditions. Also, subjects felt least autonomous in the unstated intention condition ($M = 5.20$), with the mean for that condition differing significantly from the other three controlling intention conditions ($ps < .05$).

Discussion

According to cognitive evaluation theory, surveillance undermines intrinsic motivation because it represents an extrinsic attempt to control people's activities. It follows that intrinsic motivation should only be harmed by monitoring that implicates controlling intentions of the surveillant. The current findings provide good support for this view. Consistent with previous research (Lepper & Greene, 1975; Plant & Ryan, 1985), surveillance accompanied by an explicitly stated controlling intention to evaluate subjects' performance led to significantly less intrinsic motivation than was evidenced in the no-surveillance conditions. Experiment 1 also provided the first test and support for the prediction that surveillance presented as a means of enforcing rules also negatively affects intrinsic motivation. Surveillance in Experiment 1 that apparently stemmed from the noncontrolling surveillant intentions of satisfying curiosity and maintaining equipment, however, did not lead to lower intrinsic motivation than found in the no-surveillance conditions. Completing the picture, subjects who had experienced noncontrolling surveillance later showed significantly greater intrinsic motivation than those who had been exposed to controlling surveillance. These findings indicate that it is not surveillance per se that is important, but the belief that the surveillant intends to exercise social control.

The results of the composite personal autonomy measure provide additional support for our cognitive evaluation analysis

Table 1
*Experiment 1: Means for Free Play Time (in Seconds)
and Personal Autonomy*

Condition	Free play		Personal autonomy	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
No-surveillance				
No camera present	464.80 _a	102.13	7.75 _a	0.54
Camera present	459.40 _a	126.40	7.35 _a	0.67
Controlling surveillance				
Contemporary evaluation	231.90 _{b,c}	181.70	5.95 _b	0.93
Future evaluation	272.20 _{b,c}	189.55	6.25 _b	0.82
Distrust	324.00 _b	167.38	6.55 _b	0.44
Unstated intention	156.70 _c	162.76	5.20 _c	1.21
Noncontrolling surveillance				
Curiosity	462.90 _a	116.52	7.50 _a	0.41
Incidental intention	491.80 _a	107.64	7.55 _a	0.55

Note. Means within columns that do not share a common subscript differ at $p < .05$ by Duncan's multiple-range test.

of surveillance. Deci and Ryan (1987) hypothesized that extrinsic controlling events exert their effects on intrinsic motivation through changes in people's sense of personal autonomy. Our results showed that controlling surveillance indeed led to lower ratings of personal autonomy than both noncontrolling surveillance and the absence of surveillance. Noncontrolling surveillance had no appreciable influence on subjects' experience of personal autonomy relative to the no-surveillance conditions.

Our future performance evaluation condition was designed to test whether evaluative surveillance need be contemporary to negatively influence self-perceived autonomy and intrinsic motivation, a possibility suggested by Plant and Ryan's (1985) research. Our contemporary and future performance evaluation conditions had the same effect on subjects, both leading to lower personal autonomy ratings and intrinsic motivation than the no-surveillance conditions. Here again is evidence that it is not being currently watched per se that damages intrinsic motivation. Subjects' knowledge that their activities would be watched at a later time by the experimenter for the purpose of performance evaluation was sufficient to produce the undermining effect.

The present findings provide no support for the objective self-awareness (Duval & Wicklund, 1972) explanation of surveillance effects on intrinsic motivation. We suggested that because self-focusing cues have been confounded with surveillance, negative affect generated by objective self-awareness could account for reductions in intrinsic motivation found in previous research (Lepper & Greene, 1975; Pittman et al., 1980; Plant & Ryan, 1985). We established two means of testing the objective self-awareness and cognitive evaluation (Deci & Ryan, 1985, 1987) alternatives. First, the no-surveillance-camera-present condition in Experiment 1 exposed subjects to the potential self-focusing cue of a videocamera unconfounded by surveillance. This condition did not produce a decrement in intrinsic motivation compared with the no-surveillance-no-camera condition, a result that is inconsistent with the objective self-awareness alternative. Second, the self-focusing cue was present in conditions that both should and should not produce decreased intrinsic motivation according to the cognitive evaluation theory explanation of surveillance effects. Cognitive evaluation theory predicts that the controlling intention conditions would lead to lower intrinsic motivation than the no-surveillance-no-camera condition, whereas the noncontrolling intention conditions would leave intrinsic motivation unharmed. Because the self-focusing cue was present in both controlling intention and noncontrolling intention conditions, the objective self-awareness account would predict decreased intrinsic motivation for controlling and noncontrolling conditions alike. The results were consistent with the cognitive evaluation theory prediction and not with that derived from objective self-awareness theory.

