

Attitude–Behavior Consistency, the Principle of Compatibility, and Organ Donation: A Classic Innovation

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Objective: The lack of consistency between peoples' attitudes toward organ donation and organ donation registration behavior has long perplexed scholars. Ajzen and Fishbein's principle of compatibility offers a potential explanation for the attitude–behavior discrepancy. This principle states that attitudes will better predict behavior if the specificity of a measured attitude matches the specificity of the behavior under consideration. **Method:** Two studies, using different samples and different modes of data collection, measured general attitudes toward organ donation and specific attitudes toward registering as a donor, while simultaneously offering a registration opportunity. **Results:** Compared with general attitudes about organ donation, attitudes specific to organ donor registration were superior predictors of registration intentions and behaviors. Specific attitudes explained at least 70% more variance in registration behaviors than general attitudes. **Conclusion:** The lack of attitude–behavior consistency in the organ donor domain can be partially explained by limited compliance with the principle of compatibility.

Keywords: organ donation, attitudes, specificity, attitude-behavior consistency, principle of compatibility

As of December 8, 2013, more than 120,000 people in the United States are currently on the waiting list for a life-enhancing transplant; on average, 18 people die each day as a result of the lack of transplantable organs (<http://www.UNOS.org>; United Network for Organ Sharing, 2013). With the goal of increasing the number of organs available for transplantation, organ donation scholars have often struggled with the perceived lack of consistency between peoples' attitudes toward organ donation and donor registration behavior. General attitudes toward organ donation (e.g., perceiving organ donation as a benefit to humanity) are positive on a nation-wide level (see Ganikos, 2010); however, only a small number of eligible people are registered as donors. According to Donate Life America (2011), 40.3% of people who are eligible to register have done so—yet, 95.4% of Americans report they “support” or “strongly support” organ donation (Gallup Organization, 2005). The principle of compatibility, which states that attitudes will be better predictors of behavior when measured at the

same level of specificity, offers a partial explanation for this discrepancy (Ajzen, 1988; Ajzen & Fishbein, 1970; see Sutton, 1998, for a review). Motivated by Ajzen's (2011) observation that the principle is underutilized, the current studies sought to illustrate how the application of the principle of compatibility could maximize the utility of the attitude construct for organ donation researchers and practitioners.

Organ Donation

The positive attitudes toward organ donation that are held by the public (e.g., Julka & Marsh, 2005) have left researchers wondering why donor registration rates are not in accord with the overwhelming support (also see Siegel & Alvaro, 2010). Anker, Feeley, and Kim (2010) have aptly observed that the inconsistent relationship between organ donation attitudes and behavior, “. . . point to the need to better understand and strengthen this relationship” (p. 1295). At first glance, the relationship between attitudes toward donation and donor registration intention, as well as behavior, appears to be inconsistent (e.g., Hübner & Kaiser, 2006; Wu & Lu, 2011). Such inconsistency, however, may be partially explained using the principle of compatibility.

The Principle of Compatibility

The principle of compatibility (Ajzen, 1988; Ajzen & Fishbein, 2005), or its older moniker, the principle of correspondence (Ajzen & Fishbein, 1970, 1977), offers insight into when attitudes should be most strongly associated with behavior. This tenet states that measuring the attitude and the behavior at the same level of specificity can maximize the predictive power of attitudes. For example, attitudes specific to the use of birth control pills were more predictive of the use of birth control pills than general

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attitudes about birth control (Davidson & Jaccard, 1979). In his meta-analysis, Kraus (1995) notes that when the principle of compatibility is followed, attitude-behavioral correlations average more than $r = .50$; otherwise the correlations average $r = .14$.

Unfortunately, there are numerous instances, including those authored by the current researchers, where the principle of compatibility is violated in the organ donor domain. It is too common for otherwise insightful scholarship to measure attitudes toward organ donation at a general level (e.g., "I support the idea of organ donation for transplantation purposes") and then assess differences in intentions to register as a donor (e.g., Siegel, Alvaro, Lac, Crano, & Dominick, 2008), previous registration behavior (e.g., O'Carroll, Foster, Ferguson, McGeechan, & Sandford, 2011), or whether an opportunity to donate is seized upon (Weber, Martin, & Corrigan, 2007). The lack of compatibility between general attitudes and the specific behavior of registering to be a donor has been occasionally noted (e.g., Hyde & White, 2009); however, as Ajzen (2011) observed of the psychology field in general, many scholars have yet to internalize the importance of the specificity distinction.

