**MEASUREMENT AND SOCIAL DESIRABILITY RESPONSE BIAS IN EXPERIMENTAL
VIGNETTE RESEARCH:
A TEST OF FAZIO'S MODE THEORY**

John F. Stolte, Ph.D.

Adjunct Professor

University of Texas MD Anderson

School of Health Professions

2021

jfstolte@mdanderson.org

or

jfred5.js@gmail.com

ABSTRACT

BACKGROUND. Experimental vignette research methods have been used to study a diverse range of theoretical and practical issues. Vignettes are designed to create hypothetical cultural/normative contexts for the study of variation in self-reported attitudes. A key problem in such research, however, is potential social desirability response bias. **METHOD.** A vignette experimental test of an hypothesis derived from a dual-process theory (the MODE framework initially developed by Fazio) linking explicit vs. implicit self-reported attitude measurement and social desirability response bias is reported here. **RESULTS.** The data show that measuring the social approval of a central vignette character *explicitly* results in greater social desirability responding than measuring such approval *implicitly*, supporting MODE theory. **CONCLUSIONS.** Vignette research methodologies provide a rich, flexible toolkit for studying many important social psychological topics, including issues of inequality and equity. However, researchers can and should design a measurement strategy that carefully manages inferences drawn in light of conditions likely to produce social desirability response bias.

OBJECTIVE

Vignette research methods have been widely used to study a diverse set of research issues, including: clinical decision-making (Evans, Roberts, Keeley, Blossom, Amaro, Garcia, Stough, Canter, Robles, and Reed, 2014), medical ethics (Fitzgerald and Hurst, 2017), nurse decision-making (Kada, 2017,) factorial survey design (Teti, Gross, Knoll, and Bluher, 2016), policy politics (Remler and Van Ryzin, 2015) public health (Guest and Namey, 2014) philosophy and law (Zamir and Teichman, 2014) topics in social psychology (Stolte, 1994;Stolte and Fender, 2007) perceptions of Alzheimer's disease (Berry, Williams, Thomas, and Blair, 2015) and judgments of filial responsibility (Santoro, Van Liew, Holloway, McKinnon, Little, and Cronan, 2016), among many other empirical issues.

As Evans et al., (2014) note, two major quantitative uses of vignette methodology are the factorial survey and the traditional experimental design. The factorial survey incorporates randomized vignettes in large-scale descriptive social surveys, simultaneously seeking to achieve both internal and external validity of results (Rossi and Nock, 1982). In traditional experimental designs, vignettes are used to test causal hypotheses derived from abstract, scope-defined, theories, and internal validity is given primacy. Although these two approaches have different goals and use different tactics, they both provide useful and complementary empirical knowledge.

In both approaches, vignettes are designed to create hypothetical cultural/normative contexts in which self-reported attitudes (thoughts, feelings, judgments, behavioral intentions) are measured. A key potential problem often arising in such self-report research is social desirability response bias. In essence, such bias arises when respondents or subjects deliberately construct and display an attitude motivated to obtain the social approval of an

external audience rather than automatically displaying a less controlled attitude motivated by a personal tendency/preference/value. Often such bias distorts the meaning of empirical results and leads to erroneous conclusions.ⁱ

Social desirability response bias is especially likely to arise when self-reported attitudes are measured within a “socially sensitive,” “problematic” cultural/normative context. Such contexts entail ethical dilemmas, ideological/political differences, racial, gender, class, and sexual identity differences, and various kinds of stigma (e.g., mental disability, drug use, sexual preferences/behavior). Today, for instance, many scholars are focused on issues of inequality and equity in various realms, including health. Such issues are more than likely to be “sensitive” or “problematic” for respondents.

As Evans et al. (2014:164-165) note, vignette methods can play a useful role in dealing with social desirability response bias. Such methods provide a flexible tool for “asking questions and inferring conclusions indirectly.” The present study builds upon and expands this insight, pursuing a particular pathway for clarifying and dealing with social desirability response bias in vignette research. The central purpose of the present study is to report a vignette experimental test of a dual-process theory linking self-reported attitude measurement, socially sensitive contexts, and social desirability response bias. The research uses a sample of university students. The primary objective in the study presented here is a strong, experimental test of a theory, maximizing confidence in causal inference and the internal validity of results. Building on this platform, later research can and should extend focus to external validity and a wider generalizability of results, perhaps using the factorial survey approach.