Experiment 2

Experiment 1 produced a subset of findings that, although not contrary to our predictions, raise an interesting question. Subjects in the unstated controlling intention condition not only showed the reduction in intrinsic motivation that we predicted, but they also showed the lowest level of intrinsic moti-

vation of all groups in the experiment. In fact, these subjects spent significantly less time engaged in free play than did subjects in one of the stated controlling intention conditions (distrust). These subjects also expressed the lowest level of self-perceived personal autonomy found in the experiment, differing significantly on this measure from subjects in each of the stated controlling intention conditions. Why did the surveillant have a relatively greater impact on subjects when he said nothing about his reason for watching them than when he openly expressed his intention either to evaluate their performance or to enforce their compliance with his instructions?

Our original reasoning was that participants in psychological research use context cues to infer controlling surveillant intentions when they are not explicitly stated. We suggested that in the absence of explicit surveillant communication of controlling intentions, subjects would infer one or the other of the two specific surveillant intentions. Subjects might infer that the surveillant's intention was to exercise control through performance evaluation or that the surveillant distrusted them and used surveillance as a means of ensuring their compliance with his instructions. It seems plausible in retrospect, however, that subjects in the unstated intention condition may have inferred both performance evaluation and distrust as the surveillant's motives. This possibility recalls Freedman's (1965) rationale for purposely using the vague statement, "If you play with the [toy] I will have to do something about it" (p. 149), as the severe threat manipulation in his insufficient deterrence research. Freedman argued that the ambiguity of this threat contributed to its severity, presumably because subjects could imagine a multitude of negative consequences that might befall them if they disobeyed the experimenter's prohibition.

If the unstated intention condition in Experiment 1 led to inferences that the surveillant was motivated both by performance evaluation concerns and distrust, a full explanation of the results we obtained requires that another significant assumption be true. It would have to be the case that different types of perceived extrinsic control can combine additively to influence personal autonomy and intrinsic motivation. The undermining influence of perceived cooccurring surveillant motives of performance evaluation and distrust would have to be greater than either surveillant performance evaluation alone or distrust alone. There is good evidence in the literature that multiple sources of extrinsic control can indeed combine additively. For example, the Pittman et al. (1980) surveillance study was a factorial design in which significant main effects on intrinsic motivation were found for both the surveillance manipulation and for a manipulation of controlling versus noncontrolling verbal feedback. Lepper and Greene (1975) similarly found a significant main effect for a manipulation of task-contingent reward in addition to their significant surveillance main effect on their intrinsic motivation measure. The dual main effects in these studies were unmodified by reliable interaction effects, indicating that different sources of extrinsic control can have independent and additive effects on intrinsic motivation.

The design logic of Experiment 2 was to compare the effects of the *unstated intention* condition, in which we proposed that subjects infer the dual surveillant motives of performance evaluation and distrust, with a condition in which both performance evaluation and distrust were explicitly communicated as mo-

tives for surveillance (*evaluation plus distrust*). Experiment 2 also included a *performance evaluation only* condition, a *distrust only* condition, and a *no-surveillance* condition. If our analysis of the unstated intention condition is correct, subjects in the evaluation plus distrust condition should behave like subjects in the unstated intention condition. Subjects in these two conditions should show the lowest levels of intrinsic motivation and self-perceived autonomy compared with the other conditions and should be comparable to one another on the measures of these variables.

