The Timing and Magnitude of Monetary Reward:

Testing Hypotheses from Expectancy vs. Reciprocity Theory

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Abstract

Social psychologists have noted that compliance strategies based on the social norm of reciprocity can be an effective tool for changing behavior (e.g., Cialdini, 2001). In contrast to expectancy-based behavior-change strategies, which offer a reward *after* a behavior is completed (post-behavior reward); reciprocity-based strategies present the reward *first* in the form of a gift (pre-behavior reward). Although there are no explicit contingencies attached to the gift, a sense of obligation to reciprocate may be a powerful motivator to comply with the request. It was hypothesized that pre-behavior rewards would be more effective than post-behavior rewards at low magnitudes of reward, and that both strategies would be effective at higher levels. This study examined effects of the timing and magnitude ($1 vs. $10) of a cash reward on compliance with a request to use a specially designed thank-you card recognizing prosocial and proenvironmental behavior. The hypotheses were not supported. The highest rate of compliance occurred in the post-behavior $10 condition, where 35.5% of participants complied, followed by post-behavior $1 (18.8%), pre-behavior $1 (12.9%) and pre-behavior $10 (8.8%). Pairwise comparisons revealed compliance in the $10 post-behavior condition was significantly higher than the rate of compliance in the $1 and $10 pre-behavior conditions, χ^2 (1, n = 62) = 4.31, $p < .05$ and χ^2 (1, n = 65) = 6.82, $p < .01$ respectively. The lack of evidence for the effectiveness of pre-behavior reward strategy is discussed and contrasted with previous findings.

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Psychologists interested in changing human behavior frequently offer an incentive contingent upon satisfactory performance of a target behavior. In fact, a search of the Psych INFO database returned information on 1,927 studies that examined the effectiveness of incentives in promoting specific behaviors. Although there is no arguing that incentives can increase the frequency of behavior, a lesser-known technique based on reciprocity theory could surpass the effectiveness of a reward strategy under certain conditions. This research compared the impact of an incentive versus a reciprocity approach to encourage specific pro-social behavior.

Expectancy Theory vs. Reciprocity

The use of incentives (post-behavior rewards) to influence behavior follows the logic of expectancy theory of motivation (Lawler, 1973; Vroom, 1964). Vroom's theory states that a person's performance is influenced by the extent to which the individual believes hard work will result in success, that successful performance will be rewarded and finally, the extent to which the rewards of successful performance are valued. Lawler (1973) sums up his theory by explaining "the strength of a tendency to act in a certain way depends on the strength of an expectancy that the act will be followed by a given consequence (or outcome) and on the value or attractiveness of that consequence or outcome to the actor" (p. 45).

While behavior change strategies based on incentives offer a reward that will be received *after* a behavior is completed, a strategy based on reciprocity presents the reward *first* in the form of a gift. Although there are no explicit contingencies attached to

the gift, a sense of obligation to reciprocate may be a powerful motivator to comply with the request.

Cialdini (2001) defines *reciprocity* as a social norm or rule that states the need to "try to repay in kind what another person has provided us"(p. 20). Cialdini speculates that the mechanism of reciprocity is based on a sense of obligation to return favors that is socialized in us from a young age. In other words, when someone does something that benefits us, we become psychologically indebted to him or her, and sooner or later we welcome the opportunity to repay the favor. The reciprocity norm has been shown to exist in all cultures and serves to facilitate social exchange and create a sense of interdependence (Cialdini & Trost, 2000; Brown, 1986).

This research compared the impact of a pre-behavior reward vs. a post-behavior reward at increasing compliance with a request. In addition, the magnitude of the reward was examined as a potential moderator of the relationship between pre-reward vs. post-reward techniques and degree of compliance with a request. The question of which technique is most effective under which reward level is important, because the use of incentives (with rewards contingent upon compliance) is one of the most frequently used techniques in interventions designed to change behavior or induce compliance. Demonstrating that a pre-behavior reward strategy can be more effective at some magnitude levels would provide information regarding the design of more cost-effective interventions.

Post-Behavior Rewards

Although the large number of studies that have used some form of incentive and post-behavior reward to change behavior prevents an exhaustive review of the literature,

it is interesting to note the wide range of behaviors for which incentive/reward programs have been used. Studies have used incentives to demonstrate statistically significant effects in: increasing safety belt use (Geller, 1983; Rudd & Geller, 1985), increasing medication compliance (Bamberger et al., 2000) increasing commitment to organ donation (Daniels, Hollenback, Cox, Rene, & Antonio, 2000), decreasing drug use (Silverman, Chutuape, Bigelow, & Stitzer, 1999) and promoting environmental protection (Boyce & Geller, 2001).

In addition, the use of incentives to increase work productivity has been widely used by employers. A meta-analysis of 39 studies that used financial incentives to increase performance quantity found that financial incentives had a medium effect size (d = .34). Averaged across studies, the workers who were offered financial rewards for increased production increased their productivity by 34% over those who were not offered rewards (Jenkins, Mitra, Gupta, & Shaw, 1998).

Pre-Behavior Rewards

A limitation of the post-behavior reward strategy, as reflected by expectancy theory, is that the likelihood of the behavior occurring depends on the attractiveness or value placed on the reward by the recipient (Vroom, 1964; Lawler, 1973). If the recipients do not believe the reward is worth the effort required, they are unlikely to perform the behavior. For example, an offer of food may not be a significantly motivating reward for someone whose appetite has been sated, and a small amount of money may not motivate someone who is wealthy.

A pre-behavior reward, which functions through reciprocity, may be less affected by these limitations. The internal sense of indebtedness activated by the reciprocity norm

is less dependent on how much the recipient values the reward than on the act of giving itself. Cialdini (2001) provides anecdotal evidence of this in his account of the Hare Krishna's strategy of giving out carnations at airports before soliciting contributions. Despite the fact that many travelers did not value the carnations (many were promptly deposited in trash), the sense of obligation created by the unwanted gift made it an extremely lucrative strategy. Reciprocity theory holds that even a small "gift" should activate an internal state of obligation and motivate the recipient to repay the favor when given the opportunity to do so. Therefore, a one-dollar gift should activate the reciprocity mechanism in the rich and poor alike.

Another promising aspect of a behavior-change intervention based on reciprocity is that the magnitude of repayment often exceeds the relative size of the gift. Many companies have found that mailing small gifts such as address labels or stationery with solicitations for donations substantially increases the number and size of donations they receive beyond the cost of the gift (Cialdini & Trost 2000). Reagan (1971) found that subjects who were first given the gift of a free soft drink by a confederate bought twice as many raffle tickets as those who did not receive the beverage. Interestingly, the amount of money they spent on the raffle tickets was usually several times more than the value of the soft drink. Another study compared the size of tips given to waiters when they presented the bill to patrons with or without a small piece of candy. The small and inexpensive candy offering was shown to significantly raise the tip percentages received by the servers (Strohmetz, Fisher, Rind, & Lynn, 2002).

Comparisons of the Effectiveness of Reward Timing

Although many studies have demonstrated the effectiveness of offering a reward before and after a target behavior, few have directly compared the two approaches to inducing compliance. Most of these studies investigated the completion rates of mailed surveys. Generally, these studies have shown pre-survey monetary rewards to be more effective in raising return rates than rewards contingent upon completing and returning a survey. For example, Berry and Kanouse (1978) compared the rate of survey completion by doctors who were either offered a $20 payment contingent upon the return of the survey or sent a $20 payment in advance. Seventy-eight percent of the physicians who were paid in advance (n = 1,011) returned the survey, compared to 66% of the physicians who were offered payment upon completion of the survey (n = 1,017). The authors note that in the pre-paid condition, only 26% of those who did not complete the survey actually *cashed* the check, compared to a check-cashing rate of 95% for those who completed the survey. Since the pre-payment was made in the form of a check, not cashing the check provided a means of escape from the reciprocity mechanism.

