



January 2013

# Using Social Influence To Enhance Post- Experimental Inquiry Success

Travis Daryl Clark

Follow this and additional works at: <https://commons.und.edu/theses>

---

## Recommended Citation

Clark, Travis Daryl, "Using Social Influence To Enhance Post-Experimental Inquiry Success" (2013). *Theses and Dissertations*. 1521.  
<https://commons.und.edu/theses/1521>

This Thesis is brought to you for free and open access by the Theses, Dissertations, and Senior Projects at UND Scholarly Commons. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of UND Scholarly Commons. For more information, please contact [zeinebyousif@library.und.edu](mailto:zeinebyousif@library.und.edu).

USING SOCIAL INFLUENCE TO ENHANCE POST-EXPERIMENTAL INQUIRY  
SUCCESS

by

Travis Daryl Clark  
Bachelor of Science, East Tennessee State University, 2011

A thesis

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

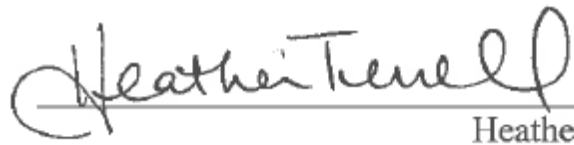
Master of Arts

Grand Forks, North Dakota

December

2013

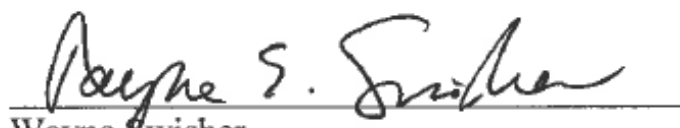
This thesis, submitted by Travis Daryl Clark in partial fulfillment of the requirements for the Degree of Master of Arts from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

  
Heather Terrell

  
Joseph Miller

  
Joelle Ruthig

This thesis is being submitted by the appointed advisory committee as having met all of the requirements of the School of Graduate Studies at the University of North Dakota and is hereby approved.

  
Wayne Swisher  
Dean of the School of Graduate Studies

  
Date

PERMISSION

Title	Using Social Influence to Enhance Post-experimental Inquiry Success
Department	Psychology
Degree	Master of Arts

In presenting this thesis in partial fulfillment of the requirements for a graduate degree from the University of North Dakota, I agree that the library of this University shall make it freely available for inspection. I further agree that permission for extensive copying for scholarly purposes may be granted by the professor who supervised my thesis work or, in her absence, by the Chairperson of the department or the dean of the School of Graduate Studies. It is understood that any copying or publication or other use of this thesis or part thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of North Dakota in any scholarly use which may be made of any material in my thesis.

Travis Daryl Clark  
August 5, 2013

## TABLE OF CONTENTS

LIST OF TABLES.....	vi
ABSTRACT.....	vii
CHAPTER	
I. INTRODUCTION.....	1
Does deception or suspiciousness influence experimental results?.	2
Do participants arrive at the study with no information?.....	4
Do experimental designs indicate to participants that they are being deceived? .....	5
Do PEIs accurately detect suspicion or information?.....	5
Is there any hope for PEI accuracy? .....	6
What is the next step? .....	7
The social influence of descriptive norms .....	8
The inertia of choosing the default option .....	9
Social desirability and social monitoring .....	10
Experimental Design and Hypotheses .....	11
II. METHOD .....	13
Participants and design .....	13
Informed/Naïve Condition .....	14
Social desirability and Social monitoring scale information .....	15

	Lexical decision task (Ethnic Prime/No prime Condition) .....	15
	Impression Formation Task .....	16
	Post-experimental Inquiry .....	16
III.	RESULTS .....	18
	Social Desirability and Social Monitoring .....	18
	Negative attitude toward a hypothetical individual .....	19
	Social influences on Admission and Awareness .....	19
	Participant information level.....	20
	Awareness .....	23
	Admission .....	23
	Nonparametric tests .....	24
	Nonparametric tests for Awareness .....	24
	Nonparametric tests for Admission .....	24
	Chi square tests on social influence and ethnic prime .....	27
IV.	DISCUSSION .....	28
	Replicating the impression formation results .....	28
	The effect of social influence .....	31
	Can recommendations for PEI accuracy be made? .....	33
	Conclusion .....	34
	APPENDICES .....	35
	REFERENCES .....	41

## LIST OF TABLES

Table	Page
1. Mean Negative Attitude scores by group .....	21
2. Awareness and Admission scores for all participants and subdivided by information level .....	22
3. Two (Informed/Naïve) x 2 (Opt-in/Opt-out) x 2 (Descriptive norm/Control) x 2 (Ethnic prime/No prime) ANOVA on Awareness. IN = Informed/Naïve. EP = Ethnic Prime/Control. NP = Norm prime/Control. OPT = Option swap/Control.....	25
4. Two (Informed/Naïve) x 2 (Opt-in/Opt-out) x 2 (Descriptive norm/Control) x 2 (Ethnic prime/No prime) ANOVA on Admission. IN = Informed/Naïve. EP = Ethnic Prime/Control. NP = Norm prime/Control. OPT = Option swap/Control.....	26
5. Chi-squared comparisons of Informed participants receiving no experimental manipulations to participants receiving listed experimental conditions .....	29

## ABSTRACT

An experiment was performed to assess the efficacy of Post-experimental Inquiry (PEI) questions. Experiments involving deception assume participant naiveté to the study protocol. The present study implemented a PEI to assess the influence of an ethnic prime on stereotyped attitudes in order to assess PEI accuracy. A confederate (posting as another participant) additionally informed some participants as to the true purpose of the study, a violation of study integrity. The PEI was used to assess accuracy in two ways: awareness of the study hypotheses and admission to receiving information. The PEI was itself manipulated in one of two ways; the introduction of a descriptive norm paragraph (vs. control) and default option swapped (vs. control). Participants informed of the study hypothesis reported higher awareness and admitted more information. The norm prime and default option swapped conditions did not increase PEI accuracy. The implications for PEI accuracy are discussed.



## **CHAPTER I**

### **INTRODUCTION**

The use of deception in psychology has a long history, perhaps as old as the discipline itself (Nicks, Korn, & Mainieri, 1997). Deception, which is providing any information to intentionally mislead participants, is used if there are no alternative non-deceptive procedures to collect the same information (Hertwig & Ortmann, 2008). When deception is used in psychological research, it is used because the researcher assumes that full awareness of the study protocol would change the results of the experiment; for some classic and contemporary procedures, this is obviously so. For example, Milgram's classic study on obedience (1963) could not have been performed without some level of deception. For more subtle procedures (such as Lepore & Brown, 2002), researchers assume that naïve participants provide more honest feedback in certain tasks. In these procedures, quality of data hinges on participants' naiveté to study details, so the majority of researchers use some form of post-experimental inquiries to assess participant level of information (Blackhart, Brown, Clark, Pierce, & Shell, 2012). The present experimental study assessed this assumption—that post-experimental inquiries accurately delineate naïve participants from non-naïve participants.

Golding and Lichtenstein (1970) formulated four factors necessary for deception: (1) suspiciousness of the protocol will not affect its response outcomes; (2) participants arrive with no knowledge of the experiment; (3) the experiment does not indicate to participants they are being deceived; and (4) knowledge of the experiment gained before

or during the protocol can be assessed by the experimenter. Violations of these assumptions, if undetected, seriously compromise the integrity of experimental results.

