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A Meta-Analysis of the Effectiveness of the Disrupt-Then-Reframe Compliance Gaining Technique

Christopher J. Carpenter & Franklin J. Boster

*The disrupt-then-reframe compliance gaining technique (DTR; Davis & Knowles, 1999)
uses confusing language and then follows it with an additional reason to comply. The
effectiveness of the DTR was meta-analyzed by calculating the weighted mean correlation
coefficient (r = .28) and the weighted mean odds ratio (OR = 3.47). Using the DTR in a
sales context versus a nonprofit context was a moderator of the technique's effectiveness
such that the DTR was more effective in the nonprofit context (r = .32, OR = 4.14) than
in the sales context (r = .20, OR = 2.46). A trim and fill test (Duval & Tweedie, 2000a,
2000b) found no evidence of publication bias.*

Keywords: Compliance-Gaining; Interpersonal Communication; Meta-Analysis

Social influence scholars have focused on various techniques used to gain the compliance of target persons. Many of these techniques, such as the foot-in-the-door, the door-in-the-face, and the legitimization of paltry favors, are well known in the social influence literature. A less well known, but fascinating technique is the disrupt-then-reframe technique (DTR), which was first identified by Davis and Knowles (1999). These authors explained that one can substantially increase the likelihood that a target will comply with a request if confusing phrasing or language is added to the pitch (disrupt) and is followed immediately by a reason to comply with the request (reframe). The reframe alone, the disruption alone, and the reframe followed by disruption revealed compliance rates similar to those found for the control direct request. The disrupt-then-reframe order appears to be necessary for increasing compliance.

Christopher J. Carpenter is a doctoral student in the Department of Communication of Michigan State University. Franklin J. Boster is Professor of Communication at Michigan State University. Correspondence to: Christopher J. Carpenter, Communication Arts and Sciences, Michigan State University, East Lansing, MI 48824, USA. E-mail: carpe221@msu.edu

The initial Davis and Knowles (1999) demonstration of the technique involved nonprofit fund-raising requests. Subsequent research has replicated the technique in a sales context (Fennis, Das, & Pruyn, 2004; Fennis, Das, & Pruyn, 2006; Kardes, Fennis, Hirt, Tormala, & Bullington, 2007). Nevertheless, Fennis et al. (2006) found that the DTR increased compliance to a greater extent in the nonprofit than in the sales context. The technique has also reportedly increased compliance with a request for the target to complete a survey (Kubala, 2002). It has also been successful in inducing attitude change (Kardes et al., 2007).

Several different disruption elements have been tested. In the initial Davis and Knowles (1999) studies, the researchers stated the price of the note-cards they were selling for charity in pennies and then stated the price in dollars. Kubala (2002) used a variant of this technique and stated the amount of time it would take the target to complete the survey in seconds and then in minutes. Knowles, Butler, and Linn (2001) referred to cupcakes as "halfcakes" as the disruption in their charity bake-sale study. They also disrupted by asking for donations for a charity using the phrase "money some" instead of "some money" (p. 55). It appears that any mildly confusing phrasing can disrupt the target. Knowles et al. did find that some kinds of phrasing produced strong disruptions that did not enhance compliance, including selling "petite gateau" and reversing two pairs of words instead of just one.

Meta-Analysis

Experiments examining the effectiveness of the DTR technique have consistently produced statistically significant effects. In this corpus, sample sizes range from 40 to 155. Correspondingly, what constitutes a statistically significant correlation ranges from approximately .16 to 1.00. This range is substantial and can mask important differences in effectiveness across studies. Meta-analyses of comparable compliance gaining techniques typically revealed that, although these techniques increased compliance, effect sizes were modest, and effects were heterogeneous across studies (Andrews, Carpenter, Shaw, & Boster, 2008; Dillard, Hunter, & Burgoon, 1984; O'Keefe & Hale, 1998). It would be useful to know if the DTR yields similar or even larger effect sizes than comparable compliance gaining techniques, and it would be useful to know if these effects are uniform or differ as a function of certain experimental characteristics. For example, factors such as the amount of time between the two requests (foot-in-the-door and door-in-the-face, see Dillard et al., 1984)), actual versus pledged donations (legitimization of paltry favors, see Andrews et al., 2008), and the target being a friend or a stranger (pregiving, Boster, Rodriguez, Cruz, & Marshall, 1995) have been shown to produce substantial differences in the effect of various compliance gaining techniques. Any such indications would be helpful in applied settings in which the benefit of changing a compliance gaining pitch needs to be estimated precisely to make decisions about fundraising techniques.