In the discussion below: (a) Fazio’s dual process theory is summarized, (b) an hypothesis derived from the theory is specified, (c) the method, subjects, and procedure of a vignette experimental test of the hypothesis are described, (d) the results are presented, and (e) the findings are summarized, noting their limitations, and making suggestions for further research.

FRAMEWORK: MODE THEORY

Fazio and his colleagues (Fazio, 1990; Fazio and Olson, 2003) formulated the MODE (“motivation and opportunity as determinants”) framework within a broader body of dual-process theories in social psychology (Chaiken and Trope, 1999).

Consider a hypothetical vignette experiment focused on a clinician’s medical decision-making. Suppose she/he must decide to recommend for or against a very expensive treatment. Imagine that the vignettes developed for this experiment are identical in describing a hypothetical patient’s characteristics except for the patient’s age, which is experimentally manipulated: condition A describes the patient as 35 years of age, while condition B describes the patient as 87 years of age. Based on all other patient characteristics except age, suppose best medical practice clearly dictates that treatment should be recommended. Will the clinician’s decision be based only on the prescribed best practice? Or will it be influenced by a diffuse, often distorted but widely held and prejudicial age stereotype?

Age, along with many other personal traits (race, gender, socioeconomic status, ethnicity, sexual identity, etc.) may make a hypothetical vignette context “socially sensitive” and “problematic.” Depending upon her/his past experience, a clinician may have acquired strong and rigid stereotypes linked to various personal traits and/or social situations. For example, in this hypothetical study, the clinician may react strongly to an age-based stereotype, judging the 87 year-old patient as “too old” compared to the 35 year-old patient for recommending the expensive medical treatment.

Within Fazio’s MODE framework, a key distinction is made between (a) cognitive processing that is spontaneous and automatic and (b) cognitive processing that is deliberate and controlled. Within vignette condition A (where the patient’s age is 87) the clinician might be influenced by the age stereotype and decide spontaneously and automatically against recommending treatment.

On the other hand, the clinician might not base her/his decision spontaneously on an age stereotype. Instead, she/he might engage in more deliberate/controlled cognitive

processing. In this process, her/his attention might come increasingly to focus on the “socially sensitive,” problematic, nature of the broader context surrounding the medical decision. Some part of the vignette-mediated situation might move the clinician to deeply consider the many complex issues surrounding the decision to be taken into account. Perhaps, among these issues are how the wider medical profession, government guidelines, and people in general view and react to old age prejudice in the context of health care decisions. After weighing such considerations, the clinician might decide to override his/her initial impulse and respond in a manner calculated to obtain the social approval of these various external audiences. In the end, her/his deliberate and controlled cognitive processing might result in a medical decision in which the patient’s age is treated as completely irrelevant. She/he might decide that only the medically mandated best practice must be followed. On this basis, he/she might (reluctantly but resolvedly) decide to recommend treatment.

MODE theory argues that the two cognitive processes, spontaneous-automatic and deliberate-controlled, are often “mixed” across time. Upon initial reading of the vignette in condition A (the “age 87” condition), the clinician might be influenced by the age stereotype and start to form a decision against recommending treatment. However, before formally recording his/her decision, she/he might begin to grapple with an increasingly uncomfortable quandary, leading to a revision of the initial decision. All things considered, she/he might decide age must be treated as irrelevant: she/he might, in the end, recommend treatment in accord with best practice. In MODE theory, spontaneous-automatic and deliberate-controlled cognitive processes often work back and forth together dynamically across time to result in a given decision. Such dual processing is especially likely when a context presents a significant dilemma or is otherwise socially problematic.

MODE theory argues that the outcome of cognitive processing underlying a decision will depend upon the interplay of two basic factors: motivation and opportunity.

In this hypothetical illustration, one significant source of motivation is a personally held attitude motivated by age-prejudice. That is, due to past social learning and life experience, the

clinician may be strongly motivated by an internalized age stereotype. If the experimental vignette provides an opportunity favoring the display of such prejudice, the theory predicts she/he will decide quickly and automatically to recommend against treatment for the 87 year-old patient, despite prescribed best medical practice.

