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Asking Questions and Changing Behavior: The Role of Ease of Representation

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Note for Chicago GSB presentation: This is one of the papers I will talk about during my talk. It will provide some background as well as details on some of the studies I'll be discussing. Thanks, Gavan

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Abstract

We examine the *mere-measurement effect*, wherein simply asking a behavioral intent question increases the probability of subsequently engaging in the behavior. In multiple experiments we show that manipulations that should affect the content and ease of a mental representation or simulation of a behavior in question influence the extent of the mere-measurement phenomenon. Participants who were asked their intention to engage in various behaviors were more likely to change their behavior in situations where mentally simulating the behavior was a relatively easy task. We test this *ease of representation hypothesis* using both socially desirable and undesirable behaviors, and our dependent variables comprise both self-reports and actual behaviors. Our findings have implications for survey research in various social contexts, including assessments of risky behaviors by public health organizations.

(127 words)

People are often asked to predict their likelihood of engaging in a behavior in the near or distant future. For instance, political pollsters survey potential voters about their likelihood to vote during election years; market researchers survey customers about their likelihood to purchase a product; public health officials survey people about their likelihood of engaging in safe sex. The implicit assumption in the interpretation of the intentions expressed in these surveys is that the act of responding to the question does not affect the probability of subsequently engaging in the behavior. As Fishbein and Ajzen (1975) comment, “if one wants to know whether or not an individual will perform a given behavior, the simplest and probably most efficient thing that one can do is to ask the individual whether he intends to perform that behavior” (p. 369).

Although making these predictions might be “simple,” it is apparently not benign. Sherman (1980) showed that predictions of future behavior can be “self-erasing”—people who had predicted compliance with socially desirable behaviors were more likely to subsequently engage in the behaviors than control participants who had made no prediction. Similarly, Greenwald et al. (1987) reported a 25% increase in the probability of voting for people who had been asked whether or not they intended to vote in the following day’s election. Interestingly, questions about behaviors for which people possess negative attitudes (i.e., socially undesirable behaviors) lead to a *decrease* in the propensity to engage in the behavior (Sherman, 1980; Morwitz & Fitzsimons, 2004).

The self-erasing nature of predictions even extends to predicted purchases of very large items, such as cars and personal computers (Morwitz, Johnson, & Schmittlein, 1993). In a nationally representative study involving more than 40,000 participants, Morwitz et al. (1993) found that asking a simple purchase intent question increased actual

automobile purchase rates in the following six months more than 35%. The authors labeled this phenomenon the *mere-measurement effect*, as merely measuring intentions changed respondents' behavior.

The mere-measurement effect has been partially attributed to increased accessibility of an attitude toward the target behavior in the intention question (Feldman & Lynch, 1988; Morwitz & Fitzsimons, 2004). For instance, Fitzsimons and Morwitz (1996) found that asking a category-level intent question such as "How likely are you to buy an automobile in the next six months?" led to a systematic pattern of behavior at the sub-category level. When respondents had experience in the category (i.e., they currently owned an automobile), they were substantially more likely to purchase the automobile they currently owned than a control group that had not been given an intent question. When respondents did not currently own an automobile, the increase in purchase was observed for large market share brands. The authors' explanation is that while current car owners' attitude toward their automobile brand is most likely to be positive and accessible, non-car owners have positive and accessible attitudes toward frequently advertised brands. Similar results were obtained by Morwitz and Fitzsimons (2004) in a laboratory setting in which attitude accessibility was manipulated by using unfamiliar brands of Canadian candy bars for which participants did not have pre-existing attitudes.

Although this empirical evidence is consistent with increased accessibility as an explanation for mere-measurement, there may be other important reasons underlying the effect. Accessibility alone seems an incomplete explanation in light of the relatively ephemeral nature of semantic primes (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Troetschel, 2001), as well as evidence that mere-measurement effects in service

industries peak approximately six months following the intent survey (Dholakia & Morwitz, 2002). This increase would not be predicted by an attitude accessibility explanation alone. Indeed, Sherman's (1980) original explanation for the effect was that participants had engaged in "prebehavioral cognitive work." The nature of this "work" was not specified, but he did suggest a relation to scripts (Abelson, 1981).