The Current Studies

In line with the principle of compatibility, the current studies test the hypothesis that specific attitudes toward organ donation will be a stronger predictor of organ donor registration intentions and behavior than general attitudes. The utility of the principle of compatibility is tested through two studies using different samples, in different contexts, and using different modes of data collection. In both studies, registration behavior is the outcome measure of interest. The current studies represent an uncommon instance where general attitudes, specific attitudes, and behavior were simultaneously measured with the goal of illustrating the compatibility principle.

Study 1

The first study sought to highlight the principle of compatibility by measuring general and specific attitudes toward organ donation and then offering participants an opportunity to register as organ donors. For several reasons, college students were chosen as a sample for the first study. The college setting provides a context where the surveys can be filled out at the same time in the same environment. This is vastly different than the context in which data for Study 2 was collected (i.e., an on-line survey with respondents across the country, filling out the survey at different times, in different environments, with different distractions). Further, the homogeneity of the sample, due to similarities in age and backgrounds, was greater than that typically found in the general population. The combination of a controlled environment and a homogeneous sample would reduce the likelihood of Type II error (Crano & Brewer, 2002). Additionally, college students are common participants in organ donation studies (see Feeley, 2007, for a review of 27 organ donor studies focused on college students), thus increasing the utility of the current study.

Method

Participants and procedure. Participants were recruited from undergraduate psychology classes at four colleges in Cali-

fornia for class credit. Although 209 students originally consented to participate, data were only used for the 158 students who were not already registered as organ donors. The remaining sample consisted mostly of females (64.3%), and was ethnically diverse (37.6% Hispanic, 17.2% Asian, 15.3% multiethnic, 9.6% Caucasian, 7.6% Black, 5.1% Pacific Islander, 7.6% other), with an average age of 19.85 years ($SD = 2.93$). Consenting participants were given a brief pen-and-paper survey asking them about their previous registration status, their attitudes toward organ donation in general, their attitudes toward registering as an organ donor, and finally whether they wanted to register as an organ donor at that time. To ensure privacy of responses, all participants were given a registration form and an envelope to return the form.

Measures. The following measures were used for Study 1.

Previous registration. Participants were asked at the beginning of the survey if they had been previously registered as an organ donor. Response options included "no," "yes," and "not sure." Only those who indicated "not sure" or "no" were included in the final sample.

Attitudes. Semantic differentials were used to assess attitudes toward organ donation in general as well as attitudes toward registering oneself as an organ donor. Although semantic differentials are only occasionally the tool of choice for researchers measuring organ donor attitudes (e.g., Weber et al., 2007; Yun & Park, 2010), semantic differentials reduce the likelihood of measurement error and provide strong internal consistency (Crano & Brewer, 2002).

General organ donation attitudes. General attitudes toward organ donation were measured using a 9-item semantic differential scale ($\alpha = .93$). Participants were asked, "In general, how do you feel about organ donation?" All nine items were measured using a 7-point scale, which ranged from negative to positive poles, represented by the adjectives: negative/positive, bad/good, undesirable/desirable, unfavorable/favorable, unhelpful/helpful, harmful/beneficial, worthless/valuable, useless/useful, and foolish/wise. A composite was created from the average of these scores, with higher scores indicating more favorable attitudes toward organ donation. Scores ranged from 1.00–7.00, with an average of 5.44 ($SD = 1.33$) and approximately normal distribution (skew = -0.92 , $SE_{skew} = 0.19$, kurtosis = 0.36 , $SE_{kurtosis} = 0.38$).

Specific organ donation attitudes. Specific attitudes toward registering as an organ donor were measured using a 9-item semantic differential scale ($\alpha = .96$). The same 7-point scale and poles used in the General Attitude Scale were used in the Registration-Specific Scale. The only difference was in the question wording, which was changed to "How do you feel about registering yourself as an organ donor?" Scores ranged from 1.00–7.00, with an average of 4.83 ($SD = 1.59$) and a relatively normal distribution (skew = -0.53 , $SE_{skew} = 0.19$, kurtosis = -0.24 , $SE_{kurtosis} = 0.38$).