However, a second significant source of motivation is the desire to obtain the social approval of the medical community, contingent upon following best practice guidelines. If the experimental vignette provides an opportunity favoring the display of a self-impression that will achieve such approval, the theory predicts that she/he will override the initial spontaneous impulse and decide to recommend treatment, in line with best medical practice norms.

In short, a personal attitude of age prejudice is only *one* source of motivation. The expected reaction of the wider medical community is *an alternative* source of motivation. A clinician strongly motivated by age prejudice, initially leaning toward recommending against treatment, but who, upon controlled and deliberate cognitive processing, decides to recommend treatment in accord with best practice can be said to have decided on the basis of *social desirability*.ⁱⁱ Vignette-mediated motivation and opportunity combine to shape the final decision.

Importantly, in Fazio's framework *the way a self-reported attitude is measured* is crucial for determining the opportunity facet of the situation shaping cognitive processing and decision-making. If an *explicit measuring instrument* is used, deliberate-controlled processing tends to be encouraged and facilitated. Administering such an instrument arouses and directs a subject's attention to the research and researcher as well as the broader socially sensitive context, activates deliberate cognitive processing, and creates an opportunity to construct a performance motivated by a desire to obtain external social approval. Such motivation pushes a subject to invest more cognitive resources in considering the sensitive issues surrounding the decision. In the hypothetical illustration, measuring the clinician's attitude explicitly increases the likelihood of a socially desirable decision: even though personally reluctant, she/he is more likely to follow best practice and recommend medical treatment.

By contrast, MODE theory argues that the use of an *implicit measuring instrument* encourages and facilitates spontaneous-automatic cognitive processing. A different decision is likely to be reached. Implicit measurement diminishes the attention a subject is likely to give to what is going on in the research and the broader, “sensitive” and “problematic” facets of the situation. Such measurement instead creates an opportunity favoring quick, automatic, spontaneous cognitive processing. Under implicit measurement, the clinician, assuming she/he is motivated by significant age-prejudice, is likely to recommend against treatment for the older patient.

In sum, MODE theory suggests: in hypothetical “socially sensitive” and “problematic” decision contexts created by vignette methods: (a) measuring self-reported attitudes explicitly leads to more social desirability responding, while (b) measuring self-reported attitudes implicitly leads to less social desirability responding.

The vignette experiment to which we now turn was designed to test this theory.

METHOD

Subjects

In exchange for extra course credit, students (N = 149) volunteered to serve as participants in what was described as a “study of social perceptions.” Subjects included undergraduate (N = 137) and graduate (N = 12) students. Subjects included females (N = 133) and males (N = 16). All 149 subjects responded to a post-experimental questionnaire instrument, and the whole data-set was used for part of the analysis reported below. However, only a subset of the whole group of subjects (N = 55), after responding to the post-experimental questionnaire, also wrote open-ended essays about the central vignette character (N of Females = 49; N of Males = 6). Part of the analysis described below was based on the whole data-set, and another part of the analysis was based on the smaller data-subset.ⁱⁱⁱ

Procedure

The present study created a “socially sensitive” and “problematic” cultural/normative context by using modified versions of vignettes developed in an earlier study (Stolte and Fender, 2007). In general, the context involves a family dilemma/quandary regarding how best to provide care for an aging family member suffering from early-onset Alzheimer’s disease. Across the vignettes, a central character is portrayed as an adult child of an aging parent. In one set of vignettes, the central character and the impaired elderly parent are depicted as female. In another set of vignettes, the central character and the disabled elderly parent are portrayed as male. In one set of vignettes, the motive underlying a caregiving decision made by the central character is depicted as selfless family affection. In another set of vignettes, the motive behind the caregiving decision is painted as the self-interested pursuit of money.

The vignettes were designed in part to create a hypothetical clash of cultural norms and expectations concerning the appropriateness of making a “communal” (selfless-family-affection-based) vs. an “agentic” (material self-interest-based) decision in reference to providing caregiving to an afflicted elderly family member (Able and Wojciszke, 2007). In addition, the vignettes were designed to examine the effects of gender, a “socially sensitive” and “problematic” characteristic, across the vignette-mediated cultural/normative context. Within such a context, how will subjects react to a caregiving decision made by a female vs. male central character? Much past research has shown pervasive impact of a broad gender stereotype: women are depicted as and expected to be “communal,” while men are portrayed as and expected to be “agentic.” Generally in the past, actors and social situations falling into line with this gender stereotype have tended to be socially approved. Historically, actors and social situations deviating from this stereotype have tended to be socially disapproved (Davis, S. & Greenstein, T., 2009, Eagly, A., 1987). How will the gender stereotype link to other facets of the vignette-mediated cultural/normative situation to influence the level of approval bestowed on the central character?

