Identifying Systematic Disobedience in Milgram's Obedience Experiments

A Meta-Analytic Review

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ABSTRACT—*A meta-analysis of data from eight of Milgram's obedience experiments reveals previously undocumented systematicity in the behavior of disobedient participants. In all studies, disobedience was most likely at 150 v, the point at which the shocked "learner" first requested to be released. Further illustrating the importance of the 150-v point, obedience rates across studies covaried with rates of disobedience at 150 v, but not at any other point; as obedience decreased, disobedience at 150 v increased. In contrast, disobedience was not associated with the learner's escalating expressions of pain. This analysis identifies a critical decision point in the obedience paradigm and suggests that disobedient participants perceived the learner's right to terminate the experiment as overriding the experimenter's orders, a finding with potential implications for the treatment of prisoners.*

Stanley Milgram's obedience experiments, in which a large proportion of subjects complied with an experimenter's instructions to deliver painful and potentially lethal shocks to a fellow participant, are among the most famous social science studies ever conducted (e.g., Milgram, 1963, 1965, 1974). His findings are still cited by scholarly and popular writers, taught to thousands of students, and invoked to explain atrocities ranging from the Holocaust to the torture of prisoners at Abu Ghraib (e.g., Blass, 1991; Fiske, Harris, & Cuddy, 2004; Kennedy, 2006; Zimbardo, 2007). Although the psychological mechanisms underlying Milgram's effects have been controversial and subject to repeated reinterpretation (e.g., Blass, 1996; Gilbert, 1981; Kelman & Hamilton, 1989; Mixon, 1972, 1977; Nissani, 1990), it is generally supposed that the effects themselves have long been identified and understood. However, although this may true for obedience (e.g., Blass, 1999), I propose that it is not the case for disobedient behavior. Focusing on disobedience, this article presents a meta-analysis of data from a number of Milgram's studies and reveals previously undocumented systematicity in the behavior of disobedient participants.

In each of these studies, participants were assigned, in an ostensibly random fashion, to the role of a "teacher" in a learning experiment. The researchers instructed participants to administer shocks in 15-v increments (beginning at 15 v and continuing up to 450 v) to a "learner" whenever he made an incorrect response. Although the learner was never actually shocked, he made prescripted vocalizations at each increment. It is important to note that these vocalizations contained two elements: Some were pure expressions of physical pain (starting at 75 v and rising in intensity as voltage increased), whereas others included verbal requests to be released (starting at 150 v). By assessing which vocalizations were most associated with disobedience, it is possible to determine whether punishment of the learner tended to be stopped in reaction to his expressions of pain, his requests to terminate the study, or some combination of both.

In a conceptual analysis, Gilbert (1981) suggested that the high rates of obedience observed in Milgram's experiments were due to the fact that each successive shock differed only slightly from the shock that preceded it. He inferred on this basis that disobedience was most likely if and when participants became aware that administering a particular voltage caused a qualitative (rather than quantitative) change in the nature of the task or experience of the learner. However, the small samples used in Milgram's research (*N*s = 40), coupled with the high levels of obedience, made it difficult to detect this type of systematicity in

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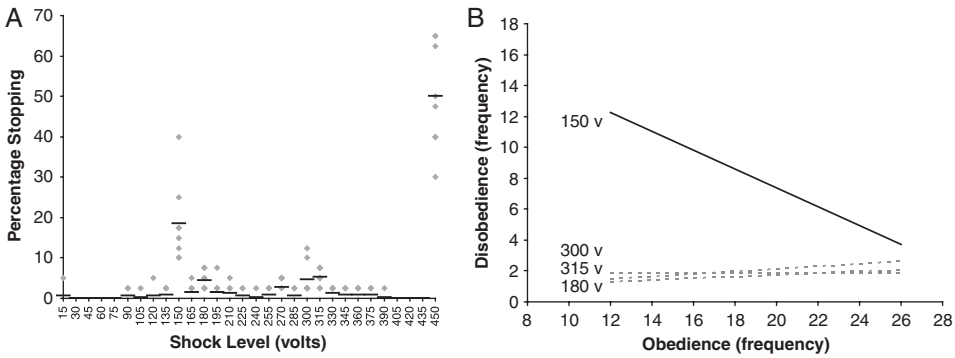

Fig. 1. A: A bimodal relationship between shock level and likelihood of stopping participation. The dots represent the percentage of participants in a particular study that stopped at each shock level; the dashes indicate means across studies. B: Relationships between overall obedience rates and disobedience at key voltages. As obedience decreased across studies (right to left on the *x*-axis), disobedience at 150 v increased; in contrast, disobedience at other important voltages was unrelated to changes in overall obedience.

disobedience within any individual study (but see Modigliani & Rochat, 1995). The current meta-analysis enabled detection of possible points of qualitative change by identifying the voltage(s) at which disobedience was most likely; combining data from eight of Milgram's experiments that were the same in several key features (i.e., single participant, experimenter present) permitted investigation of a much larger sample (N = 320). All data are from Milgram's book (1974; Experiments 2–6, 8–10).

