Research Articles

Respondents' Manifestations of Extraversion in Survey Interviews: Their Relationships with the Extreme Response Style and Attitude Strength

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——————— **ABSTRACT** ———————

Two contradictory perspectives concern the significance of extreme responses in survey data, and each is supported by abundant empirical studies. One school holds that extreme responses indicate extreme and hence strong attitudes. The other considers extreme responses to be merely due to the extreme response style (ERS). The contradiction implies that the extent of the validity of extreme responses as an indicator of strong attitudes may need to be investigated by simultaneous examinations from the two perspectives. However, no such study exists. Furthermore, interviewers rely more or less on respondents' characteristics of extraversion to complete an interview. Yet, people higher on extraversion are more likely to have the ERS. This leads to uncertainty about the response quality of cooperative respondents. This study distinguishes two types of extra-

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verted respondents: eager participants and friendly respondents. It forms four hypotheses: (1) Initial extreme responses involve ERS more than strong attitudes. (2) Respondents with higher levels of friendliness are more likely to have ERS. (3) Respondents with higher levels of participation eagerness are more likely to have ERS. (4) Respondents with higher levels of participation eagerness are more likely to have strong attitudes. However, we do not expect that respondents with higher levels of friendliness are more likely to have strong attitudes. The hypotheses are tested by analyzing data of the "Survey Research on Attitudes toward Death Penalty and Related Values in Taiwan" in HLM models. AIC is used to compare model fits in testing hypothesis 1. Results support the hypotheses.

Keywords: extreme response style, extraversion, participation eagerness, atmosphere of interview, attitude stability

受訪者在調查訪問中所表現的外向特質：
它們跟極端回答風格與態度強度的關係

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摘要

　　對於調查資料裡的極端回答，有兩種迥異且矛盾的看法，且兩者都有紮實的文獻支撐。一是極端回答代表極端而明確的態度；二則認為它僅出自回答者的回答風格，並不代表明確態度。這項矛盾意味著極端回答作為明確態度的效度程度，需同時從這兩種看法檢視，但未曾有此種研究。另一方面，訪員常需仰賴外向的人格特質完成訪問，但研究發現外向者卻較可能有極端回答的風格。這讓人想問：合作的受訪者之資料品質如何？本文將外向特質區分為受訪樂意度，及在訪

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問中友善度，並形成四個假設：⑴在初始態度題以極端回答者，較多是因為有極端回答風格而致，較少是因為明確態度而致。⑵樂意度越高，極端回答風格越強。⑶友善度越高，極端回答風格越強。⑷越樂於受訪的人，其態度越明確。但預期受訪者的態度明確度跟其友善度無關。假設之檢驗，則使用多層線性模式分析 2014 年「台灣民眾對死刑的態度與相關價值調查研究」計畫資料。假設 1 的檢定並以 AIC 比較模型適配度。結果支持研究假設。

關鍵詞：極端回答風格，外向，受訪樂意度，訪問氣氛，態度穩定度

Two contradictory perspectives exist concerning extreme responses to attitude questions. First, from the perspective of attitude strength, extreme responses (e.g., the extreme ends of a scale, such as "strongly agree" and "strongly disagree") indicate extreme attitudes. Research in the field of attitude strength are in high agreement that extreme attitudes are strong attitudes (e.g., Huckfeldt and Sprague 2000; see overview of Judd and Brauer 1995; Pomerantz et al. 1995). Specifically, persistence (stability), resistance to persuasion, and guiding future behavior are the defining features of strong attitudes and the three are likely to co-occur (Krosnick and Petty 1995), and extreme attitudes have been found to have these characteristics. For example, attitudes expressed in extreme terms were found to be more likely to persist than those expressed in moderate terms (e.g., Huckfeldt and Sprague 2000; Schuman and Presser 1981). People with extreme attitudes were found to be less susceptible to persuasive attempts that argue for an opposite attitude (e.g., see overview of Judd and Brauer 1995; Pomerantz et al. 1995). Also, the behaviors of people with extreme attitudes were found to be more consistent with their attitudes (e.g., Fazio and Zanna 1978; Petersen and Dutton 1975).

To illustrate the relationship between extreme attitudes and strong attitudes, take the death penalty attitude for an example. People who extremely favor abolishing the death penalty are expected to be more likely to continue to hold the attitude across time with or without being challenged by counter-arguments, and also more likely to advocate abolition publicly than those who also favor abolition but to a lesser extent. In contrast, people who extremely disfavor abolishing the death penalty are more likely to continue to hold the attitude across time with or without being challenged by counter-arguments, and also more likely to advocate retaining the death penalty publicly than those who also disfavor the abolition but to a lesser extent.

The second perspective, which runs counter to the attitude strength perspective, is the extreme response style (ERS) perspective. ERS holds that some people simply have the tendency to use extreme ends of responses in unqualified terms (Bachman and O'Malley 1984), without meaning extreme or strong attitudes (Baumgartner and Steenkamp 2001). In fact, ERS, along with other response styles—such as the middle response style and the acquiescence response style—has received a lot of attention in psychology, in cross-cultural comparison, and in survey research (for a review of response styles, see Van Vaerenbergh and Thomas 2012). This is because people's different extents of using the styles make it difficult to use psychological measurement tools (e.g., Wetzel et al. 2013), or to make subcultural (Bachman and O'Malley 1984) or cross-national comparisons (e.g., Hui and Triandis 1989). That is, response styles become sources of systematic measurement errors—systematic because they are stable attributes—for psychological constructs, or create different threshold levels for subgroups when the interest is in inter-group comparisons.

Each of the above two perspectives, however, is supported by a strong literature. Moreover, researchers working from one of the perspectives never acknowledged the possibility of the other. The disconnection between the two perspectives leaves one wondering about the significance or the amount of information carried by extreme responses to attitude questions. In particular, under the influence of response styles, the reliability of a scale may be high but the systematic measurement error threatens the validity of conclusions drawn from data (Bearden and Netemeyer 1999; Greenleaf 1992a). For example, Baumgartner and Steenkamp (2001) showed that all sorts of response styles biased, positively or negatively, correlations between scales in marketing research. If measurement errors due to ERS constitute a big portion of the total variance of extreme responses—which is assumed to represent extreme attitudes—then the validity of the attitude extremity construct is attenuated. Even though extreme attitudes no doubt are strong attitudes, it is still important to ascertain the degree to which extreme answers involve strong attitudes. Yet, this question is never examined because of a lack of connection between the two perspectives. This study attempts to give a first answer to the question.

Furthermore, because respondents having ERS are considered to be speaking in an exaggerative manner (Bachman and O'Malley 1984), researchers suspect that ERS is related to a personality trait that is expressive and lively (Hui and Triandis 1989; Harzing 2006). Extraversion has emerged as the most likely personality trait associated with ERS (Austin et al. 2006; Harzing 2006; He and van de Vijver 2013), although the link was not confirmed in other studies (He et al. 2014; Smith 2011; Wetzel and Carstensen 2015).

According to the definition of extraversion in the Big Five personality

inventory, more extraverted persons are happier, more enthusiastic, more energetic, more adventurous, friendlier, and more sociable (McCrae and Costa 1992a). From the perspective of survey interviewing, more extraverted persons, given such characteristics, may be more eager to participate in the interview and be friendlier during the interview. Such cooperative respondents are preferred by interviewers. However, if cooperative sample persons in social research interviews are indeed more likely to be extraverted, then, it is important to ask questions on the relationships between respondents' behaviors and the quality of their responses to attitude questions: Are they likely to have stronger attitudes? Do their extreme answers have additional predictive power for strong attitudes? Are the answers to the above questions similar between those who are eager to participate and those who are friendly in the interview?

These questions are important to survey research because the association between ERS and extraversion brings into question the quality of survey response. After all, interviewers rely on sample persons' cooperation to complete interviews. If more cooperative respondents simply have stronger ERS but do not have stronger attitudes, then the validity and usefulness of survey data are cast into doubt. Most importantly, if higher levels of cooperation are not associated with stronger attitudes, survey research centers may have to make a lot more investments in converting refusals and non-contact sample persons to respondents.