James and Bolstein (1992) used survey completion rates to demonstrate dramatically that a small gift given in advance can be more effective in inducing compliance than a large post-behavior reward. Surveys were sent to small businesses along with pre-payments of varying magnitude ($ 1 cash, $5 cash, $5 check, $10 check, $20 check, or $40 check) or an offer of $50 promised to be sent upon receipt of the survey. Response rates for the pre-survey monetary rewards were as follows: $1 cash = 40.7%, $5 cash = 48.7%, $5 check = 52.0%, $10 check = 44.0%, $20 check = 54%, $40 check = 54.0% (n = 150 for each group).

The promise of $50 proved to be significantly less effective (23.3% response rate) than even the smallest pre-paid reward ($1 cash = 40.7% response rate). In addition, it is noteworthy that the relationship between pre-survey reward magnitude and response rate was not clearly linear. Return rates for the $1 reward were significantly smaller than for larger amounts, but there was no significant difference between return rates for those paid $5 in advance (52% return) vs. $40 (54% return). The authors could not explain why the response rate for the $10 condition was lower than response rates for the $5 conditions.

Finally, a meta-analysis of 38 studies using incentives to increase the response rates of mailed surveys showed prepaid monetary rewards to have a significant effect size (d =.347, 34.7% increase over controls without incentives), while monetary incentives contingent upon the completion and return of the surveys yielded a nonsignificant effect size (d = .085, .08% increase over controls). Non-monetary rewards were also significantly more effective when given in advance with effect sizes of .136 and .020 for the pre and post-behavior rewards, respectively (Church, 1993).

Although the results from survey research suggest prepayment produces superior results, it is not a foregone conclusion that these results will generalize to other situations. Expectancy theory dictates that one must be certain a positive consequence will follow the target behavior in order for the incentive to be motivating. A person who receives a promise of $50 for completing a survey may have reason to doubt the legitimacy of the offer, whereas a cashed check has been proven legitimate and actually initiates the process of reciprocity.

Two studies that compared the effectiveness of pre and post-behavior reward outside of mailed survey returns provide additional support for the effectiveness of a pre-

behavior reward strategy. Boyce and Geller (2001) found that students given pre-behavior gifts (a T-shirt and travel mug) for promising to pass out thank-you cards gave out more cards than those who were told they would receive the same T-shirt and mug as rewards for delivering the cards. Since receiving the gift in advance was contingent upon the participants' willingness to sign a statement promising to complete a target number of cards, this study combined the principle of consistency or commitment (see Cialdini, 2001) with reciprocity. Students in the pre-behavior reward condition returned an average of 27 cards over a five-week period compared to an average of 16 cards in the post-behavior reward condition. Although the experiment was not designed to compare expectancy theory with the principle of reciprocity, Boyce and Geller speculated that reciprocity might have been the mechanism that caused the increased use of the cards in the pre-behavior reward condition.

In a recent study, Rosti, Hickman, and Geller (2002) compared the effectiveness of pre- vs. post-behavior rewards in persuading pedestrians to complete a short survey on the spot. In the pre-behavior reward condition participants were first given a small enamel American flag pin, and then asked to complete the survey. In the post-behavior reward condition, pedestrians were told they would receive the flag pin if they completed the survey. The pre-behavior reward condition produced a significantly higher percentage of compliance (39.6%, $n = 149$) than the post-behavior reward condition (25.5%, $n = 153$).

Each of the studies described above showed more compliance for pre-behavior rewards when the size of the reward was relatively small. It should be noted that reward magnitude or value depends on subjective interpretation. Most physicians would

probably consider a twenty-dollar reward a token amount, while many college students would consider it a significant windfall.

Hypotheses

According to the logic of expectancy theory, the level of compliance in a post-behavior reward situation should be relatively unaffected by low reward magnitudes, but increase in a linear fashion as the rewards become more valuable or meaningful. The extent to which the reciprocity mechanism will be affected by the size of a pre-behavior reward is unclear because of limited research in this area. Although increasing the reward size should increase the salience of the reward and the participant's sense of "indebtedness," reciprocity has been shown to be an effective motivator at very low magnitudes of pre-behavior reward. It is expected that increasing reward size will have less effect on the rate of compliance in pre-behavior reward strategies than in post-behavior reward strategies. When finances are limited, using reciprocity to influence behavior may be more cost-effective than standard incentive/reward strategies.

Another potential advantage of a pre-behavior reward strategy is that the level of repayment (i.e., amount of behavior) required to fulfill the "obligation" can be left open-ended. In the case of a post-behavior reward strategy, however, the level of behavior required to receive the reward is usually explicitly stated, which may result in performing the minimal amount of behavior required to meet the response-consequence contingency. As in the case of Reagan (1971), a gift offered in advance, followed by an open-ended request is likely to result in varying levels of repayment, some of which may exceed the value of the original gift or reward.

Based on the logic above and previous findings, it is hypothesized the magnitude of reward will moderate the relationship between the influence strategy used and the resulting level of compliance. Specifically, Hypothesis 1 is that pre-behavior rewards will be more effective than post-behavior rewards at low magnitudes of reward. As levels of reward increase, it is expected the effectiveness of a post-behavior reward strategy will increase, while level of compliance in pre-behavior reward strategies will be relatively unaffected by reward magnitude.

Therefore, Hypothesis 2 is that there will be greater differences between the compliance rates of the two strategies at low levels of reward than at high levels. Finally, it is expected that in the case of open-ended requests in which various levels of compliance are possible, a post-behavior reward strategy will result in less variance in behavior than a pre-behavior reward strategy. It is likely subjects who are offered a post-behavior reward will perform the specific amount of behavior required to fulfill the contingency.

Method

As in the Boyce and Geller (2001) study, participants attended a presentation in which they were asked to pass out Actively Caring thank-you cards (as depicted in Figure 1) to people who demonstrated actively caring behavior by helping to protect the environment or by going beyond the call of duty to help others. The relative efficacy of the two techniques was compared at two levels of pre and post-behavior reward. The fact that participants supported the proenvironment and prosocial behaviors of others was an added benefit of the design.

Independent Variables

The study design was a 2 x 2 factorial in which the two independent variables were *reward timing* (pre or post-behavior reward) and *reward magnitude*, specifically the amount of money ($1 or $10) offered before or after completing the thank-you cards. The monetary amounts were chosen based on an informal survey of college students (n = 15), who felt one dollar would be useful and appreciated, but not worth a lot of effort to acquire. In contrast, ten dollars was seen as a significant amount of money for the average college student.

Dependent Variable

The dependent variable was the number of completed card "stubs" returned to the experimenter. A perforation divides the actively caring thank-you cards into two portions. While the top is used as a thank-you card, the bottom can serve as a receipt. As shown in Figure 1, the bottom portion of each card contains space for the participants to write their name, the name of the person they thanked, and the behavior they recognized. Two additional questions ask participants to rate their experience handing out the card, and the recipient's reaction on five-point Likert scales.

Participants were told they could return the cards via campus mail, deposit them in a collection box in the psychology department, or hand them directly to the professor after introductory psychology class. Although participants were asked to return the cards within two weeks (according to the specific date printed on their instruction sheet), cards were accepted for a full week after the end of the two-week period to allow time for campus mail and other delays.