ANALYSIS

Across these eight studies, the relationship between shock level and the likelihood of stopping participation was bimodal (see Figure 1A). Consistent with prior analyses, the greatest proportion of participants (50%) complied fully with the experimenter and continued shocking the learner up to 450 v. It is interesting, however, that disobedient behavior occurred most often at one specific voltage point: 150 v. Among noncompliant participants, a much higher proportion disobeyed at 150 v (36.88%) than at any other point; the next highest proportion, 10.63%, disobeyed at 315 v, $\chi^2(1) = 23.21, p < .001, p_{rep} = .99$. It is important to stress the size of this effect; although only one third of noncompliant participants disobeyed at 150 v across these eight studies, this voltage was one of 29 possible points of disobedience. If disobedience were randomly distributed, we would expect a mere 3.50% of participants to disobey at 150 v. Further, the 150-v and 450-v points together accounted for 68.44% of the total variance, an impressive effect size by any standard.

Examining the data separately within each experiment confirms the significance of the 150-v point; in each of the eight studies, the highest incidence of disobedience occurred at 150 v (range = 20%–80%). The fact that disobedience was most likely at 150 v is noteworthy because, although it was not the first time the learner expressed pain, it was the first time he asked to be released. Critically, although expressions of pain increased with level of shock, there was no linear relationship between shock level and disobedience as would be expected if increasingly intense expressions of pain were reliably motivating noncompliance ($r = -.04, p > .50, p_{rep} = .65$).

Despite similarities in their essentials, there were also important methodological differences between these experiments. Milgram manipulated a number of variables (including experimental location, proximity of the learner to the participant, and participant gender) in order to assess their effects on obedience rates. As such, it is possible to assess whether changes in obedience rates covaried with disobedience at specific points (i.e., at some points and not others). As illustrated in Figure 1B, there was an inverse relationship between overall obedience across these eight studies and disobedience at 150 v; that is, as obedience decreased across studies, disobedience at 150 v increased ($r = .80, p < .05, p_{rep} = .95$). This relationship can be contrasted with disobedience at other voltages, which did not systematically increase as obedience decreased. Figure 1B shows no relationships between overall obedience and disobedience at the three next most likely points of disobedience. As such, manipulations that influenced rates of obedience exerted their largest effects by increasing the likelihood of disobedience at 150 v.

Only one manipulation statistically altered overall rates of obedience: Participants who were required to physically shock the learner themselves were significantly less compliant than participants who administered shocks to a learner they could hear, but not see (30% vs. 62.5% respectively), $\chi^2(1) = 4.57$, $p < .05$, $p_{rep} = .93$. Consistent with the analysis presented above, this decrease in obedience was matched by a significant increase in disobedience at 150 v (40% vs. 12.5%, respectively), $\chi^2(1) = 5.76$, $p < .05$, $p_{rep} = .96$, while the rate of disobedience across all other shock levels remained un-

changed (25% vs. 30%, respectively), $\chi^2(1) = 0.46$, $p > .40$, $p_{rep} = .62$).[1]

DISCUSSION

The fact that disobedient participants responded reliably only to the learner's initial request to halt the experiment suggests that 150 v was a critical decision point in the obedience studies. It is important to note that the learner's first request for release had a more systematic impact on participants' decisions than did his escalating expressions of pain. It is certainly possible that expressions of pain were necessary for disobedience to occur in this context, but by themselves, they did not tend to be sufficient for noncompliance.

Milgram (1963) himself noted that at the heart of the obedience paradigm lies a conflict between the instructions of the experimenter and the contradictory requests of the learner. The 150-v point represented the first time that this conflict became truly apparent: A fellow participant, trying to end the experiment, was rebuffed by the experimenter who insisted that the procedure continue. In Gilbert's (1981) terminology, 150 v represented a point of "qualitative change" for a subset of participants. It appears that those participants who disobeyed the experimenter at 150 v responded to what they perceived as the learner's right to terminate the experiment; more specifically, we can infer that these participants believed that the learner's right to end the experiment trumped the experimenter's right to give orders to the contrary. Disobedient participants may have perceived this right as situational and specific to the experimental context. For example, prior to each study, participants were told that they could keep the money they were paid for participating regardless of what happened during the experimental session (Milgram, 1963), a statement which they may have interpreted as implying that both they and the learner would have the ability to terminate the experiment.[2] Alternately, disobedient participants may have responded to a higher order belief in the right of individuals to determine their own fates across contexts—experimental and otherwise.