We turn to a detailed description of the study protocol:

After reading, dating, and signing an informed consent document approved by a university IRB-Committee, a subject was randomly assigned to one of the following four experimental vignette conditions:^{iv}

Vignette Condition 1: Female/Communal (FC)

Consider the following two people:

Young Female photo----- Middle aged Female photo

These photos are of a daughter (first photo) and her mother (second photo). Recently, the older woman's (the mother's) health and mind have begun to decline, because she has been diagnosed with early-onset Alzheimer's disease. Physicians have indicated that they expect the mother's dementia to worsen over time to the point where she will not recognize her daughter.

At the present time, the mother needs a lot of help and support with the basic activities of daily living....eating, bathing, dressing, walking, round-the-clock supervision, etc. In light of her mother's plight, the daughter is considering what decisions to make.

After struggling with all the issues, the daughter finally decides to have her mother move into her own home, so that she (the daughter) can care directly for all her mother's needs. The daughter is moved to make this decision mainly in light of her high personal regard for and strong devotion to her mother. The daughter knows this decision will make her own life substantially more burdensome than placing her mother in a skilled nursing facility, but the daughter places her mother's welfare above her own, and simply wants to express her great affection for her mother.

Vignette Condition 2: Female/Agentic (FA)

Consider the following two people:

Young Female photo--- Middle Aged Female photo

These photos are of a daughter (first photo) and her mother (second photo). Recently,

the older woman's (the mother's) health and mind have begun to decline, because she has been diagnosed with early-onset Alzheimer's disease. Physicians have indicated that they expect the mother's dementia to worsen over time to the point where she will not recognize her daughter.

At the present time, the mother needs a lot of help and support with the basic activities of daily living....eating, bathing, dressing, walking, round-the-clock supervision, etc. In light of her mother's plight, the daughter is considering what decisions to make.

After struggling with all the issues, the daughter finally decides to have her mother move into her own home, so that she (the daughter) can care directly for all her mother's needs. The daughter is moved to make this decision mainly in light of practical economic circumstances. The daughter knows that this decision will cost much less than placing her mother in a skilled nursing facility, and the daughter strongly wants to conserve her mother's wealth, so that when the mother dies, her (the daughter's) inheritance will be much greater than it would be otherwise.

Vignette Condition 3: Male/Communal (MC)

Consider the following two people:

Young Male photo----- Middle aged Male photo

These photos are of a son (first photo) and his father (second photo). Recently, the older man's (the father's) health and mind have begun to decline, because he has been diagnosed with early-onset Alzheimer's disease. Physicians have indicated that they expect the father's dementia to worsen over time to the point where he will not recognize his son.

At the present time, the father needs a lot of help and support with the basic activities of daily living....eating, bathing, dressing, walking, round-the-clock supervision, etc. In light of his father's plight, the son is considering what decisions to make.

After struggling with all the issues, the son finally decides to have his father move into his own home, so that he (the son) can care directly for all his father's needs. The son is moved to make this decision mainly in light of his high personal regard for and strong devotion to his

father. The son knows this decision will make his own life substantially more burdensome than placing his father in a skilled nursing facility, but the son places his father's welfare above his own, and simply wants to express his great affection for his father.

Vignette Condition 4: Male/Agentic (MA)

Consider the following two people:

Young Male photo----- Middle Aged Male photo

These photos are of a son (first photo) and his father (second photo). Recently, the older man's (the father's) health and mind have begun to decline, because he has been diagnosed with early-onset Alzheimer's disease. . Physicians have indicated that they expect the father's dementia to worsen over time to the point where he will not recognize his son.

At the present time, the father needs a lot of help and support with the basic activities of daily living....eating, bathing, dressing, walking, round-the-clock supervision, etc. In light of his father's plight, the son is considering what decisions to make.

After struggling with all the issues, the son finally decides to have his father move into his own home, so that he (the son) can care directly for all his father's needs. The son is moved to make this decision mainly in light of practical economic circumstances. The son knows that this decision will cost much less than placing his father in a skilled nursing facility, and the son strongly wants to conserve his father's wealth, so that when the father dies, his (the son's) inheritance will be much greater than it would be otherwise.