We also included measures of perceived experimenter trust and of the experimenter's intention to evaluate subjects. If our reasoning is correct, subjects should perceive stronger experimenter concern with evaluating their performance in the evaluation only, evaluation plus distrust, and unstated intention conditions than in the distrust only and no-surveillance conditions. A comparable set of differences should be obtained from the measure of experimenter trust. Subjects should perceive less experimenter trust in the distrust only, evaluation plus distrust, and unstated intention conditions than in the evaluation only and no surveillance conditions.

Method

Subjects

Subjects were 62 male and female university students whose participation partially fulfilled an introductory psychology laboratory requirement. Data from 2 of these subjects were deleted because they were suspicious of the experimental intent. The remaining 60 participants were randomly assigned in equal numbers to the five treatment and control conditions.

Procedure and Measures

The no-surveillance–no-camera (no-surveillance), contemporary performance evaluation (performance evaluation only), distrust (distrust only), and unstated intention conditions were established in the same manner as in Experiment 1. Experimenter 1's manipulation of the new evaluation plus distrust condition followed the same procedure as that used for the other surveillance conditions. Presentation order of the distrust and performance evaluation information in Experimenter 1's statement was counterbalanced. Half of the subjects in this condition heard Experimenter 1 say "During the videotaping I'll be watching you on a TV monitor to see how well you do and to make sure you follow instructions." The other half of the subjects heard Experimenter 1 say "During the videotaping I'll be watching you on a TV monitor to make sure you follow instructions and to see how well you do." In addition to the behavioral and verbal measures used in Experiment 1, subjects in Experiment 2 completed two additional questionnaire items. One item measured subjects' perceptions of how much Experimenter 1 trusted them and read "To what extent do you think your researcher trusted you to follow his instructions when you constructed the object with the *Lego* blocks?" A second item measured perceptions of the experimenter's intention to evaluate subject performance and read "To what extent do you think your researcher was concerned with evaluating how well you constructed the object(s) with the *Lego* blocks?" Each item was followed by a 9-point scale on which 1 was labeled *not at all* and 9 was labeled *very much*. Presentation order of these items was counterbalanced within conditions. In all other respects, the procedure and materials were the same as for Experiment 1.

Results

As in Experiment 1, preliminary analyses revealed no effects attributable to subject gender. The order of the evaluation and distrust information in the surveillant's evaluation plus distrust statement had no effect on the dependent measures (all t s < 1, *ns*).

Reliability of Videorecording Judgments

A judge who was blind to condition assignments scored all videotapes for percentage completion during the initial activity period and for play during the 10-min free period using the same criteria as in Experiment 1. An independent judge who was also blind to conditions scored the behavioral measures for a randomly selected subsample ($n = 19$) of the videotaped sessions. The interjudge correlation coefficients were .96 and .97, respectively, for the percentage completion and free-play measures (p s < .001).

Performance During Initial Activity Period

An ANOVA conducted on the judge's estimates of task completion produced a nonsignificant effect, $F(4, 55) < 1$, *ns*. The mean for the completion measure was 84.67%. As in Experiment 1, all subjects spent the entire 10-min period working on the two objects.

Intrinsic Motivation

A one-way ANOVA on the free-play measure yielded a significant effect, $F(4, 55) = 12.07$, $p < .001$. Condition means are displayed in Table 2. Duncan's multiple range test revealed that as in Experiment 1, subjects in the evaluation only ($M = 225.58$ s) and distrust only ($M = 299.83$ s) conditions spent significantly less time involved in free play with the *Lego* toy than did subjects in the no-surveillance condition ($M = 435.58$ s, p s < .05). As expected, free-play activity in the evaluation plus distrust condition ($M = 134.83$ s) was equivalent to that in the unstated intention condition ($M = 115.83$ s). These two conditions both differed significantly not only from the no-surveillance condition, but also from the distrust only condition, as the unstated intention condition did in Experiment 1.