Participants

Participants were 128 Virginia Tech students recruited through an online recruiting system. The study was advertised as an innovative program seeking to recognize those who help others or protect the environment. The advertisement specified that students would receive two extra-credit points for a psychology class in exchange for attending a half-hour presentation and completing a follow-up survey. Of the 128 participants, 74 (58%) were female, and 54 (42%) were male. Ages ranged from 18 to 26 years old (M = 19.5), and the ethnicity of participants was similar in composition to the overall Virginia Tech student body: 75% White, 9% Asian, 9% Black, and 2% Hispanic (5% marked other or did not answer).

Procedure

Setting and Assignment to Conditions.

After registering for the experiment, participants were instructed to report to a standard college classroom (with approximately 40 seats). Although 12 slots were available for each experimental session, the number of participants in each presentation varied due to inconsistent registration. The mean number of participants per presentation was 5.8, requiring a total of 22 presentations in order to obtain an adequate sample size.

The participants for each presentation were assigned to one of the four experimental conditions when the experimenter chose one of four unmarked envelopes from a box. Each envelope contained materials and a script for a different condition. Materials and scripts for the presentations were pre-packaged so the experimenter was unaware of the condition assignments of each group until reading a separate, last page of the script describing the reward strategy. The only exceptions to the experimenter being

blind to condition occurred on a few occasions during the first and last weeks of the study when the experimenter assigned the condition of a session in advance to ensure relatively even distribution of conditions across time and relatively equal final group sizes.

Upon entering the classroom, participants received informed consent forms and a brief demographic questionnaire whereby participants were asked to write their name, demographic information, email and mailing address. A copy of this survey is given in Appendix A. When the forms were completed, each group received the same carefully scripted and rehearsed ten-minute presentation delivered by the experimenter. The following paragraphs provide an overview of the content of the presentation. See Appendix B for a complete copy of the presentation script.

Presentation

The presentation began with an introduction to the concept of actively caring (Geller, 1995), which was defined as going beyond the call of duty to help others or the environment. It was explained that people can "actively care" by recycling, helping a friend in need, serving as a designated driver, picking up litter, donating time or money to a charity, or delivering an outstanding lecture. The participants were encouraged to adopt a broad definition of actively caring as any *behavior* that shows concern for other people or the environment.

A research assistant then gave each participant one of the Actively Caring thank-you cards (see Figure 1). The top of the card is a thank-you card to be completed and given to someone who demonstrates actively caring. A perforation separates the bottom of the card, which is to be completed and returned to the experimenter. The participants received detailed instructions on how to complete both portions of the card and return the

bottom portion. They were told the purpose of the cards is to reward and recognize people who actively care. It was explained that reinforcement and recognition increase the probability a behavior will be repeated in the future, and that by using the cards to thank and recognize the people who perform caring behaviors, they are helping create a more positive and caring culture on campus.

Next, a three-minute video was shown, in which student actors modeled three scenes where thank-you cards were given for: (a) delivering an outstanding lecture, (b) recycling, and (c) participating in a blood drive. The participants were told the purpose of the video was to give them an idea of the kinds of behaviors that warranted receipt of an actively caring thank-you card, what they might say when presenting the card, and how the recipient might react. In the video, the conversation style of the card giver was informal and the reactions of the recipients were at first perplexed, then positive upon hearing what the program was about.

After the video, participants practiced completing a thank-you card. They were then asked to think of a situation in which it would be appropriate to give someone a thank-you card, and to complete the sample card as if they were going to give it to the person who demonstrated actively caring. After the cards were completed, the experimenter asked if there were any questions about how to complete the cards.

The goal. The participants were told they would each receive a stack of 20 thank-you cards and that a group goal had been set to distribute 600 cards before the end of the semester. It was explained that there would be approximately 120 participants, so an average of five cards per person would need to be delivered in order for the group goal to be reached. They were asked to hand out at least the five cards, but told it would be

appreciated if they recognized each incident of actively caring they observed, and distributed all of the cards if possible.

It is important to note that that the participants were told that delivery of any of the cards was voluntary, and that by listening to the presentation they had already earned one point of extra credit. They were told that they could earn a second point (regardless of how many cards they delivered) by completing an online survey about the cards in two weeks.

Introduction of the independent variable. The independent variable was introduced at the end of the presentation. Participants in the pre-behavior reward condition were told:

> Thanks for listening to the presentation and being open to making a difference by recognizing people who actively care and making this experiment a success. On the way out, please collect your cards and a one-dollar bill (or ten-dollar bill), which is a gesture of my appreciation of your willingness to participate and to help us reach our goal of distributing 600 cards. Although this is only a token amount, it is my way of showing my appreciation for your participation.

In the post-behavior reward condition, participants were also thanked in the manner described above, followed by a statement describing the reward contingency:

> As an added incentive to use the cards and to help us reach our goal of 600 cards, you will receive a reward of $1 (or $10) for giving out the first five cards and returning the bottom portions to me within the next two weeks. Although this is only a token amount, it is my way of showing my appreciation for your

participation. Your reward will be mailed directly to you as soon as we receive the five returned cards from you.

Participants were then asked to come to the front of the room where they were given: (a) an instruction sheet summarizing the presentation and the deadline for returning the cards (see Appendix C), (b) a pack of 20 thank-you cards, and (c) reward money if they were in the pre-behavior reward condition.

Follow-up Survey

Fifteen days after participating in the information session, each participant received an email that contained a link to an online survey (Appendix D) and a reminder that they would receive an additional point of extra-credit after submitting their answers. Included in the survey were manipulation-check questions designed to confirm that the participants understood and remembered that they had received an initial pre-behavior reward or were offered a reward for handing out the cards.

These questions asked: (a) if they received or were offered any money for participating in the program, (b) the amount of money they had received or were offered, and (c) how many cards (if any) they had to complete and return in order to receive money. In addition, the online survey included general questions about their impressions of the program, the number of cards they had completed, whether they considered themselves outgoing or shy, and the extent to which the rewards influenced them to deliver actively caring cards. Although there were no formal a priori hypotheses about the online survey questions, data from the survey and demographic variables were explored to gain a greater understanding of the results.

Potential Threats to Internal Validity

Two potential threats to the internal validity were a) potential variations in effectiveness and content of the presentations, and b) the possibility some participants returned the completed card stub without actually distributing it. First, although there were undoubtedly slight differences in the presentations, reading the presentation from a script minimized differences. In addition, the presenter was usually blind to the experimental condition until the conclusion of the presentation when the independent variables were introduced. This step minimized the potential effect of experimenter bias on the presentation.

Second, some students could have completed and returned the bottom of the card without actually handing out the thank-you card. Attempting to verify whether all of the cards were appropriately distributed would have involved contacting and questioning the recipient, which might be perceived as a hassle lessen the positive impact of receiving the card. In order to minimize the likelihood this would occur, the participants were told they should list the first and last name of the recipient on the thank-you card in case we decided to contact the recipient and get his or her impressions of being thanked. In addition, a line acknowledging the potential for misuse, but emphasizing that honesty is the norm at the University was included in the procedural instructions (see Appendix B).

Although neither of these measures guaranteed all of the cards were correctly used, even partial completion of the cards shows some degree of desire to comply with the experimenter's request, and potential differential influence of the independent variable. For this reason, the possibility that some participants did not use the cards completely as intended was not seen as compromising the results.

Results

The total number of cards returned within the three-week period across all conditions was 218 (M = 1.70, SD = 3.23). Figure 2 shows the distribution of participants across all conditions categorized by the number of cards completed. As the graph illustrates, most participants (86 of 128, or 67%) did not return any of the cards.