There may also be a publication bias against nonstatistically significant findings in this literature. Given that publication bias is rampant in the social sciences (Dickersin, 2005), it may be that scholars are not submitting to journals reports

of studies in which the DTR does not produce a statistically significant increase in rates of compliance when compared to a control message. It is also possible that if researchers are submitting such reports, journal editors are not publishing them. In any event, any study in which the DTR effect failed to emerge may not have been published. Statistical techniques have been developed to test for the presence of publication bias (Levine, Asada, & Carpenter, in press) and the extent to which it affects the estimation of the population effect size (Duval & Tweedie, 2000a, 2000b).

Although only one study compared the effectiveness of the DTR in a sales context versus a nonprofit context and found a stronger effect in the nonprofit context (Fennis et al., 2006), meta-analysis can clarify whether or not that trend exists across multiple studies. By separating the studies by context, a meta-analysis will be able to determine the strength of context as a moderator of the effect as well.

Method

Literature Search

Both discipline specific search engines (*PsychInfo, Communication and Mass Media Complete*) as well as general search engines (*Web of Science, Google Scholar*) were searched to find as many articles as possible. The terms ''disrupt-then-reframe'' and ''disrupt then reframe'' were used as search terms.

Study Selection

Any study using the disrupt-then-reframe technique received consideration for possible inclusion. To be included in the meta-analysis, the effectiveness of a disrupt-then-reframe message had to be compared to a reframe-only message in respect to a dichotomous complied/did not comply dependent variable. These criteria excluded one study that did not include a reframe-only control (Davis & Knowles, 1999, study 3). Also excluded was a study of behavioral intention rather than actual behavior (Kardes et al., 2007, study 3). This procedure yielded a set of six articles, which reported the results of fourteen studies, with a combined sample size of 1,106 participants.

Coding

Two different effect sizes were coded. First, the frequencies of compliance were used to calculate a χ^2 from which a correlation coefficient was derived for each study (Cooper, 1998). In addition, the odds ratio for each study was calculated by creating a ratio of the odds of compliance in the DTR condition to the odds of compliance in the reframe-only condition. Finally, the sample size was noted as was whether the study was conducted in a nonprofit context or a sales context. Table 1 presents the coded information for each study.

Table 1   Articles, Effect Sizes, Sample Sizes, and Type of Context

Study	r	N	OR	Type
Davis & Knowles (1999) Study 1	0.30	40	3.45	0
Davis & Knowles (1999) Study 2	0.40	40	5.44	0
Davis & Knowles (1999) Study 4	0.44	40	9.00	0
Fennis et al. (2004) Study 1	0.19	113	2.25	1
Fennis et al. (2004) Study 2	0.45	120	8.01	0
Fennis et al. (2004) Study 3	0.30	120	3.47	0
Fennis et al. (2006) Study 1	0.35	40	4.50	0
Fennis et al. (2006) Study 1	0.10	40	1.52	1
Fennis et al. (2006) Study 2	0.33	75	3.96	1
Kardes et al. (2007) Study 1	0.21	147	2.37	1
Kardes et al. (2007) Study 2	0.21	155	2.90	0
Knowles et al. (2001) Study 1	0.30	48	3.55	0
Knowles et al. (2001) Study 2	0.38	48	4.86	0
Kubala (2002)	0.23	80	2.50	0

Note. Type refers to whether the study was in a nonprofit context (0) or a sales context (1).