It follows that participants who did not disobey the experimenter at 150 v either did not perceive the learner as possessing a clear right to terminate the experiment or believed that this right was overridden by the experimenter's right to exercise his authority. It is important to note that as most participants were unfamiliar with experimental norms, ambiguity regarding the rights of players in the experimental context may have contributed to a tendency to defer to the authority figure (see Nissani, 1990). Manipulations that increased disobedience may have done so by increasing either the salience of the learner's rights and/or making the learner's rights harder to ignore.

Having followed the experimenter's orders at 150 v, participants were generally either unwilling or unable to reverse this decision in response to later requests from the learner. This may have been due to cognitive dissonance processes (Festinger, 1957), such that, after ignoring the learner's initial request, it became increasingly difficult to acknowledge the validity of his subsequent pleas and justify a new course of action. This could also be viewed as a foot-in-the-door type phenomenon (Freedman & Fraser, 1966), in that participants found it harder to refuse orders to give larger shocks after having previously acquiesced to less consequential actions (i.e., smaller shocks; see Gilbert, 1981). Similarly, escalating expressions of pain may have exerted little impact on disobedient behavior because of desensitization due to the gradual nature of their increase (Gilbert, 1981), particularly when coupled with assurances from the experimenter that the shocks would cause no lasting harm (see Mixon, 1972).

Given the frequent application of Milgram's findings to the ill treatment of prisoners (e.g., Fiske et al., 2004; Kennedy, 2006), it is interesting to consider the potential implications of the 150-v decision point for contemporary interrogation procedures. In response to global terrorism, the legal rights previously afforded prisoners of war (e.g., Geneva Conventions) have been reconsidered and, in part, replaced with assurances that interrogations will not cause undue pain (e.g., Shane, 2007; White House, 2003). These assurances assume that agents of the law are as capable of appropriately responding to pain as they are of respecting well-specified legal rights. This reanalysis of Milgram's data suggests that this may not be the case. Pain did not tend to be sufficient for disobedience in these studies; thus, when prisoner's rights are curtailed or ambiguous, expressions of pain may provide little protection from inhumane treatment. Harmful treatment of prisoners may be more likely when standards for their appropriate treatment are ambiguous (e.g., Church, 2005; Hersh, 2007) and, in particular, when authority figures appear to imply that the harsh techniques (e.g., waterboarding) are necessary and relatively innocuous (e.g., Lewis, 2006).

In sum, this meta-analysis of Milgram's obedience experiments reveals previously unobserved systematicity in disobedience. Disobedient participants appeared to respond to a perceived right that stopped them from continuing without the learner's consent. Noncompliance was reliably triggered among a subset of participants at the first invocation this right, but was

[1]This finding is perhaps less surprising than the relationship across studies, given that 150 v was the point at which participants had to begin forcibly shocking the non-cooperative learner in this particular study. When this experiment is removed from the analysis across studies, the relationship between obedience and disobedience at 150 v is still clearly evident ($r = .69$). In addition to the methodological variations described thus far, several studies also gave the learner a heart complaint, which was mentioned prior to the study beginning and again at 150 v. It is important to note, however, that this manipulation had no effect on overall obedience (Milgram, 1974) or disobedience at 150 v, $\chi^2(1) = 0.09$, $p > .50$, $p_{rep} = .59$.

[2]The participant's right to terminate the experiment, which was relatively implicit in most versions, was made explicit in one of the eight studies. In this case, the learner was heard to state that he would only participate on condition that he could cease participation at any time. It is interesting that making this condition explicit did not significantly reduce overall obedience (see Milgram, 1974) or increase disobedience at 150 v, $\chi^2(1) = 0.33$, $p > .50$, $p_{rep} = .66$, suggesting that disobedient participants may have inferred this right even in the studies where it was not explicit. The meta-analytic pattern of results is the same when this study is removed from analyses.

not systematically related to increases in the severity with which the learner's well-being was violated.

Acknowledgments—For their insights and advice, I thank Alison Chasteen, William Cunningham, Michael Inzlicht, Amanda Kesek, Geoff MacDonald, Christopher Miners, Jay Van Bavel, and Ashley Waggoner. This research was supported by a Canada Graduate Scholarship and a postdoctoral fellowship from the Social Sciences and Humanities Research Council of Canada.

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