Those participants who handed out the cards recognized a variety of behaviors. A content analysis revealed that the most frequently recognized behaviors fell into the categories of donating time or resources (e.g., giving blood, volunteering, 43 cards returned) and social support behaviors (e.g., giving advice, comforting, listening, 43 cards returned). Other behaviors frequently recognized included environmental protection behaviors (33 cards), providing study help (23 cards), and courtesy behaviors (15 cards). Table 1 provides a summary of the behaviors recognized and examples of each category of behavior.

The five-point Likert scales on the returned cards indicated participants were more likely to give out the cards to people they knew (M = 1.9, SD = 1.1; 1 = Family or Close Friend, 5 = Stranger). Most participants indicated that handing out the card was a positive experience (M = 4.6, SD = 0.7, 1 = Negative, 5 = Positive) and that the reaction from card recipients was positive (M = 4.5, SD = 0.8, 1 = Negative, 5 = Positive).

Mean Cards Returned per Condition

Due to recruiting logistics, the number of participants in each group was not equal across all conditions. The 128 participants were distributed as follows: pre-behavior $1, n = 31; pre-behavior $10, n = 34; post-behavior $1, n = 32; post-behavior $10, n = 31. Figure 3 depicts the mean number of cards returned by condition. The highest rate of card

return occurred in the post-behavior $10 condition, (88 cards: $M = 2.84$, $SD = 4.39$) followed by post-behavior $1 (53 cards: $M = 1.81$, $SD = 3.31$), pre-behavior $1 (40 cards: $M = 1.32$, $SD = 2.86$) and pre-behavior $10 (37 cards: $M = 1.15$, $SD = 2.50$).

Unfortunately, the skewed distribution of the data (high number of participants returning no cards) made it impossible to use analysis of variance to test for differences among the means. Although no statistical conclusions can be drawn from these data, it is noteworthy that the post-behavior $10 condition resulted in a return mean two times greater than the average return frequency in the pre-behavior reward conditions.

Participation and Compliance

While the skewed distribution of cards returned prevented the use of parametric statistics to test for differences among the means, it did not preclude the use of non-parametric statistics to analyze categorical variables. Two dichotomous variables were of interest: (a) participation (yes or no) and (b) compliance (yes or no). Participation was defined as having returned one or more cards within the specified time period, and compliance was defined as returning five or more cards within the specified time.

Figure 4 depicts the percentage of participants in each group who returned at least one card. The highest rate of participation occurred in the post-behavior $10 condition, where 13 of 31 (41.9%) participants completed one or more cards, followed by post-behavior $1 (10 of 32, 31.3%), pre-behavior $1 (9 of 31, 29%) and pre-behavior $10 (8 of 34, 23.5%). A Chi-Square test of independence revealed no statistically significant differences among the groups χ^2 (3, $N = 128$) = 2.66, $p > .05$.

Since the request made by the experimenter was to return *at least* five cards, compliance may be the most relevant variable for analysis. Figure 5 displays the

percentage of participants in each group who complied with the experimenter's request to complete at least five cards. The highest rate of compliance occurred in the post-behavior $10 condition, where 11 of 31 (35.5%) complied, followed by post-behavior $1 (6 of 32, 18.8%), pre-behavior $1 (4 of 31, 12.9%) and pre-behavior $10 (3 of 34, 8.8%). The Chi-Square test of independence was statistically significant χ^2 (3, N = 128) = 8.59, $p < .05$.

In order to determine which treatment condition accounted for the difference, pairwise comparisons of the groups were conducted. They revealed that compliance in the $10 post-behavior condition was significantly higher than the rate of compliance in the $1 and $10 pre-behavior conditions, χ^2 (1, n = 62) = 4.31, $p < .05$ and χ^2 (1, n = 65) = 6.82, $p < .01$ respectively. All other comparisons yielded non-significant results ($p > .10$).

Variance in Number of Cards Returned Within Groups

In order to test the hypothesis that variance in the number of cards returned in the pre-behavior reward conditions would be greater than in post-behavior reward conditions, all participants who completed more than one card were divided into two groups based on reward timing. Seventeen participants in a pre-behavior reward condition returned one or more cards (M = 4.53, SD = 3.41) compared to 23 in post-behavior conditions (M = 6.13, SD = 3.68). A test of the homogeneity of variance revealed no significant difference between the variances of the two groups (Levene Statistic = .227, $p > .10$).

Follow-up Survey

A total of 115 (89.8%) of the participants completed the online follow-up survey after being prompted by email to do so. Included on the survey were questions to verify participants understood and recalled the manipulation along with a series of other items

to measure participant's impressions of the program. The results of the survey are discussed briefly below.

Manipulation check. When answering the question of whether they received or were offered any monetary reward for their participation, 92 of the respondents (80%) responded "yes" and 23 (20%) responded "no". It should be noted that 8 of the 23 respondents who denied the presence of any reward in the first question correctly answered the next question, which asked for the specific amount of money they were offered or received. Therefore, the percentage of survey respondents who acknowledged that a monetary reward was present was actually 87%. Most respondents (83%) were able to correctly identify how much money they had been offered, but only 70% of respondents correctly identified the number of returned cards required to receive the money.

Although some respondents were not able to correctly identify all the components of the manipulation, no participants were removed from the study because of incorrect answers. The percentage of correct answers was high enough to confirm that most of the participants had understood the conditions, and that forgetting (two weeks had passed since the presentation), careless completion of the survey, or misunderstanding of the survey questions likely accounted for a significant portion of the incorrect responses.

Likert items. Four seven-point Likert scale questions were asked to gauge the participant's impressions of the program and to gain a better understanding of the factors influencing the completion of cards. When asked about their overall impression of the thank-you card program (1 = very negative, 7 = very positive), most participants rated it favorably ($M = 5.9$, $SD = 1.0$). In addition, most reported that their participation made

them more aware of the positive behaviors of others around them ($M = 4.9$, $SD = 1.6$; 1 = not at all, 7 = very much).

Most participants denied the money they were offered or received had much of an influence on their distribution of the cards ($M = 2.2$, $SD = 1.6$; 1 = not at all, 7 = very much). Finally, the mean response to a question asking participants to rate themselves on a seven point scale where 1 = very shy and 7 = very outgoing was approximately at the middle of the scale ($M = 3.9$, $SD = 1.8$).

One-way ANOVAs were conducted to compare the mean responses of those who complied with the request to complete five or more cards vs. those who did not. There were significant differences in the responses to each of the four items. Compared to non-compliers, compliers rated the program more positively $M = 6.4$ vs. 5.8, $F\ (1, 113) = 5.93$, $p < .05$, reported being more aware of the positive behaviors of others $M = 5.7$ vs. 4.7, $F\ (1, 112) = 13.21$, $p < .001$, reported being more influenced by the money $M = 3.1$ vs. 1.9, $F\ (1, 111) = 11.02$, $p < .01$, and rated themselves as more outgoing $M = 4.8$ vs. 3.6, $F\ (1, 113) = 7.76$, $p < .01$.

Self-reported cards returned. Finally, participants reported delivering more cards than actually received by the experimenter. Those who responded to the survey reported handing out and returning a total of 317 cards, but only 209 cards were actually received from the survey respondents.

Discussion

Substantial literature suggests that a pre-behavior reward strategy should activate the reciprocity norm and influence behavioral compliance, with some advantages over a post-behavior reward strategy (e.g., Boyce & Geller, 2001; Cialdini, 2001; Reagan, 1971;

Strohmetz et al., 2002). In the realm of survey returns, several studies have demonstrated that a pre-paid reward is more effective than offers of a post-behavior reward (Berry & Kanouse, 1978; Church, 1993; James & Bolstein 1992). The present study tested this promising strategy beyond survey returns, and compared the compliance achieved at high and low magnitudes with a post-behavior reward strategy. Although a lack of power limited the conclusions that could be drawn, the results suggested that a pre-behavior reward was not an effective strategy to encourage the target behavior studied.