Organ donor registration behavior. Registration behavior was measured by whether each participant completed the registration form provided and indicated that he or she wanted to be registered as an organ donor. Completed registration forms were mailed to the local organ procurement organization.

Demographics. Several demographics were measured, including sex, age, ethnicity, and religion.

Results

In total, 21 (13.2%) participants officially registered as organ donors. Prior to running statistical analyses, tests for outliers and violations of normality were assessed. No multivariate outliers were identified, however, sensitivity tests were conducted using log-transformed attitude scales to assess normality. As the pattern of results remained consistent with or without log-transformation, the untransformed scales were used in final analyses to ease interpretation of results. The school from which the data were collected, age, and sex were entered as covariates; however, because none were significant, they were excluded from final analyses.

A bootstrapped (1,000 samples) hierarchical binary logistic regression was conducted using SPSS with organ donation registration behavior as the dependent variable. Bootstrapping allowed for more accurate effect size estimates, given the unequal distribution of registration behavior. First, general attitudes toward organ donation were entered into the regression. There was a significant effect of general attitudes, $B = 1.28$, $SE = 0.77$, $p = .05$, 95% confidence interval (CI)_{bootstrapped} [0.392, 3.21]. The odds of registering increased by a multiplicative factor of 3.59 with each point increase of general attitudes. Next, specific attitudes toward registering to be an organ donor were entered. Controlling for general attitudes, there was a significant effect of specific attitudes, $B = 2.06$, $SE = 0.72$, $p = .002$, 95% CI_{bootstrapped} [0.87, 3.66]. The odds of registering increased by a multiplicative factor of 7.83 for each point increase of specific attitudes. Controlling for specific attitudes, general attitudes were no longer predictive of registration behavior, $B = 0.07$, $SE = 0.90$, $p = .85$, 95% CI_{bootstrapped} [-0.36, 2.72].

To measure the strength of the relationships, effect size (r) was calculated for each attitude measure. The relationship between general attitudes and registration behavior was of medium strength ($r = .43$; Cohen, 1992). The relationship between specific attitudes and registration was significantly larger ($r = .68$, $z = -3.25$, $p < .001$). Thus, in support of the hypothesis that specific attitudes would better predict behavior than general attitudes, general attitudes explained 18.5% of the variance, while specific attitudes explained 46.2% of the variance in registration behavior.

Discussion

Study 1 sought to highlight the importance of the principle of compatibility when considering attitude-behavior relations. In support of Ajzen's (2011) contention regarding the importance of compatibility, specific attitudes toward organ donor registration were more predictive of actual registration behavior than attitudes toward organ donation in general. Prior scholarship on organ donation, including investigations conducted by the authors of the current research (e.g., Siegel et al., 2008), has often overlooked the importance of matching the specificity of the attitude to the specificity of the behavior.

Although many studies have assessed the effect of an intervention on registration rates (e.g., Alvaro, Siegel, & Pace Jones, 2011), few studies have assessed the effect of simply being given the opportunity to register. One such study (Weber, Martin, COMM 401 Students, & Corrigan, 2006) gave college students a survey asking about organ donation knowledge and general attitudes toward organ donation. Participants were then given an

opportunity to register, resulting in a registration rate of 17.6%. Similar to this and other studies (e.g., Hirschberger, Ein-Dor, & Almakias, 2008), the current study had a registration rate of 13.2%. Further, Weber et al. (2007), in a secondary analysis of the same data, reported a relationship between *general* attitudes and behavior of a similar effect size ($r = .47$) as the current study ($r = .43$).

Going beyond prior investigations, Study 1 simultaneously included a general attitude scale and a specific attitude scale. Specific attitudes toward organ donation accounted for 250% more variance in registration behavior than general attitudes. In line with the principle of compatibility, specific attitudes accounted for variance over and above general attitudes. In other words, attitudes specific to registration behavior provided predictive information independent of that provided by general attitudes toward organ donation. In addition, when specific attitudes were entered into the model, general attitudes were no longer significant. Thus, general attitudes toward organ donation were not useful predictors of registration behavior when information about attitudes specific to registration was available.