There are empirical reasons to be cautious about all four factors.

### **Does deception or suspiciousness influence experimental results?**

Suspiciousness of the experimental protocol or having any information about the protocol at all can change behavioral outcomes. Gardner (1978) conducted a series of studies on the negative aftereffects of a noise blast during the period in which ethics guidelines began to mandate providing subjects with informed consent forms. The researcher discovered that the negative aftereffects of a noise blast vanished in participants for whom informed consent was required; he initially discovered this effect in different groups of participants before and after the guidelines, then replicated this effect by experimentally manipulating the level of informed consent. Other phenomena similarly change or disappear depending on the level of information participants have (Adair, Dushenko, & Lindsay, 1985).

Changes in the information participants have changes the behaviors they exhibit in a study. Suspicious participants in a rigged impression formation experiment, for example, display less conformity than non-suspicious participants (Stang, 1976). Other researchers, directly manipulating the level of suspicion among participants by providing different degrees of information to them, have found that suspicion does not impact conformity studies (Gallo, Smith, & Mumford, 1973). Gallo and colleagues propose two interpretations for their lack of observed changes. Demand characteristics may lead participants to give information that lends itself to prove the experimenter correct. The second cause may be inattention; participants did not attend to or process the information

about the study hypotheses provided to them. Either situation creates a problem. By definition, participants that exhibit socially desirable answers are not giving unbiased data; participants that know details of the study but do not attend to these details may change their behavior in an experiment due to implicit influences without realizing and reporting that they have been influenced in some way.

In some experimental protocols, awareness of the true nature of the study would obviously compromise the results. In a classic psychology experiment, Milgram (1963) assigned participants to be a “teacher,” asking them to willingly administer progressively stronger electrical shocks to a “learner.” Students in introductory psychology courses will recognize this study and its false “learners,” who were experimental confederates. If the “teacher” participants also knew that the “learners” were not receiving dangerous, life-threatening shocks, would the study still be about obeying authority figures in extreme situations?

Not all psychology research depends so clearly on deception. Obedience to authority research is just one of many topics typically studied with deception. Topics such as social rejection are often studied with deceptive protocols, compounding the dangers of using deception because participants in a negative mood are more suspicious and more likely to detect deception (Forgas & East, 2008). Stereotyping research examines both automatic unconscious and controlled conscious reactions to outgroup individuals (Devine, 1989). By the very nature of stereotyping phenomena, some behaviors are automatic and some are controlled. Participants that are aware that stereotyping is being studied might report less stereotypes of Black individuals, whereas naïve participants will be racially biased in the same protocol (Lepore & Brown,

2002). Informed participants' responses may be due to unbiased tendencies, social pressure, or implicit influences that are not immediately accessible by the participants themselves?

For theoretical and empirical reasons, the first assumption—that suspicion does not change the results of an experiment—is itself suspect. The problems associated with this assumption are nonexistent if participants have no suspicion about the study to begin with. This second assumption, however, has its own problems.

### **Do participants arrive at the study with no information?**

For most experimental research, it is tacitly assumed that participants arrive to a study naïve to the true nature of the research. In reality, participants can get information about a study from a variety of sources. Crosstalk, the tendency for individuals in the participant pool to communicate with one another about the details of a study, increases over the course of an academic semester (Edlund, Sagarin, Skowronski, Johnson, & Kutter, 2009). Crosstalk can occur within a week of experimentation (Glinksy, Glinksy, & Slatin, 1970). Almost half of participants contacted by a confederate posing as a future participant in a meta-experiment by Lichtenstein (1973) shared details of the study they were instructed to keep secret; when participants were contacted by phone, 15 out of 19 shared information.

Participants that have experienced deception respond differently to subsequent experiments involving deception, perhaps to an increased vigilance or by the influence of demand characteristics (Cook & Perrin, 1971). Exacerbating these effects, participants who experience deception can exhibit noticeably different behaviors in the lab for up to

three months (Epley & Huff, 1998). Participants may become suspicious due to within-experiment factors as well.

### **Do experimental designs indicate to participants that they are being deceived?**

Participants can resolve the details of a study during the procedure itself; Taylor and Sheppard (1996) report an incident in which a graduate student was used as a stand-in for a participant who unexpectedly canceled their appointment in a group experiment. Pretending to be another participant, the graduate student listened in as the participants shared the details they had collectively received about the study, uncovering the full research design in the process. The participants in this experiment had been explicitly told they were not allowed to share the details of the study in this way, and only one of the participants the graduate student overheard hinted at the conversation in a post-experimental inquiry (PEI). The majority of researchers use some form of PEI just for the purpose of discovering the level of information participants know (Blackhart, Brown, Clark, Pierce, & Shell, 2011). Similar to Taylor and Sheppard's (1996) happenstance finding, other researchers with knowledge of participant information level have found PEI use to be inaccurate.

### **Do PEIs accurately detect suspicion or information?**

Growing evidence suggests that post-experimental inquiries do not, in reality, delineate very well between naïve and non-naïve participants. Some researchers (for example, see Aronson, 1968) report highly accurate PEIs. The majority of studies, however, report the opposite. When confederates were used to reveal a Naïve, Suspicious, or Informed information level to participants, Golding and Lichtenstein (1970) found no significant differences in participants' self-reported awareness of the

study design or admission of receiving prior information in their PEI. Taylor and Sheppard (1996) received no strong reports of suspicion from participants that a graduate student literally witnessed discussing the experiment's details. Levy (1967) reported an accuracy of one in 16 while Sagarin, Rhoads, and Cialdini (1998) reported one in 81. Nichols and Maner (2008) as well as McMillan and Austin (1971) reported zero PEI accuracy in different procedures.

Blackhart et al (2012) again used a confederate to directly supply participants with a Naïve or Informed prompt. While the Informed participants reported significantly more awareness of the study hypothesis and admission of receiving information than the Naïve participants, the self-reported levels of awareness and receipt of information were abysmally lower than the true, experimentally introduced levels of information. The trend seen in the majority of studies is that PEI accuracy is generally low.

### **Is there any hope for PEI accuracy?**

Despite so much evidence that PEIs are inaccurate, steps can be taken to improve their accuracy. Golding and Lichtenstein (1970) introduced a scientific integrity prompt to some participants that significantly increased PEI accuracy. Blackhart et al (2012) experimentally manipulated whether participants received the PEI in-person or alone on a computer. It was found that participants responding anonymously on a computer produced significantly more accurate PEIs. Other measures, such as offering participants an extra credit or cash reward, have mixed or harmful efficacy (Blackhart et al, 2012).

Blackhart and colleagues (2012) attempted to discover why participants report such low rates of honesty. The most commonly cited reasons were concerns about not receiving credit (or payment), concerns about getting someone in trouble (42% expressed

concerned about getting *themselves* in trouble, while 35% expressed concern about getting someone else in trouble), and concerns about appearing foolish. These self-reported areas of concern are personal concerns, whereas researchers using PEIs do so for professional considerations.