Lack of Evidence for the Effectiveness of Pre-Behavior Rewards

Hypothesis 1 predicted that at low magnitude levels, a pre-behavior reward would result in more compliance than a post-behavior reward strategy. This hypothesis was based on a substantial amount of literature showing that the reciprocity norm functions at low levels of reward (e.g., Cialdini, 2001; James & Bolstein 1992; Reagan, 1971; Strohmetz et al., 2002). The one-dollar token of goodwill given in advance in pre-behavior conditions was thought to be enough to invoke the reciprocity norm. In contrast, the logic of expectancy theory suggests the expectancy of a one-dollar reward would be insufficiently motivating to affect the rate of card return in the post-behavior reward conditions. The results of the experiment did not support this hypothesis. Although the differences did not reach a statistically significant level, both the mean number of cards returned per participant and the number of participants complying with the request to deliver five or more cards was higher in the one-dollar post-behavior condition (M = 1.81, n = 6) than in the one-dollar pre-behavior condition (M = 1.32, n = 4).

Hypothesis 2 predicted that at low levels of reward, the difference in cards returned in the pre vs. post-reward conditions would be greater than the differences

observed at high magnitudes of reward. The data did not support Hypothesis 2. In fact, the difference between pre and post-behavior groups in both number of cards returned and "compliers" was larger at the ten-dollar level than at the one-dollar level. Although statistical comparisons of total cards completed were not possible, a Chi-Square test of independence revealed that the rate of compliance (participants returning 5 or more cards) was significantly higher in the $10 post-behavior condition than in the $10 pre-behavior condition χ^2 (1, n = 65) = 6.82, p < .01. In contrast, there was no statistically significant difference between the rates of compliance in the $1 pre and post-behavior conditions χ^2 (1, n = 63) = .403, p > .10. Effect sizes further illustrate these differences. The effect size of reward timing on compliance in the $10 conditions was .32, while the effect size of reward timing in $1 conditions was .08. According to labels assigned by Cohen (1988), effect sizes of .30 are considered "medium" and effect sizes of .10 are considered "small."

Although Hypothesis 2 was not supported, some of the assumptions underlying its formulation were not refuted. It was based on the expectation that pre-behavior rewards would result in a relatively high rate of compliance that would be relatively unaffected by reward magnitude. In contrast, reward magnitude was expected to play an important role in post-behavior rewards. Based on expectancy theory, card completion was predicted to increase with the anticipation of a greater reward. Although insufficient power was present to draw any statistical conclusions, the data did show a hint of an increase in card returns and compliance levels as reward size increased, while the rate of card return and compliance was relatively level in both pre-behavior reward conditions. The unexpected

result was the uniformly *low* rate of card return and compliance in both pre-behavior reward conditions.

Finally, it was hypothesized that the variance in the number of cards returned in the pre-behavior reward conditions would be greater than in post-behavior reward conditions. Although participants were asked to complete as many cards as possible, it was thought the three-term contingency (post-behavior reward conditions) would influence participants to focus on the minimum number of cards required to receive the reward. The planned statistical analyses did not support this hypothesis. Variance was actually slightly higher in the post-behavior conditions, although not at a statistically significant level. A closer examination of these data did reveal that minimal compliance did occur frequently in the ten-dollar post-behavior condition. Five returned cards was the mode among participants completing cards in this condition, with 6 of 13 of them completing and returning exactly five cards. Five participants in this condition did complete more than five cards, with one extreme outlier (20 cards returned) likely accounting for much of the variance in this condition.

Low Participation and Other Limitations

One of the unexpected results of the experiment was the low rate of participation that limited statistical analysis and straightforward conclusions. Although the post experiment questionnaire indicated the majority of participants across all conditions had positive impressions of the thank-you card program, for most of the participants, these positive feelings did not translate into behavior. The post-experiment survey suggested that personality characteristics (shy vs. outgoing) influenced the rate of card return. Giving someone a thank-you card for a positive behavior such as recycling might sound

like a good idea to participants, but when it came time to act, the fact that the task is involved and unconventional may have limited participation.

As stated above, the low participation and therefore variance of the study limited inferences that could be made based on the results. In fact, the only statistically supported conclusion that can be drawn was that the $10 post-behavior reward was more effective than either pre-behavior reward condition in compelling participants to comply with the request to complete five or more cards. Participation and compliance in the pre-behavior reward conditions was so low that it raises the question of whether the pre-behavior rewards had any effect on the behavior of participants. Inclusion of a control group might have helped to answer this question.

Another limitation of the study was that the nature of the task did not allow for tight experimental control. It is possible some participants returned the card stubs without actually handing out the cards. In addition, the large discrepancy between the numbers of cards participants reported returning vs. those actually received suggested a potential measurement problem. Although it may be a case of inflated self-reports, some of the cards might have been lost in campus mail, or mistakenly placed in the regular mail, where they would not be delivered without postage.

Feeling and Discounting the Reciprocity Norm

Although the low rate of card return in the pre-behavior conditions raises the question of whether reciprocity was experienced, the behavior of some of the participants provided evidence that receiving the money in advance was somewhat uncomfortable, perhaps due to the sense of indebtedness it created. Two participants in the pre-behavior reward condition (one in the $10 and one in the $ 1 condition) attempted to refuse the

money. Both said, “I don’t want to take your money” and attempted to hand the money back to the experimenter. They had to be repeatedly encouraged to take it before finally accepting. Although neither of these participants completed the minimum request of five cards, they did complete two and three cards, respectively.

A participant from the $10 pre-behavior group who requested an in depth debriefing, shared his method for escaping the power of the reciprocity norm. The participant admitted that he had not returned a single card. When asked if he had felt obligated by the money in any way, he replied: “No way. I figured I had earned the money by showing up for the session. Besides, I have paid so much money out to this place (Virginia Tech), I figured I was owed the money.”

Inconsistency With the Literature

The ineffectiveness of the pre-behavior reward stands in contrast to the effectiveness of the strategy as reported in the literature. In each of the previous studies that compared the two techniques (Berry & Kanouse, 1978; Boyce & Geller, 2001; James & Bolstein, 1992; Rosti, et al., 2002) pre-behavior strategies resulted in higher rates of compliance. This discrepancy may be partially explained by the nature of the tasks the participants were asked to complete. First, many of the previous studies on the use of pre-behavior rewards used them to encourage the return of mailed surveys (e.g., Berry & Kanouse, 1978, James & Bolstein, 1992). A meta-analytic review of studies in this domain provides further support that pre-behavior rewards are more effective than the promise of a reward after the survey is received (Church, 1993). There are, however, some unique aspects of the task of returning a mailed survey that were not present in the current study.

Most of us are bombarded with "junk mail," some of which contains offers of questionable legitimacy. Much of it gets discarded with little or no consideration. An enclosed check or cash gift would not only draw the attention of the recipient, but would also assure the legitimacy of the offer. Surveys containing an offer for a post-task pay-off may be discarded without being noticed or read by the recipient, because of concern about the veracity of the offer. Believing the reward will be received is important, as the strength of the belief an act will be followed by a consequence is a key functional component of expectancy theory (Vroom, 1964).