Study 2

The goal of the second study was to replicate and expand the first. To ensure the findings were not specific to college students, a different population was recruited for Study 2; namely, online survey takers on Amazon's Mechanical Turk (mTurk). An intention measure was also added to allow for greater comparability with prior studies (e.g., Nijkamp, Hollestelle, Zeegers, van den Borne, & Reubsat, 2008). Further, the organ donor literature was investigated for the most commonly used attitude measures. These Likert-type scales were used to demonstrate the robustness of the specificity effect with previously validated measures. These two scales are on opposite sides of the specificity continuum. One of the most commonly used instruments, Horton and Horton's (1991) Attitudes Toward Organ Donation Scale, assesses attitude toward donation on the general level. Another series of questions inquires specifically about attitudes toward signing a registry sticker in Canada (Godin, Bélanger-Gravel, Gagné, & Blondeau, 2008).

Method

Participants and procedure. There were 358 nonregistered participants in Study 2. Participants who were already donors were not used in the analysis. Participants were recruited through the crowd sourcing website mTurk. On this website, people can choose to complete tasks (e.g., surveys) for monetary payment (see Bohannon, 2011). MTurk has been demonstrated to be a valid form of data collection (Buhrmester, Kwang, & Gosling, 2011; Gardner, Brown, & Boice, 2012; Gibson, Piantadosi, & Fedorenko, 2011). The ethnically homogenous (7.0% Hispanic, 8.9% Asian, 0% multiethnic, 75.4% Caucasian, 6.7% Black, 5.9% Pacific Islander, 0% other) sample consisted of mostly males (61.20%), with an average age of 30.71 years ($SD = 11.46$).

Measures. The following measures were used for Study 2.

Previous registration. Participants were asked at the beginning of the survey if they had been previously registered as an organ donor. Participants who indicated "not sure" and "no" were

able to continue with the survey, while those who indicated “yes” were directed out of the survey.

Measures used to replicate Study 1. A 6-item semantic differential scale measuring organ donation attitudes ($\alpha = .92$) was used. This scale was similar to the scale used in Study 1, but three sets of opinions were dropped to reduce survey fatigue (unfavorable/favorable, useless/useful, foolish/wise). These semantic differential opinions were measured using a 7-point scale, ranging from negative pole to positive pole. A composite was created from the average of these scores. Higher scores indicated more favorable attitudes toward organ donation. Scores ranged from 1.50–7.00, with an average of 5.85 ($SD = 1.09$) and approximately normal distribution (skew = -1.25 , $SE_{skew} = 0.13$, kurtosis = 1.64 , $SE_{kurtosis} = 0.26$).

A 6-item semantic differential scale was used to measure specific attitudes ($\alpha = .92$). This scale was similar to the scale used in Study 1, but, as with the General Scale, this scale dropped three sets of opinions to reduce survey fatigue (unfavorable/favorable, useless/useful, foolish/wise). These semantic differential opinions were measured using a 7-point scale, ranging from negative to positive. A composite was created from the average of these scores. Higher scores indicated more favorable attitudes toward organ donation. Scores ranged from 1.67–7.00, with an average of 5.20 ($SD = 1.46$) and normal distribution (skew = -0.75 , $SE_{skew} = 0.13$, kurtosis = -0.09 , $SE_{kurtosis} = 0.26$).

Previous validated organ donation scales. Two measures of attitudes toward organ donation and organ donor registration were collected. First, Horton and Horton’s (1991) Attitudes Toward Organ Donation Scale was used. This scale was first developed by Goodmonson and Glaudin (1971), and later adapted by Horton and Horton (1991); various versions are used in more contemporary studies (Kopfman & Smith, 1996; Morgan & Miller, 2002). This 6-item scale, which measured support and beliefs about organ donation, had adequate internal consistency ($\alpha = .85$) and is consistent with Horton and Horton’s (1991) reported internal consistency ($\alpha = .88$). Items from this scale included: “I support the idea of organ donation for transplantation purposes”; “I see organ donation as a natural way to prolong life”; and “I view organ donation as a negative procedure.” Some items were reverse coded. Each item was scored from 1–7 (*strongly disagree* to *strongly agree*) and all six items were averaged into a composite score. Scores ranged from 1.67–7.00, with an average of 5.91 ($SD = 1.02$) and approximately normal distribution (skew = -1.36 , $SE_{skew} = 0.13$, kurtosis = 2.18 , $SE_{kurtosis} = 0.26$).