This study examines the above questions by using a face-to-face survey dataset along with interviewers' evaluations of the respondents' behaviors. Respondent extraversion is indicated by levels of eagerness to participate in the interview and of friendliness during the interview. The higher the eagerness levels or the higher the friendliness levels, the more extra-

verted the respondent is argued to be. To understand the relative sizes of ERS and of strong attitudes within an extreme response, responses to an initial attitude question are used. Respondents may or may not have strong attitudes in the beginning of an interview. Yet, attitudes expressed later in the interview are more likely to be crystalized and strong, because respondents have had extra chances to seriously reconsider the issue after the questionnaire has posed questions from different perspectives of the same issue. Thus, initial responses may reveal more about the extent of a respondent's ERS. Many respondents probably will not give extreme answers to the initial question if they do not have strong attitudes, and some may not give extreme answers even if they do, but others may give extreme answers because of ERS even though they do not have strong attitudes.

In the following, I first evaluate relevant studies and form a hypothesis concerning the relative sizes of ERS component and of the strong-attitude component in extreme responses. Then I argue that participation eagerness and friendliness in the interview are manifestations of extraversion in social survey interviews. Hypotheses concerning associations among ERS, attitude strength, and the two manifestations are then formed. After this, I address three groups of issues that are encountered in this investigation. First are the issues in the construction of an ERS measure. Second are those of comparing the extent of involvement of ERS with that of strong attitudes. And third are issues involved in using interviewer reports. Following this are the methodology, results and discussion.

The Involvement of ERS and of Strong Attitudes in Extreme Responses

It is without question that both ERS and strong attitudes are involved in respondents' extreme responses, but which of the two is involved more?

It is hard to formulate a hypothesis concerning this question since there is no relevant literature. Nevertheless, if one is to make a tentative hypothesis, the involvement of ERS may be argued to be larger, for two reasons. First, response styles, and ERS in particular, seem prevalent in surveys (Bachman and O'Malley 1984). In contrast, some respondents may not have real and strong attitudes. For example, some were found to not have consistent attitudes across waves of a survey (e.g., Converse 1970), whereas others were found to respond to issues or topics that did not exist (Bishop et al. 1980; Bishop et al. 1986). Researchers estimated that about 30% of respondents did not have real, strong attitudes (Bishop et al. 1980; Bishop et al. 1986; Schuman and Presser 1981). Second, it is reasonable to expect that in an initial survey question, many respondents are perhaps not prepared with a real and strong attitude. Then, the percentage of respondents who have real attitudes at the initial question may not be large. Even respondents with strong attitudes might not necessarily give extreme responses. In contrast, other respondents may give extreme responses out of ERS even when they do not have strong attitudes. Therefore, the hypothesis is

H1. ERS is involved more than strong attitudes in the extreme responses to an initial attitude question.

Manifestations of Extraversion in the Context of Survey Interviews

Participation eagerness and friendliness during the interview are argued to be manifestations of extraversion based on the definition in the Big Five (Costa and McCrae 1992). The Big Five personality inventory (Costa and McCrae 1992) is well known in psychology and business. Several versions of the inventory have been developed and widely used (e.g.,

Barrick and Mount 1991; DeYoung 2015; Judge et al. 1999; Rammstedt and John 2007). The inventory measures five broad domains of personality traits: neuroticism, extraversion, openness, agreeableness, and conscientiousness. Various studies have confirmed the validity and reliability of the Big Five (see Costa and McCrae 1992).

Six facets are defined and measured for extraversion. These are warmth, gregariousness, activity, assertiveness, excitement-seeking, and positive emotion. According to this conceptualization, extraverts are sociable, assertive, active, and energetic. Extraverts like people and prefer large groups of gatherings, and they also like excitement and stimulation, and tend to be cheerful in disposition (Costa and McCrae 1992: 15).

Based on the study on the correlations of various adjectives with the six facets (McCrae and Costa 1992b),[1] five of the six facets of extraversion (activity, assertiveness, gregariousness, positive emotions, and excitement-seeking) suggest that an extraverted person is spontaneous, enthusiastic, energetic, happy, pleasure-seeking, and adventurous. These characteristics suggest that extraverted sample persons may quickly accept the interviewer's interview request, not only because they seek pleasure and adventure, but also because they are happy and enthusiastic. That is, the literature in personality and social psychology suggests that happy people are more likely to help others (Clark and Waddell 1983; Isen et al. 1978). Groves et al. (1992) accordingly expected that happiness might enhance sample persons' compliance with a request for an interview. Hence, participation eagerness is proposed as one manifestation of extraversion in survey interviews. Interviewers spend fewer persuasion efforts when interact-

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1 The correlates are all significant at $p < .001$, $N = 305$.

ing with a more extraverted sample person because the latter is more likely to accept the interview quickly.

In addition, four of the facets (i.e., warmth, gregariousness, excite-ment-seeking, and positive emotions) suggest that an extraverted person is likely to be friendly, sociable, outgoing, cheerful, charming, and clever. These characteristics, conceivably, suggest that extraverted respondents are likely to be high-spirited and friendly when being interviewed. Hence, friendliness during the interview is proposed as another manifestation of extraversion. During the interview, friendly and sociable respondents may be warm, reciprocate the interviewer's smile, or even keep a smiling face and sometimes tell small jokes to make the interviewer feel at home (Lavin and Maynard 2001).

Because extraversion was linked to ERS in several studies (Austin et al. 2006; Harzing 2006; He and van de Vijver 2013), it is hypothesized that

H2. Respondents who have higher levels of eagerness to participate in the survey are significantly more likely to give extreme responses.

H3. Respondents who have higher levels of friendliness in the interview are significantly more likely to give extreme responses.

While the two manifestations may have similar associations with ERS, they may differ in their relationships with attitude strength. That is, in considering the relationships between participation eagerness and atti-tude strength, one is reminded of the characteristics of response and nonre-sponse samples. There is evidence that those not responding to election surveys are less interested in politics (Brehm 1993; Couper 1997). Although the evidence is gathered from election surveys, sample persons who are willing to participate in social surveys on specific topics (e.g., the death penalty) may also be more interested in the topics, and more likely

to have strong attitudes, than unwilling ones. Hence, participation eagerness can be positively associated with strong attitudes. This suggests hypothesis 4:

H4. Respondents who have higher levels of participation eagerness are significantly more likely to have strong attitudes.

Concerning the relationship between friendliness and attitude strength, however, there is no such literature, nor any literature on the relationship between friendliness and interest in survey topics. The lack of literature may suggest no association. In considering the question, indeed, one can easily imagine that respondents interested in the survey questions are not necessarily interested in being particularly amiable to the interviewer, and that friendly respondents may or may not have strong attitudes when they give extreme answers. Likewise, respondents with higher levels of participation eagerness may or may not have strong attitudes when they give extreme answers, because some of them may be interested in the survey question but some are simply extraverted. The lack of a literature and of a solid base upon which to make inferences renders it impossible to formulate any directional hypotheses for the relationships between friendliness and attitude strength, and between attitude strength and extreme responses given by friendly or eager-to-participate respondents. So I do not make any hypothesis for them, but will explore the relationships in analysis.

The Investigation

The face-to-face interview survey used for analysis was focused on understanding people's attitudes towards the death penalty. For each respondent, the attitude was queried three times, though with different contexts. The repetition of the attitude query enables the construction of a

measure of attitude stability, which can serve as an indicator of attitude strength. To avoid potential interviewer effects, all the hypotheses are evaluated with hierarchical linear modeling (HLM, Raudenbush and Bryk 2002). Ideally, however, characteristics of interviewers should not affect respondents' answers. There is no literature on interviewer effects concerning ERS, attitude strength, or extreme answers, either. In additional analyses done for this study, no interviewer effect was found, and no interaction effect was found between the interviewer characteristics and the independent variables of interest. Hence, the HLM models will not consider interviewer effects.