Personal Autonomy

An ANOVA conducted on the composite measure of personal autonomy revealed a significant treatment effect, $F(4, 55) = 11.26$, $p < .001$. As shown in Table 2, the means again track closely on the effect obtained for the free-play measure of intrinsic motivation. Subjects in the four controlling intention conditions expressed less self-perceived autonomy than did subjects in the no-surveillance condition (p s < .05 by Duncan's multiple range test). As anticipated, ratings of personal autonomy in the evaluation plus distrust and unstated intention conditions (M s = 4.71 and 4.54, respectively) were the lowest of all

Table 2
Experiment 2: Means for Free Play Time (in Seconds) and Process Measures

Conditions	Free play		Personal autonomy		Perceived evaluation		Perceived trust	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
No surveillance	435.58 _a	79.64	7.50 _a	1.09	3.42 _a	2.23	8.25 _a	0.75
Evaluation only	225.58 _{b,c}	107.48	5.42 _{b,c}	1.13	6.33 _b	1.23	7.42 _a	1.00
Distrust only	299.83 _b	127.70	5.79 _b	1.12	2.75 _a	1.60	5.17 _b	1.19
Evaluation + distrust	134.83 _c	189.18	4.71 _c	1.30	6.00 _b	2.17	4.58 _b	2.53
Unstated intention	115.83 _c	164.66	4.54 _c	1.44	5.75 _b	1.29	4.17 _b	1.94

Note. Means within columns that do not share a common subscript differ at $p < .05$ by Duncan's multiple-range test.

conditions and did not differ from one another. The means for these two conditions were also significantly lower than the mean for the distrust only condition ($M = 5.79$), $ps < .05$, replicating the effect found in Experiment 1.

Perceptions of Experimenter's Evaluative Intent and Distrust

We anticipated that subjects in the unstated intention condition would infer a relatively high level of experimenter distrust and relatively strong experimenter interest in evaluating performance and that inferences by these subjects would be similar to those of subjects in the explicitly stated evaluation plus distrust condition. ANOVAs conducted on scores from the perceived distrust and evaluative intent measures yielded significant treatment effects, $F(4, 55) = 14.88$ for distrust and $F(4, 55) = 8.66$ for evaluative intent, $ps < .001$. The means for these measures, shown in Table 2, support our predictions. Subjects in the unstated intention condition attributed stronger evaluative intent to the experimenter ($M = 5.75$) than did subjects in the distrust only condition ($M = 2.75$) and no-surveillance condition ($M = 3.42$, $ps < .05$ by Duncan's multiple range test), and a degree of perceived experimenter evaluative concern equivalent to that for subjects in the evaluation only condition ($M = 6.33$). Subjects in the evaluation plus distrust condition inferred a level of experimenter concern with performance evaluation ($M = 6.00$) that did not differ from the unstated intention condition and that in all other respects mimicked the unstated intention condition. The mean for the evaluation plus distrust condition was significantly greater than that for the distrust only and no surveillance conditions ($ps < .05$) and did not differ from the evaluation only condition.

Subjects in the unstated intention condition viewed the experimenter as less trusting ($M = 4.17$) than did subjects in the evaluation only ($M = 7.42$) and no-surveillance ($M = 8.25$) conditions ($ps < .05$ by Duncan's multiple range test) but did not differ from subjects in the distrust only condition ($M = 5.17$). The evaluation plus distrust condition again paralleled the unstated intention condition on this measure. The mean for the evaluation plus distrust subjects (4.58) did not differ from that for the unstated intention and evaluation only conditions, but

did differ significantly ($p < .05$) from the evaluation only and no-surveillance conditions.

Discussion

Experiment 2 was conducted to further explore the effects of surveillance unaccompanied by an explicitly stated intention or motive. We had originally reasoned that the unequal power relationship between subject and experimenter together with the evaluative connotations of psychological research (Orne, 1962; Rosenberg, 1969) would lead subjects in Experiment 1 to infer either distrust or evaluation as the motive for the experimenter's surveillance. In either case, the imputed intention would be controlling, and we expected subjects to experience threats to personal autonomy and a loss of intrinsic motivation. Although the data confirmed this set of expectations, subjects in the unstated intention condition also showed the lowest level of self-perceived autonomy and intrinsic motivation among the controlling intention conditions. In hindsight, we surmised that subjects in the unstated intention condition of Experiment 1 might have inferred both distrusting and evaluative surveillant motives and consequently suffered a stronger threat to personal autonomy than subjects who were explicitly focused on only one surveillant intention (either distrust or evaluation) in the stated controlling intention conditions.