Specific attitudes toward organ donor registration were measured with Godin and colleagues’ (2008) 6-item measure of attitudes toward signing a registry sticker in Canada, which was adapted to match the organ donation system of the United States. The question stem began with “Would registering yourself to be an organ donor . . .” and ended with the following six items: “be a generous act?”; “be a rewarding act?”; “be a useful act?”; “be a stressful act?”; “be a source of anxiety?”; “make you nervous?” These items were measured on a 7-point scale (*very improbable* to *very probable*), and some items were reverse coded ($\alpha = .80$). A higher score on the scale indicated favorable attitudes toward organ donor registration. Scores ranged from 1.00–7.00, with an average of 4.73 ($SD = 1.25$) and normal distribution (skew = -0.08 , $SE_{skew} = 0.13$, kurtosis = -0.46 , $SE_{kurtosis} = 0.26$).

Intentions to register as an organ donor. A 3-item Intention Scale was developed to measure intentions to register as an organ donor ($\alpha = .97$). This scale was an amalgamation of previous intention measures used in the field of organ donation (Alvaro, Jones, Robles, & Siegel, 2006; Brug, van Vugt, van Den Borne, Brouwers, & Van Hooff, 2000; Siegel et al., 2008). The three items used in the study were “I intend on registering to be an organ donor”; “The next opportunity I get I plan to register to become an organ donor”; and “It is likely that I will register to become an organ donor.” Items were rated on a 7-point scale (*strongly disagree* to *strongly agree*); all three items were averaged into a composite score. A higher score indicated a stronger intention to register as an organ donor. Scores ranged from 1.00–7.00, with an average of 5.32 ($SD = 1.36$) and approximately normal distribution (skew = -0.81 , $SE_{skew} = 0.13$, kurtosis = -1.22 , $SE_{kurtosis} = 0.26$).

Organ donor registration behavior. Providing respondents with a means for registration and asking if they would like to take advantage of the opportunity at that time assessed registration behavior. Specifically, participants received the following instructions:

When we ask people why they are not registered organ donors, many people mention that they just have not yet had the opportunity to register. As such, we would like to give you the opportunity to register to be an organ donor. *To be sure, whether you register, or do not register, will have no impact on what you are paid to complete this survey.* Also, you will not register with us, but rather, we will link you with the state agency that is responsible for registering donors online. If you click yes to the question below, you will be given the opportunity to become an organ donor at this time.”

After the prompt, participants were asked “Would you like to register to be an organ donor at this time?” Participants who indicated *no* were redirected to the demographics page at the end of the survey, while those who indicated *yes* were given the following prompt:

Thank you so much for deciding to register to become an organ donor. We will ask you one more set of questions and then give you the necessary forms for you to become an organ donor. Thank you for your decision.

These participants were then routed to the demographics page; after the demographics page, they were given the time to register and rerouted to Donate Life America (<http://donatelifenet/register-now/>). To be sure, we were unable to ascertain if the participants completed the entire registration process. As such, the outcome of interest was whether the participant clicked “yes” when asked if they would like to register as an organ donor at that time.

Demographics. Several sociodemographic items were measured, including sex, age, marital status, ethnicity, and religion.

Results

In total, 36 (10.1%) participants clicked on the link that took them to a donor registration form. As with Study 1, sensitivity tests were conducted to determine the effects of log transformations to reduce skew. As the pattern of results remained consistent regardless of transformation, all subsequent analyses were conducted using the original untransformed scales. Age and sex were also tested as covariates, but were removed from final analyses when

not significant to ease interpretation. Sex was coded 0 for females and 1 for males.

Four distinct analyses were conducted. First, Study 1 was replicated using the semantic differential measures of attitudes. Next, the general and specific semantic differential scales were used to predict intention to register as an organ donor. Third, previously validated attitude scales were used to predict registration behavior. Finally, the same previously validated attitude scales were used to predict intention to register as an organ donor (see Table 1 for correlations). As in Study 1, all analyses were run with bootstrapping to allow for more accurate effect size estimates.