In this paper we investigate the nature of the cognitive work that respondents engage in when responding to intent questionnaires. We conjecture that intentions questions trigger the use of a simulation heuristic (Kahneman & Tversky, 1982), such that respondents mentally represent a behavior and the instances they might engage in it. Our *ease of representation hypothesis* posits that the effect of measuring intentions on a subsequent behavior is an increasing function of the ease with which the behavior is mentally represented by the respondent. Respondents may interpret ease of representation to reflect likelihood of behavior, as suggested by research that documents the strong link between ease and perceived likelihood (Schwarz & Vaughn, 2002), perhaps spurring a self-fulfilling prophecy. In sum, intentions questions lead to two related mental operations: representation of a behavior and an assessment of the ease with which the representation came about. Questions about easy-to-represent behaviors should lead to pronounced mere-measurement effects relative to questions about harder to represent behaviors.

We test our hypothesis in four experiments. Where relevant we hold constant the accessibility of the attitude toward the target behavior, while manipulating ease of representation. Our dependent variables include participants' actual choices as well as self-reported behaviors. Next, we present each study followed by a discussion of the

relatively broad implications of mere-measurement effects, and the role ease of representation plays in them.

Experiment 1

We begin by demonstrating the basic mere-measurement effect and manipulate ease of representation of the behavior by varying the question frame. Participants in the treatment conditions are either asked a straightforward, positively-framed intent to engage in a behavior question (“intent”) or one of two forms of the opposite intent (i.e., not engaging in the behavior): likelihood of *not* engaging in a behavior (“negation”) or likelihood of avoiding it (“avoidance”).

Consistent with previous studies, we expected that an intent question about a behavior for which people possess a negative accessible attitude would lead to a *decrease* in the propensity to engage in the behavior (e.g., Sherman, 1980). Therefore, replicating this basic mere-measurement effect, we expected that participants in the straightforward intent frame would be less likely to engage in a negative behavior than control participants who had been asked an unrelated question. In the avoidance frame we expected this effect to be magnified because the correspondence between people’s negative attitude and the behavior in question would facilitate a mental representation of avoiding the negative behavior.

In contrast, despite the fact that the avoidance and negation frames both asked participants about their likelihood to engage in the opposite of the target behavior, we expected that negation frame participants would exhibit the same likelihood of engaging in the negative behavior as their intent frame counterparts. Research on comprehension and reasoning by Johnson-Laird (1983; Johnson-Laird et al., 1999) suggests that when

individuals interpret discourse they construct mental representations of what is true in a proposition. Negations are simply not mentally construed; information about falsity is typically treated as a “mental footnote” that is soon “forgotten” (Johnson-Laird et al., 1999, p. 66). Consequently, we expected that the negation frame would not facilitate a representation of avoidant behavior. Instead, we conjectured that the negation information would be forgotten and that the question would be spontaneously re-coded into a positively-framed (intent) statement. Just as in the intent question, this re-coding should simply serve to increase the accessibility of attitudes about the behavior.

Method

Ninety-nine undergraduates participated in this experiment as part of a larger set of unrelated studies in exchange for partial course credit. Upon arrival in the lab, participants were asked to complete a ten question “market research survey” about various consumption habits. The target intent question appeared last, and concerned fatty food consumption in the one week period following the study. Participants were randomly assigned to experimental conditions where they were either asked to indicate their likelihood (on a seven point scale) of (i) consuming fatty foods in the coming week (intent condition; $n = 23$), (ii) not consuming fatty foods (negation condition; $n = 25$), or (iii) avoiding consumption of fatty foods (avoidance condition; $n = 26$). In a fourth, control condition ($n = 25$) participants were asked about their likelihood of consuming orange drinks in the coming week. All participants then proceeded through an hour of unrelated experiments.