The results of Experiment 2 provide very good support for this analysis of the impact of the unstated intention surveillance condition from Experiment 1. There was evidence of stronger inferences of surveillant distrust in the unstated intention condition than in the evaluation only condition and a similar level of perceived distrust as in the distrust only condition. Likewise, the evaluation measure revealed stronger imputation of surveillant concern with performance evaluation in the unstated intention condition than in the distrust only condition and a level similar to that in the evaluation only condition. Moreover, subjects in the evaluation plus distrust condition produced the same patterns of perceived surveillant intentions as those in the unstated intention condition. Taken together, these results strongly suggest that subjects in the unstated intention condition inferred both evaluative and distrusting surveillant intentions from context cues; these sources of external control then combined to produce an especially potent threat to

personal autonomy and a correspondingly strong undermining influence on intrinsic motivation.

Implications

When Lepper and Greene (1975) reported their findings, they highlighted the real-life risks of using surveillance indiscriminately and unnecessarily. Since the time of their publication, controlling forms of surveillance in the North American workplace and in public places have proliferated, and methods for conducting surveillance have become more sophisticated. For example, employers in computer-intensive businesses can now use software that routinely monitors the rate at which keyboard operators enter data. The Canadian Postal Corporation uses surveillance cameras in some sorting rooms as a method of detecting and discouraging theft. Despite the limits recently imposed by U.S. HR Bill 1212, polygraph tests are used extensively as a threat to deter misbehavior. Random urine tests for drug use can be conducted among some categories of U.S. and Canadian government, military, and public service employees. One of the points stressed by Lepper and Greene (1975) is that surveillance may boomerang when those who are scrutinized are already highly motivated to behave in the manner the surveillant is trying to promote or ensure. Innocent employees who are subjected to mass screening for misbehavior, for example, may become less intrinsically motivated to be productive, and they may become less committed to internal standards of honesty and sobriety in the workplace. It seems to us that employers, retailers, and government agencies would do well to consider the potential social and economic costs of using surveillance techniques to catch a thief, a slacker, or a substance abuser. The balance would be poor indeed if the effects of detecting one miscreant were the creation of two. We would add a further note of concern. The work reported here suggests that the interpretation of surveillance as controlling or noncontrolling often depends on inferences drawn from common knowledge and context cues. Inferences about individual cases drawn from normative data will often be incorrect. It follows, then, that noncontrolling surveillance should be clearly labeled as such to prevent the perception of controlling intentions when none exist and to prevent accidental harm to people's intrinsic motivation.

A second point made by Lepper and Greene (1975) concerns an interesting symmetry between surveillants and those who are monitored. Research has shown that self-perception processes (Bem, 1972) result in surveillants distrusting those whom they monitor (Kruglanski, 1970; Strickland, 1958). The problem described by Lepper and Greene (1975) is that a pathological spiralling relationship can evolve between the surveillant and the surveillance target. Surveillants come to distrust their targets as a result of their own surveillance, and targets in fact become unmotivated and untrustworthy. The target is now demonstrably untrustworthy and requires more intensive surveillance, and the increased surveillance further damages the target. Trust and trustworthiness both deteriorate. From the current perspective, these phenomena are likely bounded by the distinction between controlling and noncontrolling surveillance. The evidence for self-perception effects on surveillant trust was obtained with what we have categorized as controlling

surveillant intentions. Surveillants in the Kruglanski (1970) and Strickland (1958) experiments were told to monitor workers to encourage high productivity at an activity and were given the power to reward good productivity or punish poor output. Thus, subjects were in effect assigned controlling intentions for the surveillance they conducted. If surveillants discriminate their own intentions in the way that their targets do, the present research suggests that self-perceptions of distrust should be stronger when surveillants can wield coercive power over their targets than when they cannot.