Replication of Study 1. Hierarchical binary logistic regression was used with registration behavior as the dependent variable. As age was not a significant covariate, it was dropped from the model to ease interpretation. First, sex was entered as a covariate, $B = -0.76$, $SE = 0.36$, $p = .03$, 95% $CI_{bootstrapped} [-1.499, -0.049]$. Next, general attitudes toward organ donation were entered. There was a significant effect of general attitudes, $B = 0.91$, $SE = 0.29$, $p = .001$, 95% $CI_{bootstrapped} [0.455, 1.580]$; the odds of registering doubled (odds ratio = 2.47) with each point increase of general attitudes. Finally, specific attitudes toward registering to be an organ donor were entered. Controlling for general attitudes and sex, there was a significant effect of specific attitudes, $B = 0.85$, $SE = 0.31$, $p = .004$, 95% $CI_{bootstrapped} [0.368, 1.617]$. The odds of registering increased by a multiplicative factor of 2.33 for each point increase of specific attitudes. With specific attitudes entered into the model, general attitudes were no longer a significant predictor of registration behavior, $B = 0.07$, $SE = 0.43$, $p = .88$, 95% $CI_{bootstrapped} [-0.730, 0.983]$.

Replication with intention. Hierarchical linear regression was used with registration intentions as the dependent variable. As age and sex were not significant covariates, they were dropped from the model to ease interpretation. First, general attitudes toward organ donation were entered. There was a significant effect of general attitudes, $B = 0.98$, $SE = 0.07$, $t(1, 356) = 12.48$, $p = .001$, 95% $CI_{bootstrapped} [0.884, 1.127]$, which explained 30% of the variance in intention to register, $R^2 = 0.30$, $F(1, 356) = 155.73$, $p < .001$. Next, specific attitudes toward registering to be an organ donor were entered. Controlling for general attitudes, there was a significant effect of specific attitudes, $B = 1.03$, $SE = 0.07$, $p = .001$, 95% $CI_{bootstrapped} [0.892, 1.162]$. Specific attitudes explained a significant proportion of the variance in intention to register, $R^2 = 0.57$, R^2 change = 0.26, $F(1, 355) = 214.17$, $p < .001$. With specific attitudes entered into the model, general attitudes were no longer a significant predictor of registration intentions, $B = -0.04$, $SE = 0.09$, $p = .64$, 95% $CI_{bootstrapped} [-0.211, 0.122]$.

Table 1
Study 2 ($N = 358$): Correlation Matrix for Analyzed Sample

Scales	1	2	3	4	5
1. General Semantic Scale	—				
2. Specific Semantic Scale	.75*	—			
3. Horton and Horton	.73*	.65*	—		
4. Godin et al.	.61*	.68*	.60*	—	
5. Intentions to donate	.55*	.75*	.48*	.63*	—

Note. Pearson bivariate correlations.

* $p < .01$ (two-tailed).

Test of previously used measures. Hierarchical binary logistic regression was used with registration behavior as the dependent variable. As age was not a significant covariate, it was dropped from the model to ease interpretation. First, sex was entered as a covariate, $B = -0.76$, $SE = 0.36$, $p = .02$, 95% $CI_{bootstrapped} [-1.443, -0.053]$. Second, Horton and Horton's (1991) General Attitudes Toward Donation Scale was entered. There was a significant effect of general attitudes, $B = 0.87$, $SE = 0.31$, $p = .003$, 95% $CI_{bootstrapped} [0.389, 1.640]$; the odds of registering doubled (odds ratio = 2.40) with each point increase of general attitudes. Next, Godin and colleagues' (2008) attitudes toward registering to be an organ donor scale was entered. Controlling for general attitudes, there was a significant effect of specific attitudes, $B = 0.61$, $SE = 0.19$, $p = .002$, 95% $CI_{bootstrapped} [0.285, 1.066]$. The odds of registering increased by a multiplicative factor of 1.84 for each point increase of specific attitudes. With specific attitudes entered into the model, general attitudes were no longer predictive of registration behavior, $B = 0.38$, $SE = 0.33$, $p = .22$, 95% $CI_{bootstrapped} [-0.195, 1.122]$.