### **What is the next step?**

Progress has been made in discovering avenues to a more accurate PEI, but even the most promising results (e.g. Blackhart, et al, 2011) did not produce high levels of accuracy. In the present study, knowledge from the discipline of psychology itself was used to attempt to improve PEI accuracy. A previously used meta-experimental technique to assess PEI accuracy (adapted from Blackhart et al, 2012) was adapted for use with an experimental procedure that is, theoretically, very dependent on proper participant naïveté. As mentioned, one area in psychology that utilizes and depends on deceptive procedures is the study of stereotyping and prejudice. Research in this area is easily influenced by demand characteristics. For this reason, many protocols (for example, Lepore & Brown, 2002) are burdensome or impossible to perform without deception. If participants are aware of the purpose of a study measuring their prejudiced attitudes toward racial minorities, they may monitor their responses and curb naturally occurring responses. In fact, this appears to be exactly the case in a recent study exploring the effect of racial primes on prejudicial attitudes. Participants who became suspicious of the manipulation used by Lepore and Brown (2002), as determined by a suspicion probe, differed from non-suspicious participants. A statistically significant interaction emerged in which low-prejudice participants and high-prejudice participants reversed their scores relative to non-suspicious individuals. Because of the methodological difficulties

associated with this study, this procedure was a perfect candidate for the meta-experimental test of a PEI.

The aims of the current study were to improve upon previous PEI procedures. PEIs are administered at the end of an experiment and are restricted in several ways by the nature of psychological inquiry. PEIs cannot be too invasive or probing at the risk of causing naïve participants to then become suspicious; on the other hand, PEIs must be detailed enough to elicit information from participants (Stricker, 1969). PEI questions vary from researcher to researcher and across experiments (Blackhart et al, 2012). In searching for candidate techniques to improve PEI accuracy, then, a good practice would be to implement procedures that are uncomplicated, theoretically promising, and can be generalized to PEIs in various areas of research. The PEI was augmented in the current study by the manipulation of two social influence techniques, a descriptive norm prime and a default option switch. The reasoning for the selection of these techniques is outlined below.

### **The social influence of descriptive norms**

Psychology has a wide and deep foundation of research on social influence techniques (Cialdini & Goldstein, 2004). Social norms inform as to the proper or typical behavior in a situation. Norms can be classified into descriptive and injunctive. Descriptive norms are those that describe what the typical behavior in a certain situation is; injunctive norms are those that describe the belief about what is typically approved behavior, by some standard, in a certain situation (Cialdini & Goldstein, 2004; Cialdini, Reno, & Kallgren, 1990). Social norms are most efficacious when they are most salient (Kallgren, Reno, & Cialdini, 2000).



Participants have expectations about what “typical participants” *do* during experiments, and what “typical participants” *ought to do* during experiment. These expectations are usually not formalized. When directly asked, participants expect some level of deception in psychology research and express hesitation at reporting harmful information to researchers (Blackhart et al, 2012, Study 4). Participants could be given information about the injunctive norm to give accurate feedback during experiments, but reminding naïve, non-suspicious participants that they *should* report suspicions may have the unintended consequence of eliciting suspicions. In the present research, participants brought their own social norm evaluations to bear when completing the PEI. The descriptive norms brought to the study by participants may have varied. If the prevailing norm for a participant was to withhold information in psychology research, that participant might have been less likely to give accurate information on the PEI. Presenting participants with an opposite descriptive norm--that participants in similar studies divulge information that may be damaging to the study--was expected to increase reporting on the PEI by making the norm not only known but salient (Goldstein, Cialdini, & Griskevicius, 2008).

### **The inertia of choosing the default option**

In a choice situation the default option is often favored. This can be due to a lack of effort or an assumption that the default option is preferred (Johnston & Goldstein, 2003). Another explanation may be that the default option carries an implied descriptive norm. Changing the default option can have drastic consequences, as in the case of organ donation. Keeping many important factors controlled for, European nations who require citizens to opt-out of being an organ donor have double the organ-donation rates of

nations with opting-in as the default choice (Johnston & Goldstein, 2003). The bias toward lack of action in choice has also been found in a controlled laboratory setting (Baron & Ritov, 1994).

In the typical PEI, participants are asked general questions about the study but are not required to volunteer any information (see Blackhart, et al, 2012 for examples of typical PEI questions). This may be biasing participants in two ways. First, the “default” option is to give no information regarding prior information by leaving the form blank; this may lead to the default position bias outlined above. Second, participants may suspect that the norm is to withhold information, leading to a lack of admission typical of that perceived norm.

### **Social desirability and social monitoring**

While the primary goal of the current study was to test external influences on participants’ responding on the PEI, individual differences also play a role in participant responding. Social desirability and demand characteristics are often used as an explanation of participants’ lack of responding to PEI questions (Blackhart et al, 2012; Gallo, Smith, & Mumford, 1973; Golding & Lichtenstein, 1973). Measures such as the Marlowe-Crowne Social Desirability Scale can be used to assess the level of social desirability present in participants (Reynolds, 1982). Social monitoring, the degree to which one monitors one’s actions by taking into account observation by another (Snyder, 1974), is another trait measure that can be used to test the oft-voiced worry about participant demand characteristics. Participants high in social monitoring may be more aware of the social consequences of their behavior in an experiment, and may answer questionnaires in less stereotypical ways as a result, for example.

## **Experimental Design and Hypotheses**

A previously used deceptive procedure was replicated with the addition of a new formal PEI to determine if participant awareness of the study protocol changed the findings of the original research protocol. The study is also an evaluation of the PEI itself, introducing controlled independent variables with the goal of improving PEI accuracy. The PEI procedure used in the present study was representative of procedures commonly used by social psychologists (Blackhart et al, 2012); evidence for its improvement, then, should be applicable to many experimenters in this field.

Utilizing a procedure first used by Levy (1967) and replicated recently by Blackhart et al (2012), participant awareness of the project hypothesis was directly manipulated. Although it can be expected that baseline knowledge of any experiment involving deception will increase in the participant pool while the study is active (Edlund, et al, 2009), the levels of participant awareness are not endogenously large enough to use as an intrinsic variable. Instead, awareness of the study hypothesis was directly manipulated by the experimental procedure via an experimental confederate. This changes the ordinary study design into a *deception within a deception*, in essence. Using this procedure, participants completing the study were divided into Informed and Naïve groups and compared. As in previous research (Blackhart, et al, 2012), different independent variables were then introduced in an attempt to improve the PEI accuracy.

Thus, in this study-within-a-study design, participants arrived at the lab and completed a typical stereotype activation procedure by filling out some questionnaires on paper then completing some computer tasks. Before this began, however, an extra layer

of experimental manipulation happened—a confederate encountered the participant and started a conversation with him or her, providing them with information (or not, in the control condition) about the manipulation of stereotype information in the study. We hypothesized an interaction effect whereby participants who knew about the manipulation of their stereotypes and experienced a cognitive task designed as an ethnic prime would report abnormally low levels of negative attitude toward a fictional person believed to be Black. Therefore, an interaction effect in which those who were informed and primed with negative stereotypes would report the lowest levels of negative attitude, relative to all other groups, was expected. It was also expected that participants' negative rating of a hypothetical individual would be inversely related to social monitoring and social desirability.