As the session came to a close, respondents were informed that their last task would be a taste test. They entered a separate room where they were shown two

products: mini rice-cakes (low fat snack) and mini chocolate-chip cookies (high fat snack). They received a form, and were instructed to consume either product in order to evaluate its taste. A research assistant, blind to the experimental condition, surreptitiously coded participants' choice of snack, which served as the dependent variable.

Results

The results conformed to our predictions. Whereas nearly all (92%) participants in the control condition chose to eat the cookies over the rice-cakes, this propensity dropped equally in both the intent condition (65%) and the negation condition (68%) ($\chi^2(1, 48) = 5.21$ and $\chi^2(1, 50) = 4.5$, $p < .05$, respectively). In the avoidance condition, where a representation of avoidant behavior was facilitated by the wording of the problem, the propensity to eat cookies fell much more dramatically (38%). The drop was significant relative to the control ($\chi^2(1, 51) = 15.99$, $p < .01$), the intent condition ($\chi^2(1, 49) = 3.5$, $p = .06$), and the negation condition ($\chi^2(1, 51) = 4.46$, $p < .05$).

Experiment 2

Next we test the ease of representation hypothesis by manipulating both the regularity of the target behavior and the frequency referenced in the question (i.e., regularity of the question frame). By definition regular behaviors occur at regular frequencies (e.g., once daily), so we expect that predicting regular behaviors at regular frequencies should be relatively easy. In contrast, thinking about performing a regular behavior at an irregular frequency should be more difficult (Menon, 1993). For instance, a respondent asked to predict his likelihood of engaging in a once-a-day activity eight times in the coming week would have to speculate whether there might be a day when he

will engage in the behavior more than usual. No such uncertainties arise for irregular behaviors because their frequency is not tethered to regular intervals—one might be just as likely to perform an irregular activity eight times in one week as two times or seven times. Hence, question frame regularity should affect the ease of representation for regularly occurring target behaviors, but not for irregularly occurring ones.

We therefore expect a pronounced mere-measurement effect for a regular target behavior (e.g., flossing) when the question frame references a regular frequency compared to a question frame that references an irregular frequency. By contrast, the extent of the mere-measurement effect should be independent of question frame regularity for items concerning irregular behaviors (e.g., pleasure reading). It is noteworthy that for regular behaviors with irregular question framing, respondents may actually “work” harder because they would need to surmise when the unusual occurrence will take place. A simple attitude accessibility explanation would predict a pronounced mere-measurement effect in this condition because the elaboration required to answer the question should increase accessibility.

Method

Sixty-three undergraduates in a marketing course were randomly assigned to one of four experimental conditions in a two-by-two factorial design. In the Target Behavior factor participants were asked to indicate the likelihood (on a 7-point scale) either of (i) flossing in the coming week or of (ii) reading for pleasure in the coming week. The Question Frame factor consisted of two levels: regular and irregular. In the Regular Question Frame conditions participants were asked about the target behavior occurring either seven or 21 times in the coming week (i.e., in regular frequencies). In the Irregular

Question Frame conditions participants were asked about the target behavior occurring either twice or eight times in the coming week (i.e., in irregular frequencies).¹ Note that flossing is typically considered a regularly occurring behavior, but reading for pleasure—especially for undergraduate students—is typically irregular.

One week later participants were given a follow-up questionnaire in which they were asked to report how many times they had read for pleasure as well as how many times they had flossed in the past week (the order of these questions was counterbalanced; there were no order effects). In this way, participants whose target behavior in the initial survey was reading served as controls for those participants who had been initially asked about flossing, and vice versa.