In addition, assuming pre-paid recipients of a survey feel a sense of indebtedness, they are able to fulfill their obligation relatively conveniently and immediately. Complying with the request to deliver the thank-you cards was much more involved and inconvenient. Participants were required to make a sustained effort to observe people actively caring, summon the courage to deliver the card appropriately, and then return a certain portion of the card to the experimenter within a short period of time. Participants in the pre-behavior reward conditions may have felt obligated upon receiving the money, but not for sufficient duration to comply with the experimenter's inconvenient request. In contrast, the expectancy of receiving a $10 reward could be extremely motivating to a cash-strapped college student at the end of the semester.

The results of the current study were not consistent with those reported by Boyce and Geller (2001). Using the same dependent variable, these researchers found that a gift in advance was more effective than the promise of a gift after delivering a target number of cards. The differing results may be accounted for by the fact that Boyce and Geller asked participants to make a written commitment to complete cards as the pre-behavior

reward was given. In contrast, for the current study, it was emphasized that delivering a thank-you card was entirely voluntary, and by listening to the presentation they had already earned their credit for participating in the experiment.

Written commitments, which are thought to function through internal and external pressure to be consistent (Cialdini, 2001), have been shown to be an effective method for influencing behavior (DeLeon & Fuqua, 1995; Geller & Lehman, 1995). It is possible the combination of commitment and reciprocity has synergistic effects, with written commitment increasing the formality and salience of the reciprocity debt, and the pre-behavior reward increasing the intensity of the obligation to be consistent with one's written word.

Most recently, Rosti et al. (2002) found a pre-behavior gift to be more effective in encouraging pedestrians to complete a short survey than offering the same gift contingent upon completing the survey. The target behavior in this study (completing a one-page survey) was relatively quick and easy, and the request was immediate and face-to-face. In many ways this study was similar to the Reagan (1971) experiment or Cialdini's (2001) reports of the strategies used by the Hare Krishnas. In situations where the recipient of a reward is presented with an easy and immediate opportunity to reciprocate a favor upon a face-to-face request, a strategy based on reciprocity is likely to effective. Those who reciprocate are simply following the path of least resistance. It is unlikely the Hare Krishnas would have had the same level of success by offering an unwanted carnation in exchange for a donation, or that Reagan's confederate could have sold raffle tickets by telling his customer's they would receive an inexpensive soft drink in exchange for their purchase.

Practical Utility of Pre-behavior Reward Strategies

When comparing the utility of pre- versus post-behavior reward strategies for encouraging compliance, the cost of administering each intervention must also be taken into account. As stated earlier, an attractive aspect of pre-behavior rewards is that previous research has shown the strategy to be effective at low magnitude levels of reward. However, if the reward precedes the behavior, all participants receive the reward, regardless of whether or not they perform the target behavior. This can make the strategy more expensive. For example, in the present study, $371 was spent in the pre-behavior reward conditions, resulting in the return of 77 cards. In contrast, only $116 was spent in the post-behavior reward condition, where 141 cards were returned.

Beyond cost considerations, whether or not pre-behavior rewards are effective or practical for influencing behavior will likely depend on a number of situational factors, including the nature of the target behavior encouraged. Although the results of the present study did not support the effectiveness of a pre-behavior reward strategy, a compliance strategy based on the reciprocity norm may still be an effective strategy under certain conditions. Future research could attempt to better define the conditions in which a reciprocity-based strategy is more effective than an incentive/reward technique. Variables of interest include whether the request made is immediate vs. delayed, in person vs. indirect and complex vs. simple. In addition, future studies could attempt to determine if there are additive benefits when pre-behavior rewards are combined with commitment strategies.

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Table 1

Types of Actively Caring Behaviors Thanked

Category of Behavior Thanked	**Number of Cards**	**Specific Behaviors (from Cards)**
Donating time or resources	43	-donating blood -walking in the relay for life -walking dogs at the humane shelter -teach Sunday school class -donated money to the women's rugby team
Social support & interpersonal caring	43	-giving great advice when advice is necessary -comforting a friend after a break-up -listening to me and talking to me when I was down -smiling at me and greeting me very nicely
Caring for environment	33	-taking the BT (bus), not driving -throwing out trash found on campus -recycling in the dorm room -carpooling
Study help	23	-helping a peer with computer science -helping me with my math homework -tutored me in Chemistry
Courtesy behaviors	15	-being nice - holding the door open for a stranger -saving me a seat in class -helping a visitor on campus find their way -helping a man with his tray while he was on crutches

Category of Behavior Thanked	**Number of cards**	**Specific Behaviors (from Cards)**
Giving- food or money	13	-treating me to ice cream and fries (my favorite) -putting gas in my car -buying me dinner when I lost my hokie passport -spotted me money when necessary
Providing rides	13	-taking me to a doctors appointment early this morning -driving me to buy groceries -being a designated driver
Domestic chores	8	-unclogging/fixing my sink -cleaning up my apartment when I was sick -took out my trash for me
Teaching	6	-making the lecture interesting and showing enthusiasm -giving a great lecture
Sharing	5	-lending her mountain bike to a friend in need -letting me use his book every week for class
Miscellaneous	16	-taking my shift for work on Thursday -helping me try to find my lost wallet -saving the life of a drowning child (he is a lifeguard)
	Total = 218	