Several simple independent variable effects were expected from ANOVA analyses of participants' Admission and Awareness scores across all groups. Participants in the Informed condition were hypothesized to report higher Awareness and Admission. Participants in the Opt-out condition were predicted to report more Awareness and Admission. Participants in the descriptive norm prime condition were expected to report more Awareness and Admission.

## CHAPTER II

### METHODS

#### **Participants and design**

Participants were recruited via the University of North Dakota's SONA data collection system. Participants signed up online to complete a study ostensibly about "word comprehension." Seven participants were excluded from analyses for failing to complete the administered measures or choosing to leave before the study was completed, which participants could choose to do at any point in the experiment; this left a total sample size of 144. None of the participants that did choose to leave the study early raised any suspicions or discomforts before doing so. The sample was primarily female (N = 124), while a minority were male (N = 19) or declined to answer (N = 1). Participants were recruited from introductory level psychology classes only. Accordingly, the sample consisted primarily of freshman (N = 54) and sophomore (N = 64) students at the University of North Dakota; a minority were junior (N = 19) or senior (N = 5) students and one student declined to answer. Corresponding with class standing, the sample was very young,  $M = 19.52$  years,  $SD = 2.24$ ; only 11 participants were above the age of 21. The majority of participants were Caucasian,  $N = 131$ . Using G\*Power 3.1, an estimate of sample size needed to achieve a power of .80 was estimated using similar effect size to Blackhart et al (2012). To achieve similar effect sizes, approximately 300 participants were necessary; the actual sample was approximately half.

Participants were randomly assigned to one of 16 experimental conditions with a 2 (informed vs. naïve) x 2 (ethnic primes vs. neutral words) x 2 (Opt-in vs. Opt-out) x 2 (norm prime vs. control) factorial design.

### **Informed/Naïve Condition**

Upon arrival at the experimental setting, participants followed instructions posted at the study location to have a seat. While the participant was waiting, the experimenter greeted him/her and informed him/her that another participant was not done in the lab. The experimenter provided the participant a packet of materials including a demographics questionnaire, the Marlowe-Crowne Social Desirability Scale, and the Personal Reactions Inventory. While the participant was filling out these forms, the previous “participant” (in reality, our experimental confederate) exited the lab and greeted the current participant. The confederate was instructed to strike up a conversation with the participant and administer one of two prompts. The confederate either engaged in small talk (“Naïve” condition) or told the participant critical information about the upcoming study (“Informed” condition). In the Naïve condition, confederates used the script “Hey, how’s it going. Are you doing that word comprehension study? Oh, I did that study.” If the participant asked for more information, the confederate was trained to say, “I don’t really remember, but I did some stuff on the computer.” In the Informed condition, the script was “Hey, how’s it going. Are you doing that word comprehension study? Oh, I did that study. They don’t really care about the words; they’re really looking for racism.” If the participant asked for more information, the confederate was trained to say, “I don’t really remember, but they told me the stuff on the computer was looking at racism.” After waiting approximately five minutes, the experimenter returned to bring the participant into the lab setting. This time period was allotted to ensure that experimenters did not overhear the participant information level and to ensure that participants had time to complete the forms.

### **Social desirability and Social monitoring scale information.**

The 13 item Marlowe-Crown Desirability inventory (Reynolds, 1982) administered during this step was a measure of the tendency for participants to respond in a socially desirable manner; in other words, how likely participants are to respond in the manner they see as desirable above and beyond an unbiased answer. Participants responded to questions such as “I have never deliberately said something that hurt someone’s feelings”; participants who answer False to questions of this type are said to display greater social desirability. The scale was internally reliable, Cronbach’s  $\alpha = .663$ . The Personal Reactions Inventory (Snyder, 1974) was a measure of social monitoring that measures monitoring oneself to adhere to proper self-presentation. Participants responded to true/false questions such as “I may deceive people by being friendly even when I really dislike them”, with an answer of True displaying great social monitoring. This 25 item scale was internally reliable, Cronbach’s  $\alpha = .618$ .

### **Lexical decision task (Ethnic Prime/No prime Condition).**

Upon entering the experimental room, participants completed the Lexical Decision Task (LDT) using Inquisit by Millisecond Software. The LDT presents participants with rapidly appearing and disappearing English words along with English-appearing nonwords. Participants were tasked with deciding if the letters on the screen are a word or nonword and pressing an appropriate key on the keyboard to indicate their choice. The LDT has a control and experimental condition. In the experimental Ethnic prime condition, some of the English words were neutral (Blacks) while others were negative racial primes (i.e., nigger, unemployed) adapted from Lepore & Brown, 1997 Study 3. In the control condition, all English words were neutral with regard to race.

## **Impression Formation Task**

After participants completed the LDT, they completed the Impression Formation Task used by Lepore & Brown (2002). The impression formation task was introduced to participants as an unrelated measure. While signing up to participate in the study, participants were informed the study has multiple unrelated components.

In the Impression Formation task, participants were presented with eight sentences describing an individual; each sentence expressed a positive or negative stereotype for a total of four each. Participants then rated the individual on 21 rating scales that were used to assess positive or negative attitude toward the fictional person. Participants that were exposed to the ethnic prime were more likely to implicitly assume that the hypothetical individual was Black and adjust the positive and negative ratings accordingly.

## **Post-experimental Inquiry**

Participants then engaged in the PEI designed to assess whether they had any prior knowledge of the study, were suspicious of the study, or knew/guessed the hypothesis of the study. In one version of the PEI, the form automatically assumed participants had previous knowledge of the study (Opt-out), and participants had the option to check a box indicating to the contrary; another version will be the standard PEI asking participants to volunteer any knowledge (Opt-in, Control). Some participants were informed in the PEI instructions that of participants with prior knowledge, a majority indicate so on the form (Norm prime); others did not receive this additional information (Control). All forms of the PEI contained the same questions, only differing by one checkbox independent variable and one prompt independent variable. The PEI consisted



of free-response questions. The PEI was coded into two independent categories, awareness of the study hypothesis (Awareness) and admission of receiving previous information (Admission).

Following the presentation of these questions, participants were debriefed and given an opportunity to ask questions. The impression formation sentences, PEI questions, and Admission/Awareness coding criteria are found in the Appendix.

## CHAPTER III

### RESULTS

#### **Social Desirability and Social Monitoring**

It was expected that social desirability and social monitoring would be positively related to a more positive rating of the hypothetical individual. In other words, participants with high social monitoring were expected to adjust their response to the hypothetical individual to be more positive. No significant correlations were found between social desirability scores and rating of the individual. The most robust correlation found was between the Personal Reactions Inventory and Negative rating for only individuals in the Informed information condition,  $r = .22, p = .07$ . In other words, for participants with information about the study design higher social monitoring was related to higher negative rating of the fictional individual.

The Spearman rho correlation was used to detect relationship between Admission and Awareness with social desirability. Interestingly, for all participants combined Admission and Awareness were correlated,  $\rho = .50, p < .001$ . For Naïve participants, this relationship did not hold,  $\rho = .053, p = .66$ . The relationship appears to originate from Informed participants,  $\rho = .60, p < .001$ .