Results

We tested the effect of the interaction of target behavior and question frame regularity on reported flossing and reported reading, separately. Table 1 presents the mean reported flossing and reading in each condition. We expected a significant interaction for reported flossing when the target behavior was flossing, but none for reported reading when the target behavior was reading. A significant two-way interaction was observed for flossing ($F(1, 59) = 7.92, p < .05$), such that participants asked about their intent to floss at a regular frequency showed a pronounced mere-measurement effect, and participants asked about their intent to floss at an irregular frequency showed a depressed mere-measurement effect compared with controls. In contrast, the identical two-way interaction test for reported reading revealed no effect of

¹ The different instantiations of regular and irregular frequencies were used to test the robustness of our theory to various frequencies. Responses did not differ across instantiations, so the data were collapsed by regularity.

regularity ($F(1, 58) = 0$)—levels of reported reading did not depend upon question frame regularity.

A planned contrast comparing reported flossing by participants who had been asked about flossing in the initial survey was significant as expected ($M_{\text{RegularQuestionFrame}} = 5.41$ vs. $M_{\text{IrregularQuestionFrame}} = 1.86$; $F(1, 59) = 11.22, p < .001$). Although we did not predict a decrease in flossing compared to controls in the irregular question frame condition, we find it intriguing that apparent *difficulty* in mentally representing a behavior actually led to a depressed mere-measurement effect. For reported reading we simply replicated the mere-measurement effect, but this finding was not statistically significant ($F(1, 58) = 1.61, p = .21$). The results support the ease of representation hypothesis: regularity only affected reported behavior for regularly occurring behaviors.

Experiment 3

In our third experiment we use a memory-interference task in order to test whether ease of representation explains the mere-measurement effect beyond a straightforward accessibility mechanism. We use the same basic paradigm as in Experiment 1: participants are asked their intent to eat or avoid fatty foods in the coming week and are subsequently provided an opportunity to taste test either a fatty food (cookies) or a low-fat food (rice-cakes). This time, however, half of the participants responded to an intent question about one of these behaviors and the other half answered intent questions about both behaviors in *succession*.

In the single-question conditions we expected to replicate findings from the same conditions in Experiment 1, namely, that the proportion of participants eating cookies would be higher in the intent condition than the avoidance condition. In the two-question

conditions participants were asked to indicate their likelihood of eating fatty foods followed by their likelihood of avoiding fatty foods, or vice versa. This manipulation allowed us to test two competing explanations for the mere-measurement effect: memory accessibility (e.g., Gregory, Cialdini, & Carpenter, 1982) and ease of representation. The former explanation posits that retrieving inputs required to respond to the first question in a sequence will interfere with the ability to retrieve inputs for the second question (Hoch, 1984). Consequently, the subsequent behavior observed will be consistent with the first question. In contrast, the ease of representation hypothesis suggests that participants will behave in a way consistent with the easier to imagine behavior. Since avoidance is passive, we expected that actual consumption of fatty foods—a question that easily conjures the image of gorging on a snack—will be easier for participants to imagine. Therefore, all two-question condition participants were expected to consume an equal amount of cookies—and equal to the amount consumed in the single-question intent condition—irrespective of question order.

Admittedly, the weakness of this prediction is that it relies on a null finding. We can bolster our argument, however, if we assume that respondents' stated likelihood reflects ease of representation. Indeed, research on the availability heuristic documents the positive correlation between ease of retrieval and perceived likelihood (e.g., Tversky & Kahneman, 1973). In our case we would expect a significantly greater stated likelihood for the easier behavior, irrespective of question order. That is, the stated likelihood of eating fatty foods should be greater than the stated likelihood to avoid fatty foods in every condition.

Method

One hundred and nineteen participants were randomly assigned to one of two single-question conditions or one of two two-question conditions as part of a larger set of unrelated experiments in exchange for partial course credit. In all conditions participants filled out the same market research questionnaire as in Experiment 1; the intent questions appeared last. In the single-question conditions participants were either asked their likelihood of consuming fatty foods (as in the “intent” condition of Experiment 1; $n = 30$) or their likelihood of avoiding fatty food consumption (“avoidance”; $n = 27$). The two-question conditions presented participants with *both* the intent and avoidance questions, in two orders: in the “avoid-intent” condition ($n = 31$) participants were asked the avoidance question prior to the intent question and in the “intent-avoid” condition ($n = 31$) this order was reversed. The remainder of the procedure was identical to Experiment 1, except that participants made their choice on a survey form and were not asked to actually eat the cookies or rice cakes.