Replication with intention. Hierarchical linear regression was used with registration intentions as the dependent variable. As sex and age were not significant covariates, they were dropped from the model to ease interpretation. First, Horton and Horton's (1991) General Attitudes Toward Donation Scale was entered. There was a significant effect of general attitudes, $B = 0.92$, $SE = 0.07$, $t(1, 356) = 10.45$, $p < .001$, 95% $CI_{bootstrapped} [0.797, 1.066]$, which explained 23% of the variance in intention to register, $R^2 = 0.23$, $F(1, 356) = 109.09$, $p < .001$. Next, Godin and colleagues' (2008) attitudes toward registering to be an organ donor scale was entered. Controlling for Horton and Horton's (1991) General Attitudes Toward Donation Scale, there was a significant effect of specific attitudes, $B = 0.81$, $SE = 0.08$, $p = .001$, 95% $CI_{bootstrapped} [0.644, 0.964]$. Specific attitudes explained a significant proportion of the variance in intention to register, $R^2 = 0.41$, R^2 change = 0.18, $F(1, 355) = 105.57$, $p < .001$. With specific attitudes entered into the model, general attitudes were still predictive of registration intentions, $B = 0.33$, $SE = 0.09$, $p = .002$, 95% $CI_{bootstrapped} [0.143, 0.522]$.

Individual effect sizes. To measure the strength of the relationships, effect size (r) was calculated for each attitude measure with registration behavior. Replicating Study 1, the relationship between general attitudes and registration behavior was of medium strength ($r = .33$); however, the relationship between specific attitudes and registration was significantly stronger ($r = .44$, $z = -1.72$, $p = .04$). Thus, although general attitudes only explained about 10% of the variance, specific attitudes explained about 20% of the variance in registration behavior. With previously used scales, the relationship between Horton and Horton's (1991) General Attitudes Toward Donation Scale and registration behavior was of medium strength ($r = .31$), whereas the relationship between Godin and colleagues' (2008) specific attitudes scale and registration behavior was marginally stronger ($r = .41$, $z = -1.53$, $p = .06$). Although Horton and Horton's (1991) General Attitudes Toward Donation Scale explained about 10% of the variance, Godin and colleagues' (2008) specific attitudes scale explained about 17% of the variance in registration behavior.

Discussion

In relation to Study 1, Study 2 used a different sample, a different mode of data collection, additional attitude measures, and an additional outcome measure. Nevertheless, the same pattern was revealed in both studies; the principle of compatibility and our hypothesis derived from the principle was supported. The data indicated the necessity of measuring attitudes on a similar level of specificity to the behavior of interest. The current study differed from the first in that we included registration intention measures to allow for comparisons to prior studies in the organ donor domain. Before discussing the results relevant to registration, we will discuss how the data obtained in the current study revealed patterns akin to prior organ donor investigations.

Prior studies in the organ donor domain have typically reported a moderate relationship between general attitudes and intentions to register as an organ donor. For example, Weber and colleagues report a correlation of $r = .47$. Wu and Lu (2011), using a different scale, found general attitudes to be correlated with intentions ($r = .41$); Feeley and Servoss (2005) used more general items and report a correlation of $r = .45$. In the current study, a moderate relationship was also revealed. Whether general attitudes were measured with the Horton and Horton (1991) scale ($r = .48$) or the Semantic Differential Scale ($r = .55$), the attitude-intention relationship hovered in the high moderate range.

Turning to prior studies that investigated attitudes specific to registration behavior, these studies typically have revealed a strong attitude-intention correlation. For example, Hübner and Kaiser (2006) used more specific items (e.g., "Signing an organ donor card is a good thing to do") and reported a Pearson correlation between attitudes and intentions of $.63$. Hyde and White (2009) used specific items and reported a relationship between attitudes and intentions among nondonors of $r = .67$. The results of the current study indicate similar relationship strength. Further indicating the similarity between the patterns revealed in the current study and prior scholarship, whether specific attitudes were measured with the Semantic Differential Scale ($r = .73$) or the Godin and colleagues (2008) scale ($r = .63$), the relationship between the specific attitudes about donor registration and donor registration intentions was in accord with prior studies.