Informed participants did show a positive relationship between social monitoring and Negative Rating,  $\rho = .26, p = .03$ , such that participants high in social monitoring rated the hypothetical individual as having more negative qualities, the opposite direction than predicted.

### **Negative attitude toward a hypothetical individual**

An interaction effect was expected such that Informed/Ethnic prime participants would rate the individual with less negative ratings, compared to all other groups. A 2 (Informed/Naïve) x 2 (Ethnic prime/Control) ANOVA was performed to determine changes in negative attitudes. The main effect of confederate information (Informed/Naïve) was not significant,  $F(1, 144) = 2.381, p = .125, \eta^2 = .016$ . The main effect of Ethnic prime (Ethnic prime/Control) was also not significant,  $F(1, 144) = .56, p = .45, \eta^2 = .004$ . The interaction was not significant,  $F(1, 144) = .615, p = .43, \eta^2 = .004$ . For group means, see Table 1. The observed power for the main effect of confederate information indicated a low chance of detecting an effect, .335, and the observed power for Ethnic prime and the interaction were minimal, <.13. This suggests that although no effect was found, the lack of statistical significance could be an issue of inadequate power. The ANOVA analysis was conducted with less participants than minimum recommendations; ratings were almost identical across conditions, indicating lack of effect, lack of power, or inadequate sampling.

### **Social influences on Admission and Awareness**

It was hypothesized that both social influence independent variables would increase both Admission and Awareness. Admission and Awareness were scored on a 1 – 5 scale, with 1 indicating no information given and 5 indicating full Awareness of the study hypothesis or full Admission of receiving detailed information about the study (for full scoring information, see Appendix). Over half of participants received a score of 1 on Awareness and a score of 1 on Admission (see Table 2 for full breakdown). Only 29 out of 145 participants received a score of 5 on Awareness. Broken down by information level

(Informed x Naïve), one of these participants were in the Naïve group. Only 19 participants scored a full 5 on Admission; all 19 were Informed.

**Participant information level.** Participants in the Naïve information level experienced a laboratory experiment that was typical of many studies in social, cognitive, and other areas of psychology. Thus, a  $\chi^2$  test was performed for both Awareness and Admission using the frequencies of Awareness and Admission in the Naïve level as expected frequencies and the frequencies of Awareness and Admission in the Informed level as observed frequencies. In this way, the direct result of providing participants with outside information about the study can be assessed. For the purposes of the  $\chi^2$  test, the five levels of Awareness and Admission were collapsed to two. Participants receiving a score of 1 to 3 on Admission or Awareness were coded as providing minimal information, while participants scoring a 4 to 5 were coded as providing substantial information. The cutoff point was a practical one: participants providing the type of information that would merit a 4 or 5 would, in ordinary studies, be candidates to be excluded from data analysis (such as in Lepore & Brown, 1997).

The  $\chi^2$  test for Awareness was significant,  $\chi^2 = 502.86, p < .001$ , indicating that more participants in the Informed condition provided more substantial information than in the Naïve condition. The  $\chi^2$  test for Admission was significant,  $\chi^2 = 526.16, p < .001$ , indicating that participants in the Informed condition provided more substantial information than in the Naïve condition.

Table 1. Mean Negative Attitude scores by group

Confederate. info*	Mean	Ethnic Prime**	Mean
Informed	5.74	Ethnic Prime	5.81
Naïve	6.02	Control	5.95

\*All participants divided by level of information provided by the confederate.

\*\*All participants divided by seeing neutral words or stereotype activation words in the Lexical Decision task.

Table 2. Awareness and Admission scores for all participants and subdivided by information level.

<i>Summary of Awareness and Admission</i>					
Awareness and Admission for all participants					
<u>Admission</u>	<u>Frequency</u>		<u>Awareness</u>	<u>Frequency</u>	
<u>score</u>			<u>score</u>		
1	100		1	89	
2	7		2	15	
3	12		3	4	
4	7		4	8	
5	19		5	29	
Awareness and Admission subdivided by Information level					
<u>Admission</u>	<u>Informed freq</u>	<u>Naïve</u>	<u>Awareness</u>	<u>Informed freq</u>	<u>Naïve freq</u>
<u>score</u>		<u>freq</u>	<u>score</u>		
1	44	56	1	34	55
2	2	5	2	5	10
3	5	7	3	2	2
4	6	1	4	7	1
5	19	0	5	28	1

**Awareness.** A 2 (Informed/Naïve) x 2 (Opt-in/Opt-out) x 2 (Descriptive norm/Control) x 2 (Ethnic prime/No prime) ANOVA was conducted for Awareness. The main effect of confederate information was significant,  $F(1, 129) = 36.33, p < .001, \eta^2 = .22$ , with participants in the Informed condition ( $M = 2.84$ ) scoring higher than participants in the Naïve condition ( $M = 1.33$ ). The ANOVA analysis was performed for Awareness and for Admission with lower than the minimum recommended number of participants.

The main effects of Ethnic prime and Default option swap were not significant; all interactions were nonsignificant (see Table 3). The observed power the effect of Norm prime was small, .261, and observed power for the remaining effects were smaller,  $<.18$ .

While the effects were nonsignificant, it should be observed that the trend for the Norm prime and Ethnic prime conditions matched expectations, with participants in the Norm prime condition ( $M = 2.25$ ) scoring higher than participants in the Control condition ( $M = 1.92$ ). Participants in the Ethnic prime condition scored higher ( $M = 2.11$ ) than those in the Control condition ( $M = 2.07$ ). For the Default option swap independent variable, the Control group actually scored higher ( $M = 2.22$ ) than the Opt-out group ( $M = 1.96$ ), the opposite trend predicted.

**Admission.** A 2 (Informed/Naïve) x 2 (Opt-in/Opt-out) x 2 (Descriptive norm/Control) x 2 (Ethnic prime/No prime) ANOVA was also conducted for Admission. The main effect of confederate information was significant,  $F(1, 129) = 19.28, p < .001, \eta^2 = .130$ , with participants in the Informed condition admitting to more information ( $M = 2.36$ ) than participants in the Naïve condition ( $M = 1.34$ ). No further main effects or interactions were significant (see Table 4). The mean values for the Ethnic prime ( $M =$

1.83, S.E. = .16) and control condition (M = 1.87, S.E. = .16) were practically identical. The trend for the Norm prime condition was in the hypothesized direction, but the Default option swap experimental condition appeared to have no effect.

### **Nonparametric tests**

The dependent variables Awareness and Admission were measured on an ordinal scale and had non-normal distributions. Thus, non-parametric analyses were used to examine the hypotheses concerning these variables.

**Nonparametric tests for Awareness.** Because the data collected for Awareness was non-normal and ordinal, non-parametric testing was appropriate. The a priori hypothesis concerning the effect of the Ethnic prime condition on awareness was tested using a Mann-Whitney U test. The Mann-Whitney U test was not significant,  $U = 2619.00$ ,  $p = .97$ ; the nonparametric test was also not significant if participants were divided by information level (Informed or Naïve).