Results

The data conformed to the pattern predicted by the ease of representation hypothesis. We replicated the results of Experiment 1 in the single-question conditions: participants in the intent condition were much more likely to choose the cookies than their avoidance condition counterparts (67% vs. 37%, respectively; $\chi^2(1, 57) = 4.9, p < .05$). Question order in the two-question conditions did not affect the propensity to choose the cookies (71% in both conditions), nor was this propensity different than the one found in the intent condition. Thus, our data do not support the memory accessibility/interference explanation. Instead, the nearly-identical choice pattern found across the treatment and intent conditions suggests that participants behaved in

accordance with the behavior that was easiest to imagine. This interpretation is buttressed by the stated likelihood data (see Table 2). In particular, in every condition the likelihood to consume fatty foods was greater than the stated likelihood to avoid them—despite the fact that arguably the negative attitudes toward fatty foods could have made avoidance seem more desirable and perhaps more likely. In the single-question conditions and in the intent-avoid condition the difference between the likelihood to consume and the likelihood to avoid is significant, and in the avoid-intent condition it is in the predicted direction but not significant.

Experiment 4

In our next test of the ease of representation hypothesis we manipulate the self-relevance of the intention question. We predicted that it should be easier for respondents to imagine themselves engaging in a behavior relative to imagining an average classmate engaging in the behavior (at least for behaviors that respondents are likely to have engaged in previously). Therefore, we expected a more pronounced mere-measurement effect in a condition where respondents were asked about their own behavior rather than an average classmate's behavior. We had no specific prediction about the difference between the latter condition and the control.

Method

One hundred and forty-five MBA students were randomly assigned to one of three conditions. In the control condition ($n = 46$) participants were asked to indicate their likelihood of reading for pleasure in the next two weeks. In the self-intent condition ($n = 51$) participants were asked their likelihood of flossing their teeth in the next two weeks. Finally, in the other-intent condition ($n = 48$) participants were asked to indicate

the likelihood that “one of [their] classmates [will] floss his/her teeth in the next two weeks.”

Two weeks following the initial questionnaire the same participants were asked to report how many times they had flossed and how many times they had read for pleasure in the past two weeks.

Results

The data conformed to our predictions. Participants in the self-intent condition reported flossing on a significantly greater number of occasions than did control participants (6.25 vs. 4.11, $t(96) = 2.06, p < .05$), indicating a mere-measurement effect when the actor engaged in the behavior was the respondent himself. In contrast, this pattern did not emerge in the other-intent condition (4.23 vs. 4.11, $t(93) = 0.13, n.s.$). Furthermore, the difference between the self-intent and other-intent conditions was significant ($t(98) = 2.02, p < .05$). There were no significant differences in reported reading across conditions. The pattern of data supports our ease of representation hypothesis because greater mere-measurement was observed in the condition where respondents had been expected to have greater ease in imagining the target behavior.

General Discussion

In four experiments we show that manipulations that should affect the content and ease of a mental representation or simulation of a behavior influence the extent to which the simple act of stating intent leads to a subsequent change in actual behavior.

Participants who were asked their intention to engage in a behavior were more likely to fulfill their prediction in situations where mentally simulating the behavior was an easier

task. Where possible, attitude accessibility was held constant across treatment conditions, and arguably in some cases attitude accessibility made an opposite prediction.