Issues involved in the construction of the measure of ERS. Researchers suggest that an ERS measure should include items with many categories, such as six, in order to reduce ERS levels (e.g., Harzing 2006; Hui and Triandis 1989). Yet, the advice may be important to cultures that have higher levels of ERS, but not necessarily so in this study with a Taiwanese sample. The reason is that Asian respondents have lower ERS than American or European respondents (e.g., Chen et al. 1995; Chun et al. 1974). Being less likely to give extreme responses, ERS level of an Asian sample might not be high even if the number of response categories is smaller. The items to be used for this study have four categories. Use of four categories turns out not to be a problem for our Taiwanese sample; as can be seen later, the items included in the measure of ERS have rather low proportions of extreme responses.

In addition, Weijters et al. (2008) recommended that generally sixteen items were required to construct a reliable measure of a response style. Yet, ERS is an exception to the recommendation. This can be found in their Figures C-1 and C-2 (Appendix C, p. 3) on sensitivity analysis,

where a measure of ERS requires only six items to have high levels of construct reliability and of the critical ratio of the variance estimate. To reach such standards, measures of other response styles indeed generally require sixteen items.

Furthermore, to ensure validity, ERS measure in this study will be constructed by using steps recommended by Greenleaf (1992b), whose procedure achieves an ERS measure that is composed of items that are unrelated but have similar distributions. By selecting items that have similar distributions to be components of an ERS measure, the measure is not dominated by a small subset of items that have particularly high proportions of extreme responses. By selecting items with minimal correlations with one another, the measure achieves maximal heterogeneity and is not mixed with measures of strong attitudes if the items are on closely related issues. Although the reference (Greenleaf 1992b) appears old, Greenleaf's (1992b) procedures are used recently by He et al. (2014). Aside from Greenleaf, most studies simply collect extreme responses to all the questions of a questionnaire (e.g., Baumgartner and Steenkamp 2001; Harzing 2006; He and van der Vijver 2013; Smith 2011). The method obviously has the potential risk of mixing real ERS with real extreme attitudes. Other studies use personality scales along with variants of the Rasch model (e.g., Austin et al. 2006; Wetzel et al. 2013; Wetzel and Carstensen 2015) to investigate the relationships among various response styles and personality attributes. Such a method may also confound ERS with strong attitudes because a personality scale is often composed of groups of items with one group measuring one trait, which results in high intra-group correlations, causing a problem similar to that of the simple method.

Indices for testing Hypothesis 1. The testing of Hypothesis 1

requires a comparison of statistics that indicate the relative involvement in extreme responses of ERS to that of attitude stability. Statistics indicating proportions of variance explained by the variable (such as R-square or Pseudo R-square) or indicating the model fit are useful. Model fit is similar conceptually to R-square because both evaluate how well the model fits the data. For example, the deviance statistic, which equals –2 times the log-likelihood, is an index of the lack of model fit (Raudenbush and Bryk 2002). Although HLM does not produce R-square or Pseudo R-square, it does report the deviance statistic. We will use the deviance statistic and do model fit comparisons. By comparing the model fits of two models which are identical except that one includes the ERS measure and the other includes the measure of attitude stability, we can obtain an understanding of how well each helps improve the model fit. The one that better improves the fit suggests that variation in the dependent variable (i.e. extreme answers to a question) or in the model is explained better by this predictor than by the other predictor. This in turn suggests that the former predictor is more involved when the respondents give extreme responses to the initial question. Yet, such a straightforward comparison is not supported by the chi-square test because the two models have exactly the same number of degrees of freedom; they are not nested models.

Fortunately, information criteria indices, such as the Bayesian Information Criterion (BIC) and the Akaike Information Criterion (AIC), are not limited to comparison of nested models. Information criteria indices consider both the goodness of fit and the price of the fit, which is the number of parameters estimated in the model (e.g., Burnham and Anderson 2004), because models with more parameters usually have better fit, and yet there is the risk of overfitting. The formulae of AIC and BIC are a bit

different but are closely related. That is, AIC is composed of two components, –2 times the log-likelihood of the model (i.e., the deviance), and 2 times the number of parameters estimated in the model (e.g., Cruyff et al. 2016, Table 3 on p. 300). The first component of BIC is identical to the first component of AIC. Yet, the latter component of BIC is the natural log of the size of the sample used times the number of the estimated parameters. The sample-size adjusted BIC has an even more complicated latter component, $\log[(n+2)/24]$ times the number of parameters estimated, with n being the sample size. The substantive conclusions drawn from AIC, BIC or sample-size adjusted BIC will be identical for the current study because the models to be compared here have identical numbers of estimated parameters. So I simply picked AIC. Models with smaller AIC values fit the data better.

Concerns in using face-to-face interviewers' evaluations. Participation eagerness and friendliness during the interview were reported by interviewers. Using interviewers' evaluations always causes concerns. The first concern is that subjective judgments might prevail in the evaluations, especially if the evaluation is done on Likert-type scales. To avoid the pitfall of subjectivity, I designed categories of descriptions in behavioral terms. Interviewers were to choose from the categories the one that best fit their experience with the respondent. The respondent's level of participation eagerness is described by the amount of efforts or strategies (e.g., Groves et al. 1992) the interviewer expended before the respondent agreed to participate. Levels of friendliness during the interview are described by whether the respondents initiated laughs or jokes, and whether they reciprocated the interviewer's laugh (Lavin and Maynard 2001).

Subjectivity can be additionally controlled in HLM analysis by using

the group-centering option (see Raudenbush and Bryk 2002: 134-143). When a variable is group-centered, only deviations from the group mean (e.g., the mean of the evaluations an interviewer gave to all his or her respondents) are used for estimation. Hence, group-centering excludes the impact of interviewer subjectivity (e.g., the interviewer's mean evaluation). Further analyses show that whether or not the two evaluations are group-centered, substantive conclusions concerning the evaluations are identical (results not presented). Therefore, the effect of interviewer subjectivity on the evaluation may be minimal.

Another concern is the possibility that interviewers might have given the evaluations based on their memory of the approximate numbers of extreme responses the respondent had provided, or based on memories of only certain (e.g., final) parts of the interview. Indeed, memory errors and measurement errors always exist in measurement, and there is no way to verify the accuracy of the interviewer evaluations for the current study. The above possibility would cause the evaluations of participation eagerness and friendliness to have similar distributions, though, and even to be spuriously related to ERS. Nevertheless, the two evaluations can be expected to not have very similar distributions if they were done based on separate observations, such as observations in the recruitment stage and observations in the interview process. This is because respondents may agree to participate for various reasons, which may be related to how they act in the interview. Some may participate because of interest in interacting with a person, others because of interest in the topics, and still others just because they cannot fend off the interviewer (Bradburn 1984). Then, the first type of respondents may be both eager to participate and friendly during the interview. The second type may be eager to participate but not

particularly interested in interacting sociably with the interviewer; and the third type may not be eager to participate and not be friendly during the interview. The different combinations suggest that covariation between the two evaluations is limited. In addition, the two concerns can be checked against HLM analysis results. That is, if each of the evaluations has a significant and large effect when alone in the model, but the significance disappears when together in one model, then the two evaluations may be highly related, and they may be based on similar observations. Otherwise, there may not be a large covariation between the two evaluations, which would suggest that interviewers did not do the evaluations based on the same (partial) observations.

Methodology

Data

The questionnaire of the "Survey Research on Attitudes toward Death Penalty and Related Values in Taiwan" was designed by a non-profit organization that advocates abolishing the death penalty; the other procedures of the survey project were designed and implemented by the Center for Survey Research, Academia Sinica. The survey was based on a nationally representative probability sample drawn through a three-stage stratified sampling method. The sampling frame was personal registers of the Department of Household Registration of Ministry of the Interior. Interviewers went to the designated households to find the designated person for an interview. The data collection time was from November 2013 to January 2014. Altogether, 54 interviewers completed 2,039 interviews. The response rate (RR1) was 53.1%, and the refusal rate (REF1) was

17.2% (AAPOR 2011). The number of observations for analysis is 2,038 because of a missing value on age.