To examine the effects of these experimentally manipulated vignette conditions on subjects' reactions to the central character, we used the level of social approval subjects expressed in reference to the central vignette character as the dependent variable. As a broad concept, such social approval captures much of the general idea beneath the term, "social desirability." As an abstract concept, social approval might be indicated by using different measuring instruments. Varying measures might be equally plausible conceptually, and each might meet a reasonable standard of face validity.

The present experiment used two contrasting instruments for measuring subjects' approval of the central vignette character. The first is an explicit measure. The second is an implicit measure.

To measure social approval *explicitly*, we employed a widely used scale developed by Aron, Aron, Tudor, and Nelson (1991). This scale measures the "incorporation of other into self" (denoted as "IOS" in the discussion below). The younger family member (adult son or adult daughter) was designated as the central vignette character to be evaluated by subjects.

For IOS, the experimental instructions were as follows:

"Consider the person shown in the first photo above (the photo of the younger person). Now please examine the diagrams below. Imagine you are "self" and the younger person in the photo above is "other." Please circle the diagram which best describes how you feel about your relationship to that "other" person." This scale is made up of seven pairs of Venn Diagrams, showing variable overlap and depicting varying levels of emotional identification with (social approval of) the other, from low to high. After a subject responded by circling a given pair of diagrams, the response was translated into a number from 1 = low to 7 = high emotional identification with (approval of) the central vignette character.

By contrast, to measure social approval *implicitly*, the Linguistic Inquiry and Word Count (LIWC) program (Tausczik and Pennebaker, 2010) was used to measure the proportion of positive emotion-words used by subjects in open-ended essays written to imaginatively describe various facets of the central character's life (denoted as POSEMO in the discussion below).

For POSEMO, experimental instructions were as follows: "In reference to the person shown in the first photo above (the younger person), please write a 250-350 word essay describing what you imagine that person's family, work, friendship, religion, politics, civic activity, and recreation are like."^v

Hypothesis

The procedure described above, including the explicit and implicit measures, was used to test of this prediction:

Measuring the social approval displayed toward a central vignette character explicitly (as IOS) will result in more social desirability responding than measuring such approval implicitly (as POSEMO).

RESULTS

Effect of Vignette Manipulation on the explicit measure: IOS

As expected, the vignette manipulation had a significant effect on IOS [$F(3, 145) = 13.838, p = .000$]. Mean IOS is significantly greater in reference to the “communal” (selfless-family-affection-motivated) than “agentic” (material-self-interested money-motivated) central vignette character, as can be seen in FIGURE 1.^{vi}

Crucially, FIGURE 1 shows no significant differences in IOS by gender variations across vignettes. A post-hoc multiple comparison analysis showed no significant difference between FC and MC and no significant difference between FA and MA. Instead, only the central vignette character’s decision-making motive, “agentic” (self-interested money-motivated) vs. “communal,” (selfless-family-affection-motivated), regardless of gender, determined variation in IOS. This finding is discussed more fully below.

(FIGURE 1 ABOUT HERE)

Effect of Vignette Manipulation on the implicit measure: POSEMO

The data show the vignette manipulation had a significant effect on POSEMO [$F(3, 51) = 3.11, p = .000$]. However, it is the specific pattern of this effect shown in FIGURE 2 as

compared with the results for IOS shown in Figure 1 that provides strong support for the hypothesis. In this instance, gender variations across vignettes did have a large impact. The largest difference shown in Figure 2 is that between the female communal (FC) central character and male agentic (MA) central character. In a post-hoc multiple comparison analysis, this difference is significant [*Tukey HSD* = .026). As the data in FIGURE 2 show, the female communal (FC) character is allocated the highest and the male agentic (MA) character the lowest levels of POSEMO. Yet, a post-hoc analysis showed that the level of POSEMO allocated to the female agentic (FA) character does not differ significantly from the level of POSEMO given the male communal (MC) character. The discussion of this data pattern is expanded below.