Our data offer empirical evidence supporting Sherman's (1980) supposition that intentions questions prompt respondents to engage in "pre-behavioral cognitive work." In particular, using various experimental manipulations, our results shed light on the nature of this "work," and suggest that participants simulate the behavior in the intent question. Note that we do not necessarily suggest that this simulation is elaborative. Rather, it may be the case that the mental representation and simulation occur virtually automatically. Indeed, previous research using process dissociation techniques (Jacoby, 1998) demonstrates that the mere-measurement effect is due largely to non-conscious factors (Fitzsimons & Williams, 2000). Ease of representation may be viewed as one of these factors; respondents may use ease as a heuristic cue or it may function similar to perceptual fluency (Bornstein, 1989; Reber, Winkielman, & Schwarz, 1998).

Although our evidence suggests that ease of representation influences the question-behavior link, it is unclear whether the effect of ease is direct or whether it is mediated by additional variables. For instance, does ease facilitate the formation of implementation intentions (Gollwitzer, 1999), which in turn lead to the mere-measurement effect? Alternatively, does ease affect accessibility? In particular, one alternative interpretation of the results in Experiment 4 is that respondents in the other-intent condition could conjure fewer instances of the behavior, and as a result of these fewer instances their attitudes were less accessible relative to the self-intent condition. Answers to these questions will enhance our understanding of the question-behavior link in particular and the attitude-behavior link in general.

Finally, the unintended impact of measuring intentions is wide-ranging and the unintended change in behavior may sometimes be harmful to the respondent. For example, researchers often query at-risk populations about their likelihood to engage in risky or unhealthy behaviors (e.g., drug use, unprotected sex, etc.). Respondents' past history of engaging in unhealthy behaviors may make it easier for these respondents to imagine themselves engaging in the behavior again. Our research suggests that in such situations the survey questions themselves—meant to assess unhealthy behavior for the purpose of prevention—will lead to an increased probability of such behaviors taking place. In fact, recent research shows that simply responding to a question about likelihood of recreational drug use in the upcoming two months leads to increased use among drug users, but not among non-users (Williams, Block, & Fitzsimons, 2004). The general robustness of the mere-measurement effect, as well as its significantly increased magnitude for behaviors that are easy to represent and imagine, suggests the need to focus survey research on tools that avoid the trap of increasing the probability of unwanted behaviors.

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<i>Target behavior (intent question)</i>	<i>Question frame</i>	<i>Dependent variable</i>	<i>Reported frequency</i>
Flossing	Regular	Flossing	5.41
Flossing	Irregular	Flossing	1.86
Reading	Regular	Flossing	2.86
Reading	Irregular	Flossing	3.50
Flossing	Regular	Reading	3.25
Flossing	Irregular	Reading	3.57
Reading	Regular	Reading	5.43
Reading	Irregular	Reading	5.89

Table 1

Column one lists the target behavior in the intent question that participants were asked in the beginning of the study. Column two refers to the frequency referenced in the intent question, regular (7 or 21 times) or irregular (2 or 8 times). Column three lists the reported behavior one week following the intent questionnaire. Column four indicates the reported frequency of the behavior listed in column three. Note that rows three and four serve as controls for the preceding two rows; likewise, rows seven and eight serve as controls for rows five and six. Thus, the two interaction tests reported in the text were conducted on the first four reported frequencies and the second four reported frequencies, respectively.

<i>Condition/question framing</i>	<i>Mean stated likelihood</i>		<i>t-statistic</i>	<i>p-value</i>
	<i>Avoid fatty food</i>	<i>Consume fatty food</i>		
Intent	n/a	5.08 ¹		--
Avoid	4.00 ¹	n/a		--
Avoid-Intent	3.74	3.90	0.84	0.40
Intent-Avoid	3.68	4.26	2.57	0.02

Table 2

Column one lists the experimental condition. Columns two and three list the mean stated likelihood for avoidance and consumption of fatty foods, respectively. Column four lists the *t*-statistics for the difference between the means in columns two and three. Column five lists the associated *p*-value.

¹The difference between stated likelihood in the intent and avoid conditions is significant ($F(1, 55) = 4.89, p < .05$).