Most of the questions were on issues surrounding the death penalty. What makes the data suitable for the current study is that a number of questions on diverse topics that are not related to the death penalty attitude (based on the literature and correlation coefficients) were also asked, especially towards the end of the interview. This makes it possible to construct a good measure of ERS.

Measures

Table 1　Descriptive Statistics of All Variables

Variable	N	Mean	St. Dev.	Variable	N	Mean	St. Dev.
ERS	2,038	1.24	1.39	I_Experience	54	11.89	8.19
Eagerness	2,038	3.23	0.90	I_Male	54	0.19	0.39
Friendliness	2,038	1.97	0.68	I_College	54	0.72	0.45
ER_initial	2,038	0.34	0.47	I_Age	54	48.94	7.00
Stability	2,038	1.60	0.70	I_Married	54	0.63	0.49
R_Age	2,038	48.54	16.31	Core_City	2,038	0.21	0.41
R_Male	2,038	0.51	0.50	City	2,038	0.26	0.44
R_Education	2,038	3.33	1.56	Town	2,038	0.11	0.31
Group A	2,038	0.50	0.50	New_Town	2,038	0.28	0.45
NR_ERS	2,038	0.30	0.78	Old_Town	2,038	0.10	0.29
				Remote_Area	2,038	0.05	0.21

Note: I_: Interviewer; R_: Respondent.

Extreme response style (ERS). ERS is constructed with items measured on four-point Likert scales. The response labels are "strongly agree/favor", "agree/favor", "disagree/disfavor", and "strongly disagree/disfavor"). Component items of ERS are selected by following Greenleaf's

(1992b) steps and recommendations. That is, the selected items are those (1) with low inter-item correlations (absolute values smaller than 0.20), and (2) with approximately equal extreme response proportions.

Furthermore, to maximize the possibility that any relationship between the ERS measure and extreme responses to questions on the death penalty attitude is due to the respondents' extreme response style and not to the attitude, items whose concepts are related to the death penalty attitude are excluded (such as the death penalty attitudes, perceptions of public security, value of human life, and variables measuring authoritarianism (Feldman and Stenner 1997). The final measure of ERS is composed of six items:

Q9.   Police officers may stop people on the street any time and question them.

Q29. Do you have confidence in the fairness of judicial decisions in Taiwan?

Q74. In order to keep the environment clean, stray dogs and stray cats should be captured and put to death.

Q77. Suppose building a big factory will contribute greatly to the nation's economy but will also do great harm to the environment. Would you favor or disfavor building this big factory?

Q89. We ordinary people do not have any effect on politics except voting in elections.

Q95. Do you agree or disagree that the suspect reported in media coverage of a murder case is usually the real murderer?

I also searched the literature to further check if items similar to the six were found to be related to the death penalty attitude. Among the few empirical studies in Taiwan that have investigated correlates of the attitude

(Chiu 2006; Hsieh 2009), neither has examined items similar to the above ones or concepts implied by them. Outside of Taiwan, I could not find any literature concerning the relationship of the attitude with the items, either. The only exception is Young (1991), who found that even the fairness of *criminal* sentencing decisions was not related to blacks' death penalty attitude. Thus, I kept all six items.

The absolute values of the (Spearman rank order) correlations among the six items in their original four-point scale range from 0.002 to 0.147, with an average of 0.060, which is smaller than Greenleaf's (1992b) 0.071. Proportions of extreme responses range from 16.09 to 26.04, with an average of 13.34. The range (0.099) is smaller than Greenleaf's 0.151 (0.267 to 0.418). Greenleaf (1992b) used items on a 6-point Likert scale but obtained a larger average proportion and a larger average of the absolute values of the correlations than the current study. Therefore, using items on a Likert scale with only four points in this study does not induce high levels of ERS.

The measure of ERS is the number of extreme responses to the six items. The mean is 1.24. The descriptive statistics of this and all the other variables are presented in Table 1.

Attitude stability (Stability). Respondents were asked three times about their attitudes toward the death penalty. Yet, four questions, Q13, Q26, Q69 and Q100, were used because in Question 13 (Q13) and in Question 100 (Q100), respondents were assigned to two different questions, with one of them being on the death penalty. The questions appeared in the 13th, 26th, 90th, and 130th positions of the questionnaire. Q13 was the first time the attitude was asked, though only for half of the respondents (Q13_a, Group A). Group B received exactly the same content as

Q13_a when they reached Q100 (Q100_b).

Stability of the attitude is then measured twice for each group: for Group A, the first measurement is taken by comparing attitudes expressed in Q13_a to those in Q26, and the second, Q26 to those in Q69. For Group B, the first measurement is taken by comparing attitudes expressed in Q26 to those in Q69, and the second, Q 69 to those in Q100_b. Respondents who expressed the same attitudes (e.g., abolition) in paired comparisons (for example, Q13_a and Q26) are considered to have a stable attitude, and are scored 1. Those who expressed different attitudes within the paired comparison or gave non-substantive responses (NR), such as "don't know," "no opinion," and refusals, are scored 0. Then, a respondent's score for Stability is the sum of the results of the two measurements. The maximum of Stability is 2, its minimum is 0, and its mean is 1.61.

The contents of the questions are as follows:

Q13_a and Q100_b: Do you favor or disfavor abolishing the death penalty?

Q26: If it can be proved that innocent persons were wrongly sentenced to death and executed, would you favor or disfavor retaining the death penalty?

Q69: Of the 198 countries in the world, 140 countries, which account for 71% of all the nations, have either abolished capital punishment or have had no executions for the last 10 years. Even last year, in 2012, only 21 countries executed death-row inmates, which is only 11% of the countries in the world. Given that a majority of the countries in the world have abolished the death penalty, do you think that Taiwan should retain or abolish the death penalty?

Q26 and Q69 contain arguments for abolishing the death penalty and

thus may be considered to include persuasion attempts and not "pure" measures of attitude stability. Nonetheless, both resistance to persuasion attempts and stable attitudes are two of the defining features of strong attitudes, and they should be highly correlated (Krosnick and Petty 1995). Hence, the two questions can be considered to be more stringent tests of the attitude stability.

Extreme responses to the initial attitude question (ER_initial). Extreme responses to the initial attitude questions are those to Q13. As stated above, there are two versions of Q13, for the Groups A and B, respectively:

Q13_a: Do you favor or disfavor abolishing the death penalty?

Q13_b: If our country were to abolish the death penalty, and replace it with life imprisonment without parole, would you favor or disfavor the change?

To construct ER_initial, answers of "Strongly favor" and "Strongly disfavor" to the above two questions are coded 1, the others are coded 0. Although NR to the question should be dropped, the substantive conclusions concerning the relative extents of involvement of ERS and attitude stability in the ER_initial are the same whether or not NR's are included. To make presentation of the results easier, I keep all the respondents. The mean of ER_initial is 0.34, and the standard deviation 0.47. In Group A, 370 out of 996 respondents (37.15%) gave extreme responses. In Group B, 303 out of 981 respondents (30.89%) did so.

Participation eagerness (Eagerness). Interviewers answered the question, "When you had contact with the respondent, how much effort did you expend before s/he agreed to be interviewed?" The response categories are

(1) I hardly needed to make any introduction.

(2) I needed to give full information concerning the interview (e.g., the advance letter, Academia Sinica, the topic of the interview, the general contents, its purpose, etc.).

(3) In addition to the above information, I also needed to emphasize the importance of his/her responses.

(4) In addition to the above, I had to ask for his/her favor several times.