(FIGURE 2 ABOUT HERE)

CONCLUSIONS

In summary, measuring the social approval a subject displayed toward a central vignette character explicitly using the IOS measuring instrument, showed no effect of gender variation. This finding supports the logic of MODE THEORY as an interpretation of “social desirability response bias.” In light of these data it seems highly plausible that the explicit measuring instrument used in this study encouraged subjects to engage in controlled, deliberate cognitive processing, constructing a judgment to fit wider cultural/normative expectations surrounding and governing the situation. That is, use of the explicit measure of social approval led to subjects displaying a “socially desirable” attitude. Underlying such an attitude display is conformity with widely held cultural norms stipulating that, within the vignette-mediated quandary, selfless family affection should unambiguously take precedence over the self-interested pursuit of money. Motivated to convey such a self-impression, a subject should and did appear to hold gender to

be completely irrelevant.

By contrast, measuring the social approval a subject displayed toward a central vignette character implicitly using the LIWC/POSEMO measuring instrument, showed a significant, nuanced effect of the gender-stereotype. This finding also supports the logic of MODE theory. It seems plausible that use of this alternative measure allowed for and encouraged spontaneous-automatic judgments in the subjects. The operation of these nuanced, gender-biased expectations can be seen in FIGURE 2. A female central character making a decision based entirely on selfless family affection is provided a substantial “bonus” in POSEMO, compared with a male central character also making a decision based entirely on selfless family affection. Indeed, the male central character is granted no more POSEMO than the female central character who makes a decision based entirely on the self-interested pursuit of money. Further in line with the pervasive gender stereotype, the male central character making a decision based on the self-interested pursuit of money is allocated the lowest level of POSEMO of all characters depicted in the vignettes.

To elaborate the results briefly, it is worth noting that the explicit measuring instrument (IOS) uses a highly structured, “forced-choice” format. It is consistent with MODE theory to argue that this format itself creates an opportunity for deliberate-controlled cognitive processing of the situation: a subject reads a vignette and considers how close to or distant from a central character she/he should place her/himself. The Venn-diagram technique at the heart of the scale is geo-spatial in nature. The task facing the subject is an inherently analytical problem requiring the use of “higher order” reasoning. The subject is likely to employ conscious, explicit cognitive assets in such analysis. In effect, the subject might well ask: “As a member of the broader community, should I identify with a central character like this, and, if so, how much?” The data pattern shown in FIGURE 1 seems likely, given such deliberate-controlled cognitive processing. A subject might well reason: “In this vignette situation, where the needs of a disabled elderly parent should be considered paramount, a socially desirable reaction requires the gender of the central character be considered irrelevant: and all that should really matter is

that altruistic family affection underlie the central character's decision regarding the elderly, afflicted parent.

By contrast, the LIWC psycholinguistic tool used to measure POSEMO in the present study, in part, allowed a relatively unstructured, open-ended response. Again consistent with the logic of MODE theory, this measurement format provides an unfettered opportunity for spontaneous-automatic cognitive processing of the situation: A subject reads a vignette and is asked to write an open-ended essay imaginatively describing the central character's life (family, work, friendship, religion, politics, civic activity, and recreation). Constructing such a description in writing is an *explicit focus* of the task facing the subject, a focus that no doubt evokes as much deliberate-controlled cognitive processing as that evoked by the forced-choice IOS- Venn-diagram task. On the one hand, a subject's explicit attention is deflected toward building an account of various domains in the central character's life. Simultaneously on the other hand, however, the LIWC-POSEMO writing task provides a subject the opportunity for spontaneous-automatic responding in the form of an unstructured, open-ended choice of words to capture various facets of the central character's life. It seems plausible to construe this facet of cognitive processing as a quick, spontaneous, automatic and largely unconscious display by subjects of gender biases in reference to the central character.

The results of the present study support Fazio's MODE THEORY linking measurement to social desirability response bias in the context of a vignette experiment. While these results are limited, they provide a foundation upon which future research can build.

One limitation derives from the size and character of the subject sample used in the present study. Future research should increase both the size and diversity of the subject sample. It is quite likely subject gender would interact with the gender variations across the vignettes in important ways, and such interactions require careful study. A potentially useful strategy would be to build theoretically and operationally from the present vignette experiment toward a more ambitious factorial survey. As noted above, the central goal of the present experiment has been to test an abstract, general theory (the MODE framework), and the internal

validity of causal inference has been given primacy. However, future work might buttress the present results, using the more descriptive, more ecologically focused methods of the factorial survey. In short, it would be valuable to explore the relationship between measurement and social desirability response bias in larger, more representative samples drawn from varying populations. Such exploration would expand the scope of the present findings by adding greater external (ecological) validity to the results.