Data Analysis

The data were analyzed using the sample size weighting method of variance centered meta-analysis described by Hunter and Schmidt (2004). Insufficient information existed to perform any corrections beyond accounting for sampling error. Hence, the mean effect sizes reported can be assumed to be an underestimate. The correlations were weighted by sample size and a weighted mean correlation was computed. The correlation coefficient was not transformed to Fisher's z because recent simulation studies have shown that the transformation tends to reduce accuracy more than the small bias found in the untransformed correlation coefficient (Schulze, 2007). The odds ratios were converted to log odds ratios for weighted averaging and then converted back to a mean odds ratio because that operation leads to more accurate estimates (Haddock, Rindskopf, & Shadish, 1998).

Results

The weighted mean correlation coefficient for the 14 studies in the sample was calculated, $r = .28$. The weighted means odds ratio was $OR = 3.47$. The variance expected from sampling error alone (.011) exceeded the obtained variance (.009). Therefore, the variance in the studies can be attributed to sampling error alone, which is consistent with a homogeneous set of studies.

Context as Moderator

Although the comparison of expected and obtained variance indicates the lack of moderators, it is often the case that such tests obscure their presence, especially in

meta-analyses with small samples (Oswald & McCloy, 2003), as is the case in this investigation. Therefore, context was examined as a possible moderator of the effect. The weighted mean correlation for the 10 nonprofit studies, $r = .32$ ($OR = 4.14$), was higher than the weighted mean for the four sales studies, $r = .20$ ($OR = 2.46$). Sampling error in the set of nonprofit studies only accounted for 37.9% of the obtained variance. Hunter and Schmidt argue that if 75% of the variance or more can be accounted for by sampling error, the set of studies can be assumed to be homogeneous. Thus, the nonprofit studies may be heterogeneous. The obtained variance for the sales studies (.002) was less than what one would have predicted on the basis of sampling error alone (.004), which indicates homogeneity among these studies.

Publication Bias

In order to test for publication bias, the funnel plot of sample size and effect size was examined (Light & Pillemer, 1984). There was only one effect size to the left of the group around the mean and many to the right (see Figure 1). The single effect size to the left of the central cluster is the Fennis et al. (2006) study that directly compared a sales context to a nonprofit. The small effect was found in the sales condition, which is consistent with the context moderating the size of the effect. Correlating sample size and effect size as suggested by Levine et al. (in press), revealed a moderately negative correlation, $r = -.29$, which is consistent with some publication bias. The trim and fill technique (Duval & Tweedie, 2000a, 2000b) was then used to estimate the effect size that the meta-analysis would have revealed if it had included the
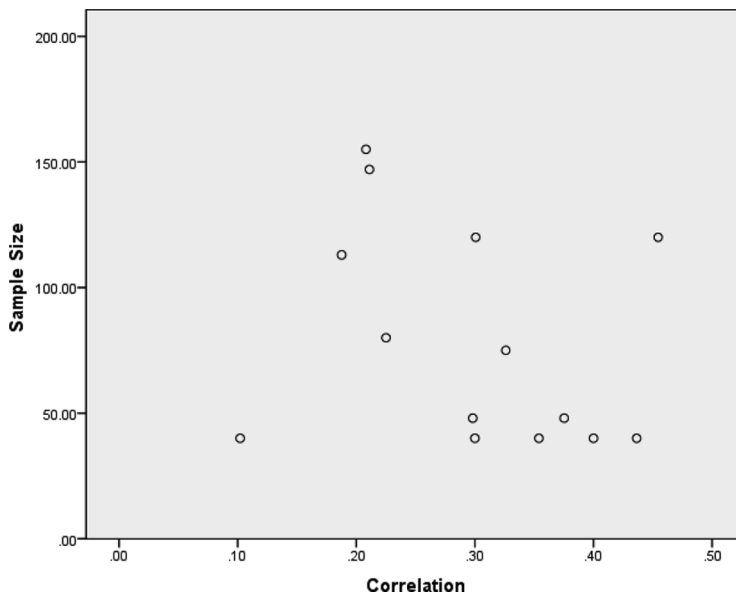

Figure 1   Funnel Plot of Sample Size on the y-axis Effect Size on the x-axis.

studies that are hypothesized to have been conducted but gone unpublished. The trim and fill estimated that the estimate of the population correlation would be only .01 smaller. Consequently, although there may be some publication bias, it affected the results very minimally.