Respondents requiring less of the interviewer's effort are considered to be more eager to participate. To construct Eagerness, the categories are reversely coded, so that higher values indicate higher levels of participation eagerness, ranging from 1 to 4.

Friendliness during the interview (Friendliness). Interviewers answered the question, "In general, how would you describe your interaction with the respondent during the interview?" The response categories are

(1) The atmosphere was rigid and awkward.

(2) No smile was exchanged between us but the atmosphere was OK.

(3) The respondent initiated smiles, laughs, or jokes.

(4) I smiled at the respondent and s/he returned the smile.

Respondents who initiated laughs or jokes are the friendliest (category 3). Those who reciprocated the interviewer's smile (category 4) are considered second in friendliness. When no exchange of smiles occurred between the two parties (category 2), the atmosphere of the interaction is considered to be even less friendly. Only eight interviews were indicated as having a rigid and awkward atmosphere. This category is merged with category 2, "no smile was exchanged." The variable Friendliness is coded such that higher values indicate higher levels of friendliness, ranging from 1 to 3.

Table 2 Cross-Tabulation of Eagerness and Friendliness

| | | Friendliness | | | |
		Low (1)	High (2)	Higher (3)	Total
Eagerness	Lower (1)	48 (2.36)	73 (3.59)	12 (0.59)	133 (6.53)
	Low (2)	35 (1.72)	169 (8.29)	33 (1.62)	237 (11.63)
	High (3)	177 (8.68)	372 (18.25)	145 (7.11)	694 (34.05)
	Higher (4)	234 (11.48)	487 (23.90)	253 (12.41)	974 (47.79)
	Total	494 (24.24)	1,101 (54.02)	443 (21.74)	2,038 (100.00)

Note: Numbers on the top are counts; those within parentheses are cell percentages.
　　　Chi-square＝58.20 (p＜.001)

　　Table 2 presents the cross-tabulation of Eagerness and Friendliness. Within each cell, numbers on the top are counts; those within parentheses are cell percentages. A great majority of the respondents have the two highest levels of participation eagerness. The percentages of those among the two lowest levels of Eagerness are not trivial (6.54% and 11.66%), though. On the other hand, during the interview, the majority of the respondents (54.00%) just reciprocated the interviewers' smile ("High"). The other respondents are about evenly distributed in the "Low" (24.20%) and "Higher" (21.74%) levels of Friendliness. The chi-square is 58.20 (p ＜ .001), indicating distributions of the two variables are not homogeneous.

　　Control variables. Control variables of the respondents include their age (R_Age), education (R_Education), gender (R_Male), and the urbanization levels of their residence. The values of respondent education range from 1 to 6, representing "elementary school or less", "junior high school", "high school", "junior college", "college", and "advanced degrees". Urbanization levels are composed of six dummy variables, including

"Core_City", "City", "New_Town", "Town", "Old_Town", and "Remote_ Area". "Core_City" is used as the reference group in HLM analysis. To save space, results concerning the urbanization levels are not presented. Group ID (Group A) is included when ER_initial or Stability is in the model. The total number of non-substantive responses to the six questions used to construct ERS (NR_ERS) is included when the variable is in the model. Control variables for the interviewers include their age (I_Age), gender (I_Male), education, and interviewing experience with the survey research center. Interviewers' education is divided into two levels only, "senior high school" and "college and above" (I_College). "Senior high school" is the reference group. Interviewing experience (I_Experience) is the number of nationwide face-to-face interview projects the interviewer had participated in prior to the current project.

Respondents with lower education or of older age are more likely to give NR (e.g., Messmer and Seymour 1982; Kaldenberg et al. 1994). While NR's are likely to mean no attitude, such respondents might also be less likely to have stable attitudes. On the other hand, the relationships of ERS with respondents' gender, age, and education are not consistent across studies (e.g., Greenleaf 1992b; Marin et al. 1992; de Jong et al. 2008).

Analytical Strategy

In all HLM analysis, the data are weighted with weights provided in the data file. To dispel concern over subjectivity in interviewers' evalua-tions of Eagerness and Friendliness, the two variables are always centered on the group means.

The dependent variables to be investigated include ER_initial, ERS, and Stability. The Bernoulli model is appropriate when ER_initial is the

dependent variable. The Bernoulli model in HLM uses the logit link, $log\left(\frac{p_{ij}}{1-p_{ij}}\right)$, as the dependent variable (Raudenbush and Bryk 2002: 294–309).

$$log\left(\frac{p_{ij}}{1-p_{ij}}\right)=\beta_{0j}+\beta_{kj}\times Independent\_V_{kij}+\cdots+\sum_{m}\beta_{mj}\times R\_characteristic_{mij} \quad (1)$$

In Equation (1), $log(\cdot)$ is the logarithmic function, and p_{ij} is the estimated probability that respondent i interviewed by interviewer j scores 1 on ER_ initial.

The logit is modeled by both independent variables and control variables. Variables in level 1 are all measured in the respondent's level. β_{0j} is the intercept for respondents of interviewer j. $Independent\_V_{kij}$ is the value of respondent i of interviewer j on the k-th independent variable. β_{kj} is the corresponding coefficient for interviewer j. Similarly, $R\_characteristic_{mij}$ is the value of the m-th characteristic of respondent i of interviewer j. β_{mj} is the corresponding coefficient for interviewer j.

In level 2, interviewer characteristics are used to model only the level-1 intercepts. That is,

$$\beta_{0j}=\gamma_{00}+\sum_{p}\gamma_{0p}\times I\_characteristic_{pj}+\varepsilon_{0j} \quad (2)$$

γ_{00} is the intercept of the whole model. $I\_characteristic_{pj}$ is the p-th characteristic of interviewer j, and γ_{0p} is the corresponding coefficient. ε_{0j} is the error term of the model for β_{0j}. ε_{0j} is assumed to be normally distributed with mean 0 and variance τ. All the coefficients from level 1 are considered to be constant across the interviewers. That is,

$$\beta_{kj}=\gamma_{k0}, \cdots, \text{ and } \beta_{mj}=\gamma_{m0}, \quad \text{for all } k \text{ and all } m. \quad (3)$$

The specifications of the level-2 models are identical for all the HLM models in this study.

For both ERS and Stability, the binomial model is appropriate because both can be considered to be the number of successes out of a number of trials, and the result of each trial is either "failure" (0) or "success" (1). ERS is composed of the number of extreme responses to 6 questions. This is a binomial distribution with 6 trials. Likewise, Stability can be considered to be in a binomial distribution with 2 trials.

HLM uses the logit link ($log\left(\frac{p_{ij}}{1-p_{ij}}\right)$) as the dependent variable in a binomial model, but also takes into account the expected mean and the variance of the binomial variable. Then only the definition of p_{ij} is a little bit different from the logit in a Bernoulli model. That is, p_{ij} is now the estimated probability that respondent i interviewed by interviewer j scores 1 on a component item of ERS, for example.

The estimation method for these non-linear models is the Adaptive Gaussian Quadrature technique with 35 quadrature points, which produces pretty accurate estimates (see Raudenbush et al. 2000).

Results

Preliminary Results Concerning Hypothesis 1

To get a rough understanding about the associations between ER_initial and Stability, and between ER_initial and ERS, Spearman rank order correlation coefficients are computed. The correlation between ER_initial and Stability is 0.138; that between ER_initial and ERS is 0.318. Hence, ERS is associated with ER_initial more strongly than Stability is. In addition, two logistic regression analyses with ER_initial as the dependent variable,

and Stability and ERS as the respective only independent variable produce pseudo R-square values of 0.015 and 0.083, respectively. The result gives preliminary support for the hypothesis that ERS is involved in extreme responses to an initial question more strongly than strong attitudes are.