A second limitation of the present study is the scope of the normative/cultural context created by the vignette manipulation. While the context created in the present study has been a useful means for testing a key theoretical hypothesis, many other normative/cultural contexts might and should also be studied rigorously. Future research should expand the vignette-mediated motives underlying decision-making beyond the clash between “communion” vs. “agency” used in the present study. Also, subject characteristics other than gender (age, education, health, and socio-economic status, among others) should be studied. A major virtue of vignette methods is that they flexibly allow the investigation of a wide variety of traits and social situations to be used in defining culturally/normatively “sensitive” and “problematic” situations. This virtue should be capitalized on in the development of follow-up studies.

A third limitation of the present study is the scope of the indicators used to explicitly and implicitly measure self-reported attitude. To measure other relevant constructs explicitly, a large variety of direct, “forced choice” items and scales in addition to the IOS scale used in the present study might be developed or borrowed from previous research. To measure other relevant constructs implicitly, other indicators in addition to the LIWC/POSEMO indicator used in the present study might be employed. For example, the “implicit association test” (Greenwald and Banaji, 1995), and other derivative response latency measures, might be used. One would expect studies using different indicators, explicit or implicit, to yield results consistent with those found in the present research.

More broadly, as Evans et al. (2014) make clear, vignette research methodologies provide a rich, flexible toolkit for studying important, variegated topics in clinical and health

psychology. Using these methodologies, however, demands that researchers take careful account of the core issue surrounding the potential impact of measurement strategy (explicit vs. implicit) on social desirability response bias. The results of the present study suggest one potentially important pathway to pursue in dealing effectively with this issue.

REFERENCES

- Abele, A. & Wojciszke, B. (2007). Agency and communion from the perspective of self versus others. *Journal of Personality and Social Psychology*, 93, 751-763.
- Aron, A., Aron, E., Tudor, M., & Nelson, G. (1991). Close relationships as including other in the self. *Journal of Personality and Social Psychology*, 60, 241–253.
- Berry, J. M. Williams, H.L., Thomas, K.D., and Blair, J. (2015). Perceptions of competence: Age moderates views of healthy aging and Alzheimer's disease. *Experimental Aging Research* 41, 157-176
- Chaiken, S. and Trope, Y. (1999). *Dual-Process Theories in Social Psychology*. New York: Guilford Press.
- Davis, S. & Greenstein, T. (2009). Gender ideology: Components, predictors, and consequences. *Annual Review of Sociology*, 35, 87-105.
- Eagly, A. (1987). *Sex differences in social behavior: A social-role interpretation*. Hillsdale, NJ: Erlbaum.
- Evans, S.C. Roberts, M.C., Keeley, J.W., Blossom, J.B., Amaro, C.M., Garcia, A.M., Stough, C.O., Canter, K.S., Robles, R., and Reed, G.M. (2014). Vignette methodologies for studying clinicians' decision-making: Validity, utility, and application in ICD-11 field studies. *International Journal of Clinical and Health Psychology*, 15, 160-170
- Fazio, R.H. (1990). Multiple Processes by which attitudes guide behavior: The MODE model as an integrative framework. *Advances in Experimental Social Psychology*, 23, 75-109.
- Fazio, R.H. and Olson, M.A. (2003). Implicit measures in social cognition research: Their meaning and use. *Annual Review of Psychology*, 54, 297-327.
- Fitzgerald, C. and Hurst, S. (2017). Implicit bias in healthcare professionals: a systematic review. *BMC Medical Ethics*, 18, 1-18.
- Greenwald, A. and Banaji, M. (1995) Implicit social cognition: Attitudes, Self-esteem, and Stereotypes. *Psychological Review* 102, 4-27.
- Guest, G. and Namey, E. Eds. (2014). *Public Health Research Methods*. Beverly Hills, CA,