**Nonparametric tests for Admission.** Admission scores were also non-normal and ordinal, thus nonparametric tests were performed. Our a priori hypotheses were that the Norm prime condition and the Opt-out condition would increase Admission rates over control. The Mann-Whitney U test for Admission changes over levels of Norm prime was not significant,  $U = 2356.50$ ,  $p = .22$ ; the test was also not significant for single levels of participant information (Informed or Naïve). The Mann-Whitney U test for changes in Admission across levels of Opt-out was also not significant,  $U = 2277.00$ ,  $p = .09$ . When the sample was divided by participant information level, Naïve participants were significantly different in the Opt-out condition,  $U = 479.50$ ,  $p = .047$ , such that control participants (Mean rank = 38.52) had a higher level of Admission than Opt-out



Table 3. Two (Informed/Naïve) x 2 (Opt-in/Opt-out) x 2 (Descriptive norm/Control) x 2 (Ethnic prime/No prime) ANOVA on Awareness. IN = Informed/Naïve. EP = Ethnic Prime/Control. NP = Norm prime/Control. OPT = Option swap/Control

<u>IV</u>	<u>Df</u>	<u>F</u>	<u>Sig</u>	<u><math>\eta^2</math></u>	<u>Power</u>
IN	1	36.329	.000	.220	1.000
EP	1	.030	.862	.000	.053
NP	1	1.765	.186	.013	.261
OPT	1	1.062	.305	.008	.176
IN * EP	1	.311	.578	.002	.086
IN * NP	1	.091	.763	.001	.060
IN * OPT	1	.040	.841	.000	.055
EP * NP	1	.025	.874	.000	.053
EP * OPT	1	.076	.784	.001	.059
NP * OPT	1	.091	.763	.001	.060
IN * EP * NP	1	.278	.599	.002	.082
IN * EP * OPT	1	.243	.623	.002	.078
IN * NP * OPT	1	1.369	.244	.010	.213
EP * NP * OPT	1	.408	.524	.003	.097
IN * EP * NP * OPT	1	.243	.623	.002	.078
Within	129				

Table 4. Two (Informed/Naïve) x 2 (Opt-in/Opt-out) x 2 (Descriptive norm/Control) x 2 (Ethnic prime/No prime) ANOVA on Admission. IN = Informed/Naïve. EP = Ethnic Prime/Control. NP = Norm prime/Control. OPT = Option swap/Control

<u>IV</u>	<u>Df</u>	<u>F</u>	<u>Sig</u>	<u><math>\eta^2</math></u>	<u>Power</u>
IN	1	19.280	<.001	.130	.992
EP	1	.028	.868	.000	.053
NP	1	1.629	.204	.012	.245
OPT	1	2.482	.118	.019	.346
IN * EP	1	.250	.618	.002	.079
IN * NP	1	2.428	.122	.018	.340
IN * OPT	1	.003	.954	.000	.050
EP * NP	1	.041	.839	.000	.055
EP * OPT	1	.551	.459	.004	.114
NP * OPT	1	1.227	.270	.009	.196
IN * EP * NP	1	.012	.913	.000	.051
IN * EP * OPT	1	.167	.683	.001	.069
IN * NP * OPT	1	1.931	.167	.015	.281
EP * NP * OPT	1	.765	.383	.006	.140
IN * EP * NP * OPT	1	1.041	.310	.008	.173
Within	129				

participants (Mean rank = 31.96). This was the opposite direction than predicted.

Informed participants were not significantly different across that condition,  $U = 659.50$ ,  $p = .48$ .

**Chi square tests on social influence and ethnic prime.** Due to the nonparametric nature of the Awareness and Admission variables, an additional set of non-parametric  $\chi^2$  tests were performed to assess the deviation of the experimental condition results from control conditions. The  $\chi^2$  tests were perhaps more appropriate for this dataset; the Awareness and Admission scores fell primarily into either category 1 or category 5, fitting a binary pattern better than a distribution. For both Awareness and Admission, data from control conditions were used as the expected frequencies; data from participants receiving the experimental manipulation served as the observed frequencies. Again, data from Awareness and Admission were entered on the binary scale of Minimal information or Substantial information. These analyses showed only one statistically significant difference (see Table 5): participants that did not receive the Ethnic prime and did receive the Norm prime reported greater levels of Admission,  $\chi^2 = 5.12$ ,  $p = .024$ .

## CHAPTER V

### DISCUSSION

For an experimental procedure specifically aimed at eliciting accurate feedback, the Awareness and Admission scores of participants was distressingly low. Almost all of the participants in the study with compromising information about the study design did not hint at this information. Across experimental conditions, Informed participants did report more Awareness and Admission. The Informed participants were explicitly told information just before the experiment started that, on the PEI, should elicit scores of 5 for Awareness and Admission; thus, this result is unsurprising. While the increase was statistically significant, the difference would have been much higher had participants reported accurately on the PEI. Contrary to expectations, neither the norm prime nor the opt-out condition improved Awareness or Admission.

#### **Replicating the impression formation results**

To the benefit of the impression formation procedure, perhaps, was our finding that negative rating of a hypothetical individual was not related to information level; this was contrary to our hypothesis that informed participants would show decreased negative rating. Participants' negative ratings were also unrelated to social monitoring or social desirability. Lepore and Brown (1996) was not replicated-- participants in the ethnic prime category did not expressed more negative attitude toward the individual. This could be due to issues of power, or to the difference between the current sample (University students in the U.S. Midwest) and the original study's sample (U.K. students). It is assumed that the attribution of negative traits to the hypothetical individual (Lepore & Brown, 1996) represents implicit prejudices when the negative rating

Table 5. Chi-squared comparisons of Informed participants receiving no experimental manipulations to participants receiving listed experimental conditions. IN = Informed/Naïve. EP = Ethnic Prime. NP = Norm prime. OPT = Option swap. Ct = Control.

<u>Awareness</u>						
	<u>Condition</u>	<u>Expected</u>	<u>Expected</u>	<u>Observed</u>	<u>Chi-</u>	<u>Sig</u>
		<u>Minimal</u>	<u>Substantial</u>		<u>square</u>	
EP	NP	10	8	10, 11	.536	.464
EP	OPT	10	11	10, 8	.455	.500
EP	Combined	5	5	20, 19	.026	.873
Ct	NP	11	6	10, 10	1.894	.169
Ct	OPT	10	9	11, 7	.519	.471
Ct	Combined	5	4	5, 5	.125	.724
Combined	NP	21	14	20, 21	2.150	.143
Combined	OPT	20	20	21, 15	1.000	.317
Combined	Combined	10	9	10, 10	.056	.814
<u>Admission</u>						
	<u>Condition</u>	<u>Expected</u>	<u>Expected</u>	<u>Observed</u>	<u>Chi-</u>	<u>Sig</u>
		<u>Minimal</u>	<u>Substantial</u>		<u>square</u>	
EP	NP	13	5	14, 7	.323	.570
EP	OPT	15	6	12, 6	.200	.655
EP	Combined	7	3	27, 12	.011	.917
Ct	NP	13	43	11, 9	5.124	.024*
Ct	OPT	11	8	13, 5	1.516	.218
Ct	Combined	5	4	5, 5	.125	.724

Table 5 cont.