HLM Analysis Results

Table 3 examines the extents of the involvement of ERS and Stability in the initial extreme response, ER_initial. Models 2 and 3 show that both ERS and Stability are significant predictors of ER_initial. Yet, which accounts for more variation in ER_initial? Recall that models with smaller AIC have better fit. AIC of Model 1 (17 estimated parameters), the basic model, is 6230.012. In Model 2 (18 estimated parameters), where ERS is added, the AIC is 6095.747. In Model 3 (18 estimated parameters), where Stability is added, the AIC of is 6210.059. Model 2 has a smaller AIC value than Model 3, which suggests that extreme responses to the initial attitude question (ER_initial) are due more to the extreme response style than to strong attitudes.

The value of AIC from Model 1 to Model 2 is reduced by about 135, whereas from Model 1 to Model 3 AIC is reduced by about 20. The size of the reduction by adding ERS is more than 6 times that by adding Stability. It is clear that ERS improves the model much more than Stability does. Both ERS and Stability are included in Model 4 (19 estimated parameters), and the AIC is 6074.831. A comparison of the change in AIC from Model 2 to Model 4 (20.916) with that from Model 3 to Model 4 (135.228) also indicates that the size of reduction of the AIC value by adding ERS is more than 6 times that by adding Stability. In conclusion, hypothesis 1 is supported.

Table 3   Results of HLM Bernoulli Models on ER_initial

	Model 1	Model 2	Model 3	Model 4
ERS		0.467*** (0.040)		0.473*** (0.041)
Stability			0.378*** (0.083)	0.395*** (0.085)
Intercept	0.195 (0.828)	−0.756 (0.636)	−0.537 (0.855)	−1.515* (0.665)
I_Experience	−0.003 (0.012)	−0.004 (0.008)	−0.003 (0.012)	−0.004 (0.009)
I_Male	0.393 (0.245)	0.259 (0.174)	0.421 (0.249)	0.286 (0.178)
I_Married	0.192 (0.196)	0.164 (0.139)	0.167 (0.199)	0.136 (0.141)
I_College	−0.228 (0.213)	−0.335* (0.152)	−0.207 (0.216)	−0.316 (0.155)
I_Age	−0.022 (0.016)	−0.015 (0.011)	−0.021 (0.016)	−0.014 (0.012)
R_Age	−0.003 (0.004)	−0.002 (0.004)	−0.001 (0.004)	−0.001 (0.004)
R_Male	0.290** (0.102)	0.209* (0.104)	0.279** (0.103)	0.194† (0.105)
R_Education	0.051 (0.043)	0.047 (0.043)	0.041 (0.043)	0.036 (0.044)
Group A	0.298** (0.100)	0.303** (0.102)	0.337** (0.101)	0.343** (0.103)
NR_ERS	−0.361*** (0.095)	−0.204* (0.093)	−0.282** (0.096)	−0.119 (0.95)
Deviance	6196.012	6059.747	6174.059	6036.831
Number of estimated parameters	17	18	18	19
AIC	6230.012	6095.747	6210.059	6074.831

Note: I_=Interviewer; R_=Respondent. All models include the urbanization levels. N=2,038.

The deviance of a null model (2 estimated parameters) is 6256.172.

†p<.1; *p<.05; **p<.01; ***p<.001

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Table 4　Results of HLM Binomial Models on ERS

	Model 1	Model 2	Model 3
Eagerness	0.101**		0.092**
	(0.033)		(0.033)
Friendliness		0.106*	0.091*
		(0.041)	(0.042)
Intercept	−0.683	−0.697	−0.701
	(0.973)	(0.973)	(0.972)
I_Experience	0.004	0.004	0.004
	(0.016)	(0.016)	(0.016)
I_Male	0.281	0.280	0.276
	(0.314)	(0.314)	(0.313)
I_Married	0.210	0.208	0.208
	(0.252)	(0.252)	(0.251)
I_College	0.219	0.220	0.217
	(0.273)	(0.272)	(0.272)
I_Age	−0.016	−0.016	−0.016
	(0.020)	(0.020)	(0.020)
R_Age	−0.001	−0.001	−0.001
	(0.002)	(0.002)	(0.002)
R_Male	0.223***	0.245***	0.236***
	(0.049)	(0.049)	(0.049)
R_Education	0.009	0.013	0.010
	(0.021)	(0.020)	(0.020)
NR_ERS	−0.470***	−0.479***	−0.466***
	(0.052)	(0.053)	(0.053)

Note: I_=Interviewer; R_=Respondent. All models include the urbanization levels.
　　Eagerness and Friendliness are group-centered.
　　N=2038. *p<.05; **p<.01; ***p<.001

Table 4 presents results for testing hypotheses 2 and 3. In Model 1, the coefficient for Eagerness is 0.101 ($p<0.001$). Eagerer respondents have significantly higher ERS. In Model 2, the coefficient for Friendliness is 0.106 ($p<0.05$). Friendlier respondents have significantly higher ERS, too. When both Eagerness and Friendliness are together in the model (Model 3), the effects of both Eagerness and Friendliness remain significant (0.092 and 0.091, respectively), though the coefficients and the significance levels are both a bit smaller than in Models 1 and 2. The slight reduction of the effects indicates that there is some, but not large, covariation between Eagerness and Friendliness. This small covariation alleviates the concern that interviewers did the evaluations based on the same partial memory. In conclusion, hypotheses 2 and 3 are supported. This also provides empirical evidence for the relationship between ERS and extraversion in the context of social survey interviews.

Stability is the dependent variable of Table 5. Model 1 examines hypothesis 4. Higher levels of Eagerness (Model 1) significantly predict more stable attitudes (0.151, $p<0.01$). The finding may reflect the possibility that some of the respondents were indeed eagerer to participate because of interest in the survey topic and hence had stronger attitudes. Hypothesis 4 is supported. The significant coefficients for Eagerness in Models 4 and 6 provide more support for hypothesis 4. The other models of Table 5 explore the relationships of attitude strength between the respondents' two manifestations of extraversion and between their extreme responses. Friendliness (Model 2) only marginally significantly predicts Stability (0.140, $p<0.1$). ER_initial is added to Model 3, without considering Eagerness or Friendliness. As can be expected, the coefficient for ER_initial is large and significant (0.617, $p<.001$), and it remains large and

Table 5 Results of HLM Binomial Models on Stability

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Eagerness	0.151**			0.143*		0.133*
	(0.052)			(0.055)		(0.056)
Friendliness		0.140†			0.127	0.097
		(0.072)			(0.080)	(0.081)
Eagerness*ER_initial				−0.038		−0.042
				(0.089)		(0.096)
Friendliness*ER_initial					−0.020	0.006
					(0.121)	(0.132)
ER_initial			0.617***	0.725*	0.650*	0.722*
			(0.099)	(0.297)	(0.255)	(0.328)
Intercept	2.447***	2.392***	2.135**	2.140**	2.121**	2.139**
	(0.570)	(0.571)	(0.576)	(0.594)	(0.590)	(0.600)
I_Experience	−0.004	−0.004	−0.004	−0.004	−0.004	−0.004
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
I_Male	−0.223	−0.220	−0.267	−0.272	−0.264	−0.268
	(0.161)	(0.162)	(0.163)	(0.166)	(0.165)	(0.167)
I_Married	0.313*	0.320*	0.394*	0.285*	0.294*	0.286*
	(0.128)	(0.128)	(0.130)	(0.131)	(0.131)	(0.131)
I_College	−0.172	−0.174	−0.154	−0.149	−0.154	−0.150
	(0.144)	(0.145)	(0.146)	(0.148)	(0.147)	(0.148)
I_Age	−0.003	−0.003	−0.001	−0.001	−0.001	−0.001
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
R_Age	−0.023***	−0.023***	−0.022***	−0.023***	−0.023***	−0.023***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
R_Male	0.256**	0.296**	0.239**	0.222*	0.257**	0.238**
	(0.085)	(0.085)	(0.085)	(0.086)	(0.086)	(0.086)
R_Education	0.149***	0.159***	0.152***	0.142***	0.152***	0.143***
	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
Group A	−0.335***	−0.339***	−0.379***	−0.376***	−0.380***	−0.377***
	(0.083)	(0.083)	(0.084)	(0.084)	(0.084)	(0.084)

Note: I_=Interviewer; R_=Respondent. All models include the urbanization levels.