- Sage.
- Kada, O. (2017). Hospital transfers of nursing home residents: A vignette experiment on nurses decision-making, *Journal of Applied Gerontology*, 1, 1-11.
- Pennebaker, J.W. Chung, C.K., Ireland, M., Gonzales, A., and Booth, R.J. (2007) The Development and Psychometric Properties of LIWC2007. Austin, TX: LIWC.net.
- Remler, D.K. and Van Ryzin, G. G. (2015). Research Methods in Practice. Los Angeles, Sage.
- Rossi, H. and Nock, S. (1982). Measuring social judgments: The factorial survey. Beverly Hills, CA: Sage.
- Santoro, M.S., Van Liew, C., Holloway, B., McKinnon, S., Little, T. and Cronan, A. (2016). *Research on Aging*, 38, 665-688.
- Stolte, J. F. (1994). The context of satisficing in vignette research. *Journal of Social Psychology*, 134, 727-733.
- Stolte, J.F. & Fender, S. (2007). Framing social values: An experimental study of Culture and cognition. *Social Psychology Quarterly*, 70, 59-69.
- Tausczik, Y. & Pennebaker, J. (2010). The psychological, meaning of words: LIWC and computerized Text Analysis Methods. *Journal of Language and Social Psychology* 9:24-54.
- Teti, A. Gross, C. Knoll, N. and Bluher, S. (2016). Feasibility of the factorial survey method in aging research: Consistency effects among older respondents. *Research on Aging*, 38, 715-741.
- Zamir and Teichman, Eds. (2014) The Oxford Handbook of Behavioral Economics and the Law. Oxford University Press.

FIGURE 1: Aron “Incorporation of other into self” (IOS) Scale by Vignette Condition

FC = female-communal (*SD* 2.02)

FA = female-agentic (*SD* 1.79)

MC = male-communal (*SD* 2.10)

MA = male-agentic (*SD* 2.13)

FIGURE 2: Pennebaker LIWC “Positive Emotion-word Use” (POSEMO) by Vignette Condition

FC = female-communal (*SD* 1.30)

FA = female-agentive (*SD* 1.85)

MC = male-communal (*SD* 1.56)

MA = male-agentive (*SD* 1.55)

ⁱ It has been often argued that a personally held attitude displayed automatically is more "real" and "authentic" than an attitude displayed deliberately to obtain the approval of an external audience, the latter being merely a "performance." But Fazio's theory (Fazio and Olson, 2003), elaborated below, argues that both attitude displays are "real" and "authentic." They are motivated by different goals. The essential problem is erroneously construing an attitude motivated by social desirability as an attitude motivated instead by a personally held attitude. To avoid distortion and confusion in research results, the two kinds of attitude display must be clearly distinguished and monitored, and inferences from the data must be carefully and accurately made.

ⁱⁱ If a researcher's goal is to study age prejudice in healthcare decision-making, but if subjects/respondents hide their strong personally held age-prejudicial attitudes, revealing only a socially desirable non-prejudicial response in order to obtain medical community approval, and if the researcher misconstrues these results as showing an actually low level of age prejudice, then such social desirability response bias leads to a seriously inaccurate empirical conclusion.

ⁱⁱⁱ Because laboratory space with e-mail capacity and other logistical resources were limited, it was feasible to collect written essay data from only this smaller subset (N = 55) of subjects.

^{iv} The vignettes described here build from but importantly extend the vignette procedures reported by Stolte and Fender (2007) to create a distinct cultural/normative context relevant to the present research goals.

^v In developing MODE theory, Fazio and his associates (Fazio, 1990) focused on several implicit measuring instruments, especially the "implicit association test" (IAT), developed by Greenwald and Banaji (1995). The IAT and similar measures, rest on response latency as a way of implicitly capturing attitude-to-behavior constructs. The present experiment relies instead on the Linguistic Inquiry and Word Count (LIWC) approach developed by Pennebaker and his colleagues (Pennebaker, J.W. Chung, C.K., Ireland, M., Gonzales, A., and Booth, R.J., 2007; Tausczik, Y and J. Pennebaker, 2010) and used widely by many others. LIWC, in contrast to IAT, measures a concept implicitly by indicating facets of cognitive processing upon which a subject is not directly focusing his/her *attention*. When referring to the central character in the vignettes, we take POSEMO to be a spontaneous-automatic rather than deliberate-controlled display of attitude.

^{vi} The present study was unable to determine whether or not subject gender had an effect. Specifically, the student population from which the experimental subject pool was selected is sharply skewed demographically, with females (experimental N = 133) substantially out-numbering males (experimental N = 16).