<u>Condition</u>		<u>Expected</u>	<u>Expected</u>	<u>Observed</u>	<u>Chi-</u>	<u>Sig</u>
		<u>Minimal</u>	<u>Substantial</u>		<u>square</u>	
Combined	NP	26	9	25, 16	3.802	.051
Combined	OPT	26	14	25, 11	.313	.576
Combined	Combined	12	7	11, 9	.572	.449

\*Significant,  $p < .05$

increases as a result of an ethnic prime. That these results were not replicated may indicate that participants in our sample did not associate the ethnic prime with the hypothetical individual, or may indicate that the participants in this sample do not have elevated implicit biases against an individual they implicitly assume is Black. Some participants did correctly report on the PEI that the study was attempting to manipulate them into believing the individual was Black, however, only *two* Naïve participants were classified as providing Substantial information about the true study hypothesis, however. While the frequency of participant reporting is assuredly lower than actual participant knowledge, this does suggest that fewer participants in the Naïve category than Informed did believe the study was about race, bolstering the second interpretation.

### **The effect of social influence**

The norm prime condition did increase PEI accuracy, but due to the lack of power and small sample size for the ANOVA, this result was not statistically significant or practically useful; the  $\chi^2$  test on participants receiving a Norm prime prompt with neutral words indicated a difference for Admission. The observed power for the each null hypothesis in this experiment was far below the benchmark of .80. Previous research shows that reported Admission and Awareness of the study hypothesis by participants is rare (Blackhart, et al, 2012; Edlund, et al, 2009; Golding & Lichtenstein, 1970; Levy, 1967; and Lichtenstein, 1973). The level of participant Awareness and Admission was low, even in the Informed condition, which was significantly greater than the Naïve condition. This extreme positive skew hampers ANOVA analysis. The small cell sizes in this experiment also cast doubt on the  $\chi^2$  analyses. While issues of statistical power may have prevented this effect from being statistically significant, the norm prime prompt

used in this study did not elicit enough accurate feedback to be confidently recommended for inclusion in PEI procedures. The norm prime used in this study could be changed to increase the salience of both descriptive and injunctive norms, perhaps. In the current study (see Appendix B), participants in the norm prime condition were told that previous participants freely admitted problems or weaknesses in the study design. Participants were told by the norm prime prompt that classmates and friends may share critical study information and that this is a flaw in the study design, but were *not explicitly told* to report this information on the PEI. The PEI questions *prompted* the reporting of this information, however. While the logical steps between each piece of feedback are apparent from a researcher's-eye view of the study, perhaps participants in the moment do not all connect these pieces. The caution against stronger, more specific questions is that leading questions may arouse suspicion in participants where none existed before. If more direct, suspicious questions were found to increase Admission or Awareness rates, this would create a trade-off for researchers between obtaining accurate feedback and reducing suspicion in the participant pool.

For the opt-out condition, no evidence was found that groups differed based on receiving this condition. The default option swap has been shown to be effective for important outcomes such as organ donation (Johnson & Goldstein, 2003) but has not been less explored for small effects such as the subtle implicit influences in the current study. The default option swap was utilized in this study because it is a social influence technique that is extremely easy to implement in PEIs while having empirically supported efficacy. Its lack of effect in the current experiment indicates it is not appropriate for the subtle social situation introduced in the lab. Participants may have been unconvinced to



follow the implied truth-telling norm or the introduction of this norm, via the check box, was not salient.

### **Can recommendations for PEI accuracy be made?**

The primary purpose of this study was to attempt to increase Admission and Awareness rates on a standard PEI. If the trends in the data are extrapolated and it is assumed that the effects of Norm prime will be significantly positive (a very optimistic interpretation of the data), the effect size of the likeliest candidate to increase PEI accuracy, Norm prime, will most likely be small. While inclusion of a Norm prime aspect to any PEI is not likely to be harmful, it is also not likely to solve the dilemma of PEI accuracy. If the level of participant awareness in an experiment cannot be accurately measured, this calls into question any conclusions drawn from that experiment that rely on participant naiveté to the hypotheses.

Further explorations of social influence techniques may yield better results. Social influence research encompasses many topics that might be applicable to a PEI. Participants could be primed for the motives of reciprocity or liking, for example, by encountering information about the benefits of participation or friendly experimenters, for example (Cialdini & Goldstein, 2004). As mentioned previously, a trade-off between eliciting suspiciousness and increasing accuracy might be achievable by giving participants specific, guided questions about previous research knowledge.

Other factors, not addressed in this research, may be contributing to PEI accuracy. The participants recruited for this study were from introductory psychology classes such as Introduction to Psychology and Introduction to Statistics. This step was taken to minimize the amount of experience students had with research methods and experimental

designs. Perhaps students with more knowledge of research methods would be more likely to report accurately no PEIs. While this would not solve the problem of recruiting suspicious freshmen for psychology studies, it might lead to a practical way to improve PEI accuracy such as focusing on research methods during entry-level psychology classes. The minority of students that were not freshman or sophomores were, presumably, new to the major of psychology.

In conversations about PEI accuracy with colleagues, the discussion is usually framed in terms of participant honesty. While participant dishonesty may be the primary source of PEI inaccuracy, it may also be unawareness by participants about what constitutes questionable information they receive about a study. In some of our PEI free response answers, participants are clearly aware that a stray remark “about racism” is potentially damaging to the data they have provided. In the majority of answers, however, participants express nothing of the sort. The deception element in the study protocol is, hypothetically, so convincing that Informed participants are in some sense *still deceived*. Implicit tendencies, such as different response behavior on IATs, may apply to this subset of participants without their awareness.

## **Conclusion**

In a study specifically designed to assess truthful participant suspiciousness and study information, the truthful reporting of study information was abysmally low. While it is unfortunate that the results of this experiment were inconclusive, these null results ironically highlight the need for greater care in PEI construction and greater caution in interpreting results of studies involving deception.

## **APPENDICES**

## Appendix A

---

### Scoring rubric for Awareness and Admission scores

---

#### Awareness

- 1 – No awareness or suspicion of the experimental deception or purpose of the study indicated.
- 2 – General suspiciousness about the purpose of the study or how the parts of the study relate, but participant is completely unaware of the deception or true purpose of the study. This includes general suspicion of psychology studies.
- 3 – Targeted incorrect suspicion. Suspicion about a particular part of the study (e.g., the experimental confederate, the feedback given, specific tasks that were completed).
- 4 – Partial or inaccurate awareness of the experimental deception or true purpose of the study. Mention of ethnicity or stereotypes without directly stating the study is assessing racial stereotypes.
- 5 – Complete awareness. Any mention of racism or assessing racial stereotypes.

#### Admission

- 1 – No admission of prior information (i.e., denial of previous conversation).
- 2 – Admission of receiving public or ordinary info (i.e., SONA, info from the experimenter or prompts).
- 3 – Admit to discussing the study with someone else, but no information shared; mention of elements in the Naïve prompt.
- 4 – Admit to discussing the study and being told certain details; the details are vague or inaccurate (but different than the Naïve prompt).
- 5 – Admission of receiving details of the study and expressing those details (i.e., “s/he mentioned racism”).

## Appendix B

---

Post-experimental inquiry questions including experimental manipulations (marked in italics).