We now turn to the behavioral outcomes. Replicating Study 1, the results of Study 2 indicate that general and specific attitudes toward organ donation were predictive of choosing to register as an organ donor. Also replicating Study 1, Study 2 findings indicate that specific attitudes accounted for variance in registration behavior over and above general attitudes. Further, when specific attitudes are considered, general attitudes no longer offer predictive utility. This pattern existed whether analyzing the data obtained with the general and specific semantic differential scales or with the Horton and Horton (1991) scale (general attitudes) or the Godin and colleagues (2008) scale (specific attitudes). Specific attitudes explained at least 70% more variance in choosing to register as a donor than general attitudes.

To allow for comparison with prior organ donation studies, the same analyses were repeated, but with intention to register as an organ donor as the dependent measure, rather than the registration measures. Again, a similar pattern of results was revealed. General attitudes were associated with donor registration intentions. However, between 41% and 57% of the variance in intention to register

was explained when specific attitudes were considered, with between 18–26% variance explained over and above general attitudes. Simply, the hypothesis that specific attitudes would be more predictive of organ donor registration than general attitudes was supported. Thus, Study 2 also supports the principle of compatibility in that attitudes were most predictive of behavioral intention and behavior when levels of specificity matched.

General Discussion

Scholars and practitioners seeking to increase organ donor registration rates have been long perplexed by the lack of consistency between peoples' overall favorability toward organ donation and organ donor registration behavior (e.g., Siegel et al., 2010). The principle of compatibility—which highlights the importance of measuring attitudes and behaviors at the same level of specificity—offers a partial explanation. The importance of the principle may seem obvious, yet Ajzen (2011) felt compelled to highlight the principle of compatibility when asked to write about his most underappreciated work.

The importance of matching the specificity levels of the items assessing attitudes and the specificity levels of the behavior of interest was displayed in the current set of studies. In Study 1, the amount of variance in registration behavior explained by specific attitudes was more than double that of general attitudes. Although the differences in effects were not quite as dramatic in Study 2, possibly due to the mTurk sample (e.g., higher heterogeneity), a similar pattern of effect sizes emerged among participants. Specific attitudes explained between 70% and 250% more variance in registration behavior than general attitudes.

Several components of the current studies increase our confidence in the reported findings. First, the superiority of specific attitudes toward donor registration for predicting actual donor registration behavior was demonstrated across two different studies, which used different samples, different modes of collection, and different measures. Further, the magnitudes of the correlations between attitudes and intentions revealed in Study 2 were in accord with the reported strength of associations of multiple prior studies looking at either specific attitudes (e.g., Hübner & Kaiser, 2006) or general attitudes (e.g., Marshall & Feeley, 2006; Wu & Lu, 2011).

Implications

Ajzen and Fishbein's (1977) advice appears as valid today as it did decades ago: "To predict behavior from attitude, the investigator has to ensure high correspondence between at least the target and action elements of the measures he employs" (p. 913). The current studies demonstrate the utility of the compatibility principle, and offer a partial explanation for the lack of consistency between peoples' attitudes toward organ donation and donation behavior. Ideally, organ donation scholars and practitioners will internalize this principle, and begin the consistent use of attitude measures specific to organ donor registration when registration is the outcome of interest.

Although organ donation served as the current context, the results are relevant for scholars across health domains. A mixture of compliance and noncompliance to the principle of compatibility can be found in nearly every area of health research, including oral

health (e.g., Tolvanen et al., 2009), blood donation (e.g., Conner, Godin, Sheeran, & Germain, 2013), breast-feeding behavior (e.g., Lawton, Ashley, Dawson, Waiblinger, & Conner, 2012), or workplace safety (e.g., Fogarty & Shaw, 2010). This is problematic, because researchers tend to combine both general and specific attitudes when conducting literature reviews or meta-analyses (McEachan, Conner, Taylor, & Lawton, 2011). As noted by Ajzen and Timko (1986), “. . . the failure of much past research in the health domain can be traced in part to the tendency of investigators to rely on very global measures of attitude (e.g., concerns about health, belief in modern medicine, health locus of control) to predict such specific behaviors as smoking, drinking, taking prescribed medication, or keeping medical appointments” (p. 260). Ideally, the current research effort will complement Ajzen’s call for awareness and lead to more precise and useful attitude measurement in the organ donation context and throughout health psychology.

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