Discussion

The weighted mean effect size of the increased probability of compliance associated with the DTR was consistently ample and larger than the meta-analytic estimates of the effect sizes for other common compliance gaining techniques including the legitimization of paltry favors $r = .18$ (Andrews et al., 2008), the foot-in-the-door $r = .11$ (Dillard et al., 1984), and the door-in-the-face $r = .10$ (O'Keefe & Hale, 1998). The DTR effect was particularly effective when only the studies that made a request on behalf of a nonprofit organization were considered, as participants in those studies were four times more likely to comply with the DTR than the reframe-only message. The effect size remained moderate even for the studies in which the experimenters were using the DTR in a sales context. It may be that the DTR is less successful in a sales context because the target's critical faculties are more engaged, making it harder to confuse the target. In fact, Fennis et al. (2004) speculated that, consistent with dual processing theory reasoning (Chaiken, 1980; Petty, Cacioppo, & Goldman, 1981), sales contexts may be higher in outcome-relevant (or issue) involvement than nonprofit contexts. Because high outcome-relevant involvement contexts are associated with greater message scrutiny than low outcome-relevant involvement contexts, reframes such as ''it is a bargain'' or ''it is for a good cause'' may function as particularly effective peripheral cues in the nonprofit context but not in the sales context. Future research could profit by testing this possibility and searching for other moderators of the DTR effect.

Although there was some evidence consistent with publication bias, its effects on the estimate of the population correlation were minimal. There may be some unpublished results in file-drawers, but their absence is unlikely to have changed the substantive conclusion that the DTR effect is robust.

Several explanations have been proposed for the effectiveness of the DTR. Davis and Knowles (1999) initially proposed the DTR as an application of action identification theory. Knowles and Linn (2004) suggested that the effect might be caused by Spinozan processing such that the acceptance phase of processing occurs automatically, and the disruption prevents the evaluative phase from occurring. Fennis et al. (2004) offered a simpler thought disruption hypothesis such that the disruption reduces the target's ability to counterargue. Finally, Kardes et al. (2007) believed that the disruptions that state the prices in pennies increase ambiguity, which then diminishes when the price in dollars is stated. Unfortunately, this meta-analysis was not able to test these various hypotheses as each has only been tested by a single study or article. Future work on the DTR would benefit from continuing to focus on the discovery of the casual mechanism that mediates the relationship between the DTR and compliance via critical tests of these various hypotheses.

The evidence summarized by this meta-analysis is consistent with the view that the DTR is a very effective way to gain compliance, especially in nonprofit contexts. Those who are searching for ways to increase compliance with charity fund-raising appeals or trying to increase the response rate to a survey might benefit from considering applying the DTR to their task, as it promises to be one of the most effective compliance gaining techniques uncovered in decades of research.

Nevertheless, there are limitations to these results. Specifically, the literature is relatively small—in four ways. First, there are a small number of studies (14). Second, corresponding to the first, there is a relatively small total sample size (1,106). Third, and relatively independent of the first two, there are few scholars engaged in this program of research, either Fennis or Knowles being involved in each study save one. Finally, there is relatively little procedural variation across studies (e.g., the penny as a monetary unit being the overwhelmingly dominant disrupt). Additional and diverse experiments performed in various laboratories, particularly those experiments varying previously unexamined parameters, have the potential to modify extant conclusions in substantial ways. Of course, the only method of addressing these possibilities is the execution and publication of more primary research.

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