---

### **PEI1** ("Instructions")

"We would like your feedback about the design of the study. We want to make sure that our experimental design is sound, and we need your feedback to help us improve this study. In addition, we want to know whether anything odd or irregular happened as you participated in the study today. These things sometimes happen, and as long as we know about them, we can correct for them, and make sure that our findings are valid and reliable. It is therefore extremely important for the scientific validity of the study that you tell us if anything like this happened today.

Please be as honest as possible in your answers; no feedback we receive, including negative feedback, will result in a loss of research credit, nor will it affect how we use your data. In fact, negative feedback is an important way for us to improve upon our design for future studies. Be as detailed as you feel is necessary to fully answer each question.

You may spend as much time on these questions as you want, but we ask that you spend a minimum of 5 min answering these questions.

### **PEI2**

*Many things can go wrong in an experiment's design. Survey items can be confusing or difficult. Technical difficulties often come up without the experimenter finding out. Before an experiment, participants sometimes hear critical details of the study from classmates or friends. Experimenters sometimes, accidentally, give out confusing or extra information about a study. Participants sometimes, on their own, 'figure out' the study*

*design. Research in this lab shows that, overwhelmingly, participants who identify weaknesses in our studies reveal this."*

***PEI13 (appeared after "Instructions" or PEI2)***

*"Either on my own or by receiving it from classmates, friends, or acquaintances, I know important details of the study that the experimenter is not aware of."*

***Checkbox option: "No, I am not withholding my knowledge of study information."***

**PEI2**

"In your own words, what was the present study about?"

**PEI3**

"Did you believe, at any time, that the experiment dealt with anything other than what the experimenter had described to you?"

**PEI4**

"Did this affect your behavior in any way?"

**PEI5**

"Did you feel that certain reactions were expected from you at any time?"

**PEI6**

"Sometimes people may hear something about a study before they participate in that study. Did you have any information about this study before participating, from any source (e.g., from other students, your psychology instructor, psychology textbooks, previous research you have participated in)? If yes, please tell us what information you had before participating in the study (we are not interested in finding out how or from whom that information was obtained)."

**PEI7**

"Did you believe the experiment attempted to manipulate your attitude or behavior at any point?"

**PEI8**

"Did you have any doubts or suspicions about any information given to you prior to your participation or during the study?"

**PEI9**

"Did your experimenter do anything to cause you to be suspicious?"

**PEI10**

"Sometimes psychology studies include elements of deception. Did you expect to be deceived in this study?"

**PEI11**

"Where there any questions or procedures in this study that were unclear, or any parts of the study that were poorly designed (i.e., confusing, or with technical problems)?"

**PEI12**

"At any time, did the experimenter (accidentally or intentionally) act unprofessionally?  
At any time, were you provided with additional, extra instructions (i.e., help you did not ask for or want)?"

## Appendix C

---

Impression formation task sentences.

---

He plays football regularly.

He sometimes forgets plans and dates that were made in advance.

He goes to parties most weekends.

He can easily get angry at people who disagree with him.

He cannot be bothered to be on time for meetings and appointments.

He goes jogging a few times a week.

He is fun to be around.

He sometimes shows road rage when on the highway.



## REFERENCES.

- Aronson, E. (1968). Avoidance of inter-subject communication. *Psychological Reports*, *19*, 238.
- Blackhart, G.C., Brown, K.E., Clark, T.D., Pierce, D., and Shell, K. (2012). Assessing the adequacy of post-experimental inquiries in deception research and factors that promote participant honesty. *Behavior Research Methods*, *44*, 24-40.
- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal Of Personality And Social Psychology*, *58*, 1015-1026.
- Cook, T.D. & Perrin, B.F. (1971). The effects of suspiciousness of deception and the perceived legitimacy of deception on task performance in an attitude change experiment. *Journal of Personality*, *39*, 204-224.
- Hertwig, R., & Ortmann, A. (2008). Deception in social psychological experiments: Two misconceptions and a research agenda. *Social Psychology Quarterly*, *71*, 222–227.
- Epley, N., & Huff, C. (1998). Suspicion, affective response, and educational benefit as a result of deception in psychology research. *Personality and Social Psychology Bulletin*, *24*, 759-768.
- Forgas, J.P. & East, R. (2008). On being happy and gullible: Mood effects on skepticism and the detection of deception. *Journal of Experimental Social Psychology*, *44*, 1362-1367.

- Gallo, P.S.G. Jr., Smith, S., & Mumford, S. (1973). Effects of deceiving subjects upon experimental results. *The Journal of Social Psychology*, 89, 99-107.
- Glinski, R.J., Glinski, B.C., and Slatin, G.T. (1970). Nonnaivety contamination in conformity experiments: Sources, effects, implications for control. *Journal of Personality and Social Psychology*, 16(3), 478-485.
- Golding, S.L. & Lichtenstein, E. (1970). Confession of awareness and prior knowledge of deception as a function of interview set and approval motivation. *Journal of Personality and Social Psychology*, 14, 213-223.
- Goldstein, N. J., Cialdini, R. B., Griskevicius, V. (2008). A room with a viewpoint: Using social norms to motivate environmental conservation in hotels. *Journal of Consumer Research*, 35, 472-482
- Jamison, J., Karlan, D., & Schechter, L. (2006). To Deceive or Not to Deceive?. UC Berkeley: Experimental Social Science Laboratory (Xlab). Retrieved from: <http://escholarship.org/uc/item/5qf8d40t>
- Johnson, E.J., & Goldstein, D. (2003). Do defaults save lives? *Science*, 302, 1338-1339.
- Lepore, L., & Brown, R. (1997). Category and stereotype activation: Is prejudice inevitable?. *Journal Of Personality And Social Psychology*, 72(2), 275-287.  
doi:10.1037/0022-3514.72.2.275
- Lepore, L., Brown, R. (2002). The role of awareness: Divergent automatic stereotype activation and implicit judgment correction. *Social Cognition*, 20, 321-351.
- Lichtenstein, L. (1973). Please don't talk to anyone about this experiment: Disclosure of deception by debriefed subjects. *Psychological Reports*, 26, 485-486.

- Milgram, S. (1963). Behavioral study of obedience. *The Journal Of Abnormal And Social Psychology, 67*, 371-378.
- Nichols, A.L., & Maner, J.K. (2008). The good-subject effect: Investigating participant demand characteristics. *The Journal of General Psychology, 135*(2), 151-165.
- Reynolds, W. M. (1982). Development of reliable and valid short forms of the Marlowe-Crowne social desirability scale. *Journal Of Clinical Psychology, 38*(1), 119-125.
- Sagarin, B. J., Rhoads, K. V. L., & Cialdini, R. B. (1998). Deceiver's distrust: Denigration as a consequence of undiscovered deception. *Personality and Social Psychology Bulletin, 24*, 1167-1176.
- Snyder, M. (1974). Self-monitoring of expressive behavior. *Journal of Personality and Social Psychology, 30*(4), 526-537.
- Stang, D.J. (1976). Ineffective deception in conformity research. *European Journal of Social Psychology, 6*, 353-367.
- Stricker, L.J., Messick, S., and Jackson, D.N. (1969). Evaluating deception in psychological research. *Psychological Bulletin, 71*(5), 343-351.
- Taylor, K.M., and Sheppard, J.A. (1996). Probing suspicion among participants in deception research. *American Psychologist, 51*, 886-887.