Conclusions

The evidence supported Deci and Ryan's (1987) cognitive evaluation view of surveillance influences on intrinsic motivation rather than the alternative derived from objective self-awareness theory (Duval & Wicklund, 1972). The research showed that surveillance effects on intrinsic motivation depend on the surveillant's apparent purpose rather than the act of surveillance itself. When surveillance is seen to reflect controlling purposes, those scrutinized suffer threats to personal autonomy and their intrinsic motivation decreases. Unexplained surveillance can lead to inferences of multiple threats to personal autonomy and to especially deleterious effects on intrinsic motivation. When surveillance is seen as reflecting noncontrolling intentions, however, it neither challenges personal autonomy nor undermines intrinsic motivation.

References

- Amabile, T. M., DeJong, W., & Lepper, M. R. (1976). Effects of externally imposed deadlines on subsequent intrinsic motivation. *Journal of Personality and Social Psychology*, 34, 92-98.
- Bem, D. (1972). Self-perception theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 6, pp. 1-62). San Diego, CA: Academic Press.
- Borich, G. D. (1988). *Effective teaching methods*. Columbus, OH: Merrill Publishing.
- Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology*, 18, 105-115.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.
- Deci, E. L., & Ryan, R. M. (1987). The support of autonomy and the control of behavior. *Journal of Personality and Social Psychology*, 53, 1024-1037.
- Duval, S., & Wicklund, R. A. (1972). *A theory of objective self-awareness*. San Diego, CA: Academic Press.
- Enzle, M. E., Roggeveen, J., & Look, S. C. (1991). Self- versus other-reward administration and intrinsic motivation. *Journal of Experimental Social Psychology*, 27, 468-479.
- Enzle, M. E., & Ross, J. M. (1978). Increasing and decreasing intrinsic interest with contingent rewards: A test of cognitive evaluation theory. *Journal of Experimental Social Psychology*, 14, 588-597.
- Freedman, J. L. (1965). Long-term behavioral effects of cognitive dissonance. *Journal of Experimental Social Psychology*, 1, 145-155.
- Gibbons, F. X. (1990). Self-attention and behavior: A review and theoretical update. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 23, pp. 249-303). San Diego, CA: Academic Press.
- Harackiewicz, J. M., Manderlink, G., & Sansone, C. (1984). Rewarding

- pinball wizardry: Effects of evaluation and cue value on intrinsic interest. *Journal of Personality and Social Psychology*, 47, 287–300.
- Kruglanski, A. W. (1970). Attributing trustworthiness in supervisor-worker relations. *Journal of Experimental Social Psychology*, 6, 214–232.
- Lepper, M. R., & Greene, D. (1975). Turning play into work: Effects of adult surveillance and extrinsic rewards on children's intrinsic motivation. *Journal of Personality and Social Psychology*, 31, 479–486.
- Lepper, M. R., Greene, D., & Nisbett, R. E. (1973). Undermining children's intrinsic interest with extrinsic rewards: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology*, 28, 129–137.
- Orne, M. T. (1962). On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. *American Psychologist*, 17, 776–783.
- Pittman, T. S., Davey, M. E., Alafat, K. A., Wetherill, K. V., & Kramer, N. A. (1980). Informational versus controlling verbal rewards. *Personality and Social Psychology Bulletin*, 6, 228–233.
- Plant, R., & Ryan, R. M. (1985). Intrinsic motivation and the effects of self-consciousness, self-awareness, and ego-involvement: An investigation of internally controlling styles. *Journal of Personality*, 53, 435–449.
- Pretty, G. H., & Seligman, C. (1984). Affect and the overjustification effect. *Journal of Personality and Social Psychology*, 46, 1241–1253.
- Rosenberg, M. J. (1969). The conditions and consequences of evaluation apprehension. In R. Rosenthal & R. Rosnow (Eds.), *Artifacts in behavioral research* (pp. 279–349). San Diego, CA: Academic Press.
- Strickland, L. H. (1958). Surveillance and trust. *Journal of Personality*, 26, 200–215.
- Wicklund, R. A. (1975). Objective self-awareness. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 8, pp. 233–275). San Diego, CA: Academic Press.

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