Eagerness and Friendliness and their interaction terms are group-centered.

N=2,038. †p<.1; *p<.05; **p<.01; ***p<.001

significant in the following models, indicating that initial extreme attitudes predict more stable attitudes. In Model 4, when Eagerness, ER_initial and their interaction term are in the model, the coefficient for the interaction term is small and not significant (-0.038, p $>$ .1). Hence, given that Eagerness and extreme responses significantly predict strong attitudes, the extreme responses of more eager respondents do not add to or reduce the prediction. In Model 5, neither Friendliness nor its interaction with ER_initial is significant. Thus, when extreme responses to the initial question are taken into account, respondents who were friendlier during the interview are not more likely to have strong attitudes, and their extreme responses to the initial question have nothing to do with their attitude strength. Model 6 combines all the variables. Results of Model 6 support findings in the previous models. The minor change in the coefficients for Eagerness and Friendliness suggests again that these two evaluations are not likely to be totally based on the same (partial) memory.

Discussion

The contradiction between the ERS perspective and the attitude extremity perspective is intriguing. This study examines the relative sizes of the two components in extreme answers to a survey. Thus, it contributes to both the literature on ERS and that on attitude strength by weighing the two factors in extreme responses based on social survey data. In addition, because the extraversion personality trait is associated with ERS and is likely a trait preferred by interviewers, this study also examines how two manifestations of extraversion in survey interviews are related to ERS and attitude strength. Hence, this study contributes to the literature on both

ERS and survey research.

This study found that the size of ERS component is large relative to that of the component of strong attitudes involved in extreme answers. This finding not only corroborates the implication of the prevalence of nonattitudes, but also signals that ERS is a non-negligible source of systematic error in measures of extreme attitudes when the latter are measured using Likert-type scales. Although the reliability of the measure is not affected given a non-negligible source of systematic error, the validity is reduced. Therefore, this study also contributes to the literature on attitude extremity by providing the cautionary message. Researchers interested in measuring attitude extremity may want to avoid relying on Likert-type scales for measurement. Instead, other measures, such as descriptions of behaviors, thinking, or emotional states, may be good alternatives.

Notwithstanding, the finding may require more replication studies because only one indicator of attitude strength is used. There are other possible indicators of strong attitudes, such as resistance to counter-arguments and attitude-behavior consistency (Krosnick and Petty 1995). Future research may use different indicators of strong attitudes, respondents in other countries, and items on other issues for examination. It is also acknowledged that the portion of ERS in the variation of extreme responses found in this study may be large because an initial question is used for analysis. Extreme answers to questions that appear later in a survey may involve strong attitudes more, and hence lesser degrees of ERS, because by then the respondents will have had more chances to think about the survey question.

Consistent with the literature on ERS, the two manifestations are significantly positively associated with ERS. This study contributes to the lit-

erature on ERS by providing supportive empirical evidence for the relationship between ERS and extraversion in the context of survey interviews. On the other hand, respondents who were eagerer to participate in surveys are found to be more likely to have strong attitudes. From the perspective of survey data quality, survey practitioners may be relieved because interviewers' preferred respondents do not necessarily give answers of poor quality (i.e., extreme answers which do not in fact reflect strong attitudes).

　　From the perspective of measurement, however, using respondents' behaviors as measures of extraversion has limitations. That is, interest in, and hence strong attitudes towards, the survey topic may also be involved in high participation eagerness. Therefore, participation eagerness as a measure of extraversion may be confounded with interest in the survey topic. Comparatively, friendliness during the interview seems a "cleaner" measure of extraversion, without being confounded with topic interest. In addition, the fact that both manifestations were reported by survey interviewers is another limitation. Although this study has endeavored to minimize the impact of interviewer subjectivity, it is not clear how much this influences the evaluations. For validation of the current results, future research may incorporate a personality scale into the questionnaire in addition to asking interviewers to do the evaluations.

REFERENCES

AAPOR, 2011, "Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys." 7th ed. In *AAPOR,* https://www.aapor.org/Standards-Ethics/Standard-Definitions-(1).aspx (Date visited: May 17, 2014).

Austin, Elizabeth J., Ian J. Deary, and Vincent Egan, 2006, "Individual Differences in Response Scale Use: Mixed Rasch Modelling of Responses to NEO-FFI Items."

Personality and Individual Differences 40(6): 1235-1245.

Bachman, Jerald G., and Patrick M. O'Malley, 1984, "Yea-Saying, Nay-Saying, and Going to Extremes: Black-White Differences in Response Styles." *Public Opinion Quarterly* 48(2): 491-509.

Barrick, Murray R., and Michael K. Mount, 1991, "The Big Five Personality Dimensions and Job Performance: A Meta-Analysis." *Personnel Psychology* 44(1): 1-26.

Baumgartner, Hans, and Jan-Benedict E. M. Steenkamp, 2001, "Response Styles in Marketing Research: A Cross-National Investigation." *Journal of Marketing Research* 38(2): 143-156.

Bearden, William O., and Richard G. Netemeyer, 1999, *Handbook of Marketing Scales: Multi-Item Measures for Marketing and Consumer Behavior Research*. 2nd ed. Newbury Park, CA: Sage Publications.

Bishop, George F., Alfred J. Tuchfarber, and Robert W. Oldendick, 1986, "Opinions on Fictitious Issues: The Pressure to Answer Survey Questions." *Public Opinion Quarterly* 50(2): 240-250.

Bishop, George F., Robert W. Oldendick, Alfred J. Tuchfarber, and Stephen E. Bennet, 1980, "Pseudo-Opinions on Public Affairs." *Public Opinion Quarterly* 44(2): 198-209.

Bradburn, Norman M., 1984, "Discussion: Telephone Survey Methodology." Pp. 146-148 in *Proceedings of the Fourth Conference on Health Survey Research Methods,* edited by C.F. Cannell and Robert M. Groves. Washington DC: Washinton Government Printing Office. [USDHHS-PHS Publication No. 84-3346].

Brehm, John, 1993, *The Phantom Respondents: Opinion Surveys and Political Representation*. Ann Arbor: University of Michigan Press.

Burnham, Kenneth P. and David R. Anderson, 2004, "Multimodel Inference: Understanding AIC and BIC in Model Selection." *Sociological Methods & Research* 33(2): 261-304.

Chen, Chuansheng, Shing-ying Lee, and Harold W. Stevenson, 1995, "Response Style and Cross-Cultural Comparisons of Rating Scales among East Asian and North American Students." *Psychological Science* 6(3): 170-175.

Chiu, Hei-yuan, 2006, "Deterrence, Dignity, and the Death Penalty: Analyzing Taiwanese Attitudes toward the Abolition of the Death Penalty." *Taiwanese Journal of Sociology* 37: 133-167.（瞿海源，2006，〈遏止犯罪、生命價值與死刑：台灣民眾對廢除死刑的態度〉。《台灣社會學刊》37: 133-167。）

Chun, Ki-taek, John B. Campbell, and Jong-hae Yoo, 1974, "Extreme Response Style in

Cross-Cultural Research—A Reminder." *Journal of Cross-Cultural Psychology* 5(4): 465–480.

Clark, Margaret S., and Barbara A. Waddell, 1983, "Effects of Moods on Thoughts about Helping, Attraction, and Information Acquisition." *Social Psychology Quarterly* 46(1): 31–35.

Converse, Philip E., 1970, "Attitudes and Non-Attitudes: Continuation of a Dialogue." Pp. 168–189 in *The Quantitative Analysis of Social Problems*, edited by Edward R. Tufte. Reading, MA: Addison-Wesley.

Costa, Paul T., and Robert R. McCrae, 1992, *Revised NEO Personality Inventory and NEO Five Factor Inventory*. Odessa, FL: Psychological Assessment Resources.