Figure 1. Actively Caring Thank-You Card

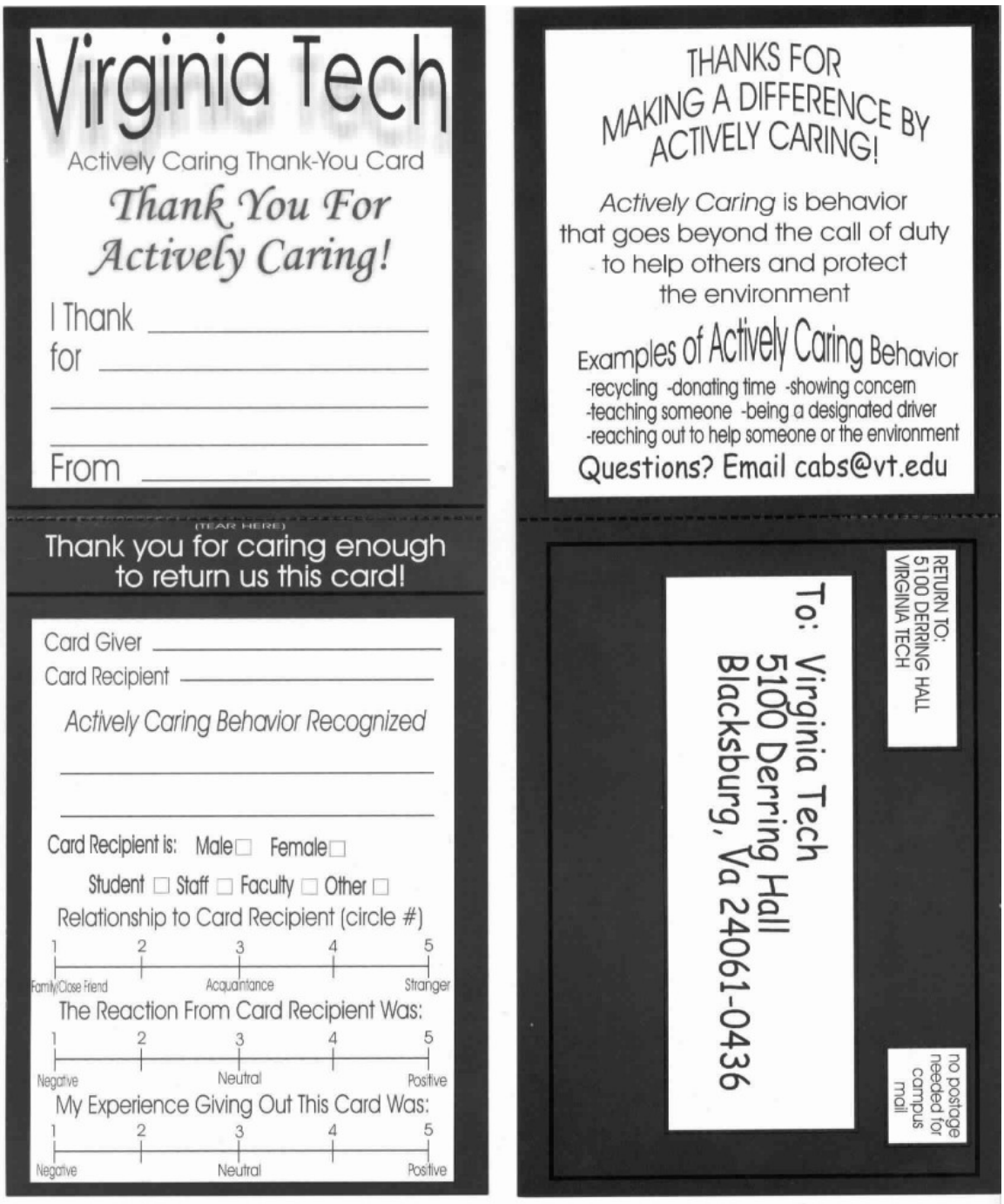


Figure 2. Frequency Distribution of Participants and Cards Returned

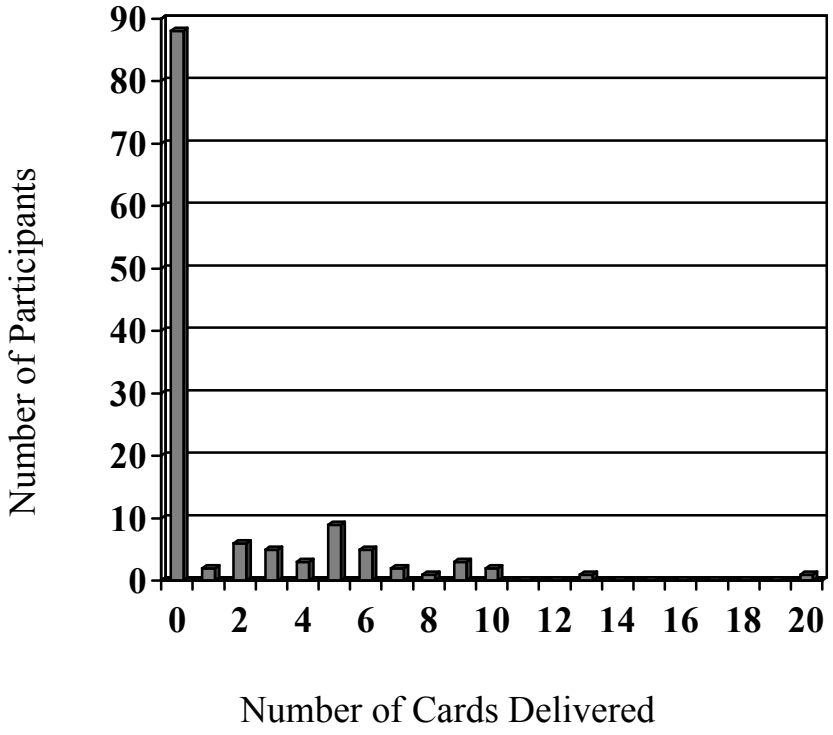


Figure 3. Mean Number of Cards Returned as a Function of Experimental Condition

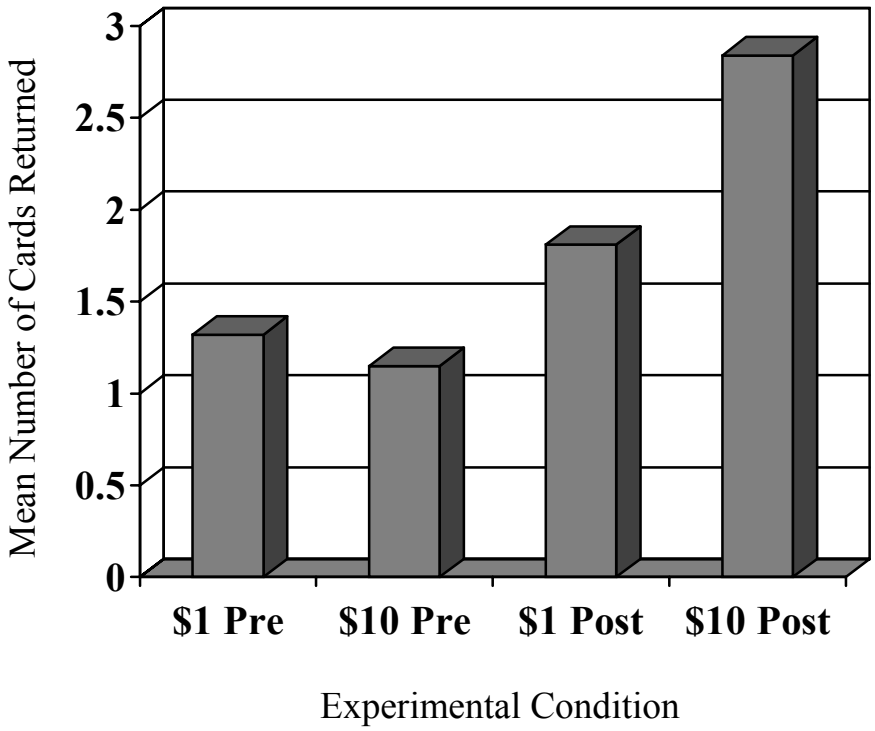


Figure 4. Percentage of Participants Returning One or More Cards per Experimental Condition