Couper, Mick P., 1997, "Survey Introductions and Data Quality." *Public Opinion Quarterly* 61(2): 317–338.

Cruyff, Maarten J. L. F., Ulf Böckenholt, Peter G. M. van der Heijden, and Laurence E. Frank, 2016, "A Review of Regression Procedures for Randomized Response Data, including Univariate and Multivariate Logistic Regression, the Proportional Odds Model and Item Response Model, and Self-Protective Responses." *Handbook of Statistics* 34: 287–315.

de Jong, Martijn G., Jan-Benedict E. M. Steenkamp, Jean-Paul Fox, and Hans Baumgartner, 2008, "Using Item Response Theory to Measure Extreme Response Style in Marketing Research: A Global Investigation." *Journal of Marketing Research* 45(1): 104–115.

DeYoung, Colin G., 2015, "Cybernetic Big Five Theory." *Journal of Research in Personality* 56: 33–58.

Fazio, Russell H., and Mark P. Zanna, 1978, "Attitudinal Qualities Relating to the Strength of the Attitude-Behavior Relationship." *Journal of Experimental Social Psychology* 14(4): 398–408.

Feldman, Stanley, and Karen Stenner, 1997, "Perceived Threat and Authoritarianism." *Political Psychology* 18(4): 741–770.

Greenleaf, Eric A., 1992a, "Improving Rating Scale Measures by Detecting and Correcting Bias Components in Some Response Styles." *Journal of Marketing Research* 29 (2): 176–188.

Greenleaf, Eric A., 1992b, "Measuring Extreme Response Style." *Public Opinion Quarterly* 56(3): 328–351.

Groves, Robert M., Robert B. Cialdini, and Mick P. Couper, 1992, "Understanding the Decision to Participate in a Survey." *Public Opinion Quarterly* 56(4): 475–495.

Harzing, Anne-Wil, 2006, "Response Styles in Cross-National Survey Research: A 26-Country Study." *International Journal of Cross Cultural Management* 6(2): 243–266.

He, Jia, and Fons J. R. van de Vijver, 2013, "A General Response Style Factor: Evidence from a Multi-ethnic Study in the Netherlands." *Personality and Individual Differences* 55(7): 794–800.

He, Jia, Dave Bartram, Ilke Inceoglu, and Fons J. R. van de Vijver, 2014, "Response Styles and Personality Traits: A Multilevel Analysis." *Journal of Cross-Cultural Psychology* 45(7): 1028–1045.

Hsieh, Ching-Chi, 2009, "Why They Support the Death Penalty: Examining Gender-Specific Models." *Crime and Criminal Justice International,* 12: 25–58.（謝靜琪，2009，〈死刑意向之性別模型分析〉。《犯罪與刑事司法研究》12: 25–58。）

Huckfeldt, Robert, and John Sprague, 2000, "Political Consequences of Inconsistency: The Accessibility and Stability of Abortion Attitudes." *Political Psychology* 21(1): 57–79.

Hui, C. Harry, and Harry C. Triandis, 1989, "Effects of Culture and Response Format on Extreme Response Style." *Journal of Cross-Cultural Psychology* 20(3): 296–309.

Isen, Alice M., Thomas E. Shalker, Margaret Clark, and Lynn Karp, 1978, "Affect Accessibility of Material in Memory, and Behavior: A Cognitive Loop?" *Journal of Personality and Social Psychology* 36:1–12.

Judd, Charles M., and Markus Brauer, 1995, "Repetition and Evaluative Extremity." Pp. 43–71 in *Attitude Strength: Antecedents and Consequences,* edited by Richard E. Petty, and Jon A. Krosnick Mahwah, NJ: Lawrence Erlbaum Associates Inc.

Judge, Timothy A., Chad A. Higgins, Carl J. Thoresen, and Murray R. Barrick, 1999, "The Big Five Personality Traits, General Mental Ability, and Career Success Across the Life Span." *Personnel Psychology* 52(3): 621–652.

Kaldenberg, Dennis O., Harold F. Koening, and Boris W. Becker, 1994, "Mail Survey Response Patterns in a Population of the Elderly: Does Response Deteriorate with Age?" *Public Opinion Quarterly* 58(1): 68–78.

Krosnick, Jon A., and Richard E. Petty, 1995, "Attitude Strength: An Overview." Pp. 1–24 in *Attitude Strength: Antecedents and Consequences*, edited by Richard E. Petty, and Jon A. Krosnick. Mahwah, NJ: Lawrence Erlbaum Associates Inc.

Lavin, Danielle, and Douglas W. Maynard, 2001, "Standardization vs. Rapport: Respondent Laughter and Interviewer Reaction during Telephone Surveys." *American Sociological Review* 66(3): 453–479.

McCrae, Robert R., and Paul T. Costa, Jr., 1992a, *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory: Professional Manual.* Lutz, FL: Psychological Assessment Resources.

McCrae, Robert R., and Paul T. Costa, Jr., 1992b, "Discriminant Validity of NEO-PI-R Facets." *Educational and Psychological Measurement 52*: 229-237

Marin, Gerardo, Raymond J. Gamba, and Barbara V. Marin, 1992, "Extreme Response Style and Acquiescence among Hispanics: The Role of Acculturation and Education." *Journal of Cross-Cultural Psychology* 23(4): 498-509.

Messmer, Donald J., and Daniel T. Seymour, 1982, "The Effects of Branching on Item Nonresponse." *Public Opinion Quarterly* 46(2): 270-277.

Petersen, Karen Kay, and Jeffery E. Dutton, 1975, "Centrality, Extremity, Intensity Neglected Variables in Research on Attitude-Behavior Consistency." *Social Forces* 54(2): 393-414.

Pomerantz, Eva M., Shelly Chaiken, and Rosalind S. Tordesillas, 1995, "Attitude Strength and Resistance Processes." *Journal of Personality and Social Psychology* 69(3): 408-419.

Rammstedt, Beatrice, and Oliver P. John, 2007, "Measuring Personality in One Minute or Less: A 10-Item Short Version of the Big Five Inventory in English and German." *Journal of Research in Personality* 41(1): 203-212.

Raudenbush, Stephen W., Meng-li Yang, and Matheos Yosef, 2000, "Maximum Likelihood for Generalized Linear Models with Nested Random Effects via High-Order, Multivariate Laplace Approximation." *Journal of Computational and Graphical Statistics* 9(1): 141-157.

Raudenbush, Stephen W., and Anthony S. Bryk, 2002, *Hierarchical Linear Models: Applications and Data Analysis Methods.* 2nd ed. Thousand Oaks, CA: Sage Publications.

Schuman, Howard W., and Stanley Presser, 1981, *Questions and Answers in Attitude Surveys: Experiments on Question Form, Wording, and Context.* San Diego: Academic Press.

Smith, Peter B., 2011, "Communication Styles as Dimensions of National Culture." *Journal of Cross-Cultural Psychology* 42(2): 216-233.

Van Vaerenbergh, Yves, and Troy D. Thomas, 2012, "Response Styles in Survey Research: A Literature Review of Antecedents, Consequences, and Remedies." *International Journal of Public Opinion Research* 25(2): 195-217.

Weijters, Bert, Niels Schillewaert, and Maggie Geuens, 2008, "Assessing Response Styles

Across Modes of Data Collection." *Journal of the Academy of Marketing Science* 36(3): 409-422.

Wetzel, Eunike, Claus H. Carstensen, and Jan R. Böhnke, 2013, "Consistency of Extreme Response Style and Non-Extreme Response Style Across Traits." *Journal of Research in Psychology* 47(2): 178-189.

Wetzel, Eunike, and Claus H. Carstensen, 2015, "Multidimensional Modeling of Traits and Response Styles." *European Journal of Psychological Assessment* 33: 352-364.

Young, Robert L., 1991, "Race, Conceptions of Crime and Justice, and Support for the Death Penalty." *Social Psychology Quarterly* 54(1): 67-75.