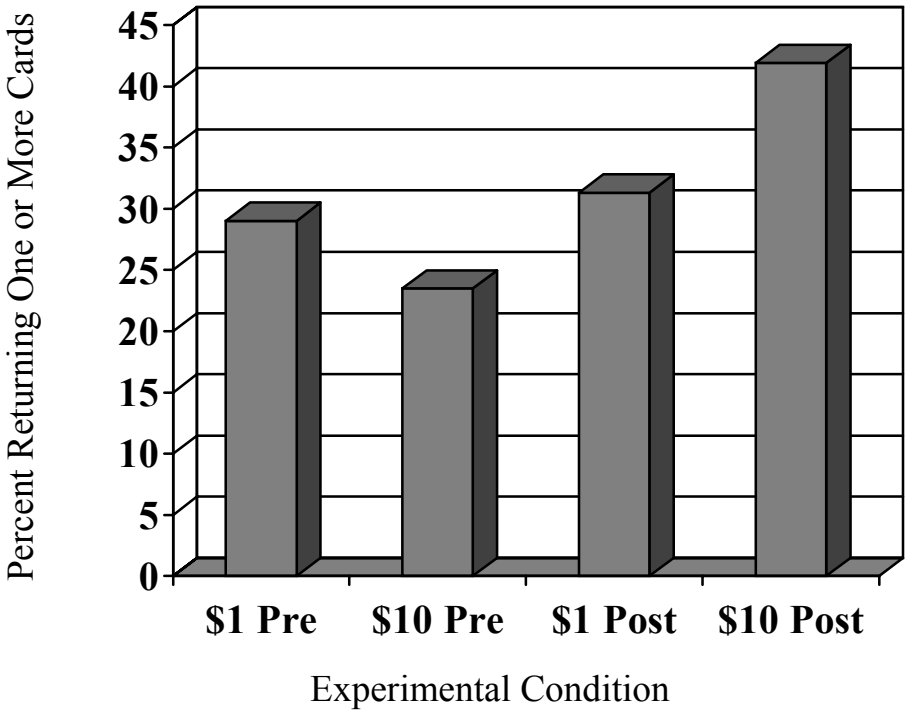
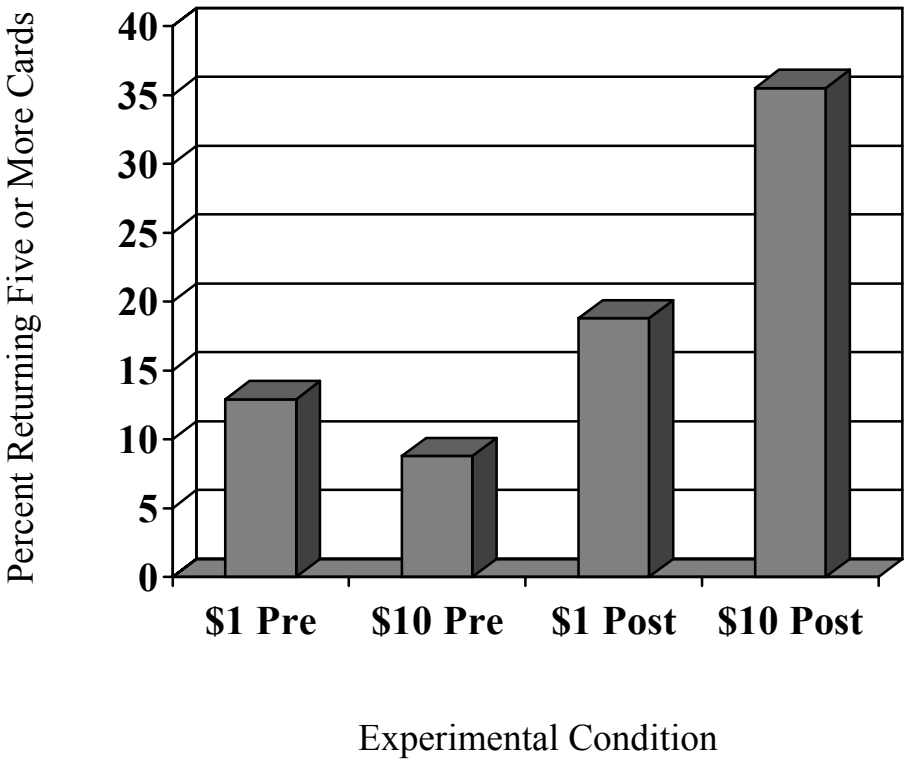


Figure 5. Percentage of Participants Returning Five or More Cards per Experimental Condition



Appendix A: Demographic Questionnaire

Research Participant Address & Demographic Information: Please Print Clearly

Name _____ **Gender:** M F **Age**_____

Major_____ **Year:** Frosh. Soph. Junior Senior

Email Address_____

Mailing Address at Virginia Tech _____

_____

_____

What psychology classes are you currently taking? _____

_____

_____

Appendix B: Presentation Script

First, thanks to all of you for signing up, and coming to this meeting. The purpose of this meeting is to tell you about an opportunity to participate in an innovative program aimed at thanking and recognizing people whose actions make a difference.

When asked, most of us say we care about protecting the environment and the well being of others, but our actions are not always consistent with these values. In fact, research by social psychologists shows that our actual behavior is often quite different from our attitudes. Dr. Geller (your introductory psychology teacher) coined the term Actively Caring to describe actions that show concern for others and the environment. Someone who demonstrates Actively Caring "backs up" his or her positive *attitudes* with positive *action*. In the end, it is action, and not just attitudes that make a difference!

The idea is a simple. People who go beyond the call of duty to help others or protect the environment should be thanked and recognized for their efforts. This happens sometimes, but not enough. Our program encourages you to make an effort to thank people who actively care by taking the time to complete a thank-you card and give it to a deserving person. Over the next two weeks I am asking you to complete Actively Caring thank-you cards and give them to people who demonstrate behavior that goes beyond the call of duty to help others or protect the environment. Your participation in this part of the experiment is strictly voluntary. By showing up for the meeting tonight you have already earned one point of extra credit.

_____ would you please pass out examples of the cards?

Here's how you use the thank-you cards. Complete the top portion of the card by writing the person's name, the behavior for which you are thanking them, and your name. Detach

it, and give it to the person being thanked. Then complete the bottom portion of the card by writing in the name of the person you thanked, a description of the behavior you thanked the person for and the other information on the card, including the gender of the card recipient, whether they are a student or faculty staff member, your relationship to them, their reaction, and your experience handing out the card. Please be sure to mark down if the person you thanked is a student or employee of Virginia Tech. This will inform us if it will be possible to contact them by email to get their impressions of being thanked.

Once you have completed the bottom half of the card, please drop it in the campus mail, or in the drop box located outside room 5100 on the fifth floor of Derring Hall, or if you are in Intro Psyc, you can turn it in directly to Dr. Geller after class. Please do not forget to return the cards, as it is the only way for us to track the success of our program. In case you are worried about remembering all of this information, you will be receiving a list of the ways to turn in the cards along with an outline summary of this program.

The outline summary will also include some examples of Actively Caring behaviors you might thank someone for, including:

- Giving Blood
- Being a designated driver
- Delivering an outstanding lecture
- Recycling
- Taking the bus instead of driving
- Carpooling
- Picking up litter
- Giving time or money to charity
- Helping someone in need
- Teaching someone
- Helping someone study

This list is only the beginning. I encourage you to add to it. Any behavior that helps others or the environment qualifies. Just make sure that it is a specific behavior, and that you write the behavior on the card.

Although some of you may feel shy or somewhat embarrassed about passing out the cards, I encourage you to get over it! Remember what it felt like the last time someone gave you a compliment or thanked you for something? It felt good, right? People who get a thank-you card from you are going to feel good as well. The fact that receiving written thanks for a good deed is a bit out of the ordinary will only increase the impact of being thanked.

We thought it might be useful for you to see some examples of students handing out cards. The idea is to give you some ideas about what sort of behaviors you might thank someone for, what you might say when completing the card, and how the recipient might react. **Show video.** Now I would like you to think of a situation that has occurred in the past or might happen in the future in which it would be appropriate to complete an Actively Caring Card. Please fill out the top and bottom of the card as you would if you were to give it to the person who demonstrated Actively Caring. **When they have completed the cards:** If you were actually using this card, you would detach the top and hand it to the person being thanked, and return the bottom portion to us via campus mail, the drop box outside of 5100 Derring, or by turning it in directly to Dr. Geller.

When you give a thank-you card to someone, you are:

- Giving the person positive feedback.
- Letting them know their actions are appreciated.
- Increasing the probability they will repeat the behavior you rewarded!
- Contributing to creating a positive, caring culture on campus.
- Practicing an Actively Caring behavior.

In this experiment it is our goal to have at least 600 Actively Caring Thank-You cards distributed on campus and in the local community. Each of you will be receiving a

stack of 20 cards when you leave today. Since we have 120 participants, we will need each participant to complete at least five cards over the next two weeks in order to reach our goal. Although I am asking you to complete at least five cards, I hope that over the course of the next two weeks you will have opportunity to use most, or all of the cards that you have been given. In fact, since some participant may not complete *any* cards we are counting on many participants completing more than five cards. The bottom line, however, is that the experiment isn't about completing a minimum number of cards, but recognizing and thanking each person who you see caring for others and the environment.

Remember, that completion of any of the cards will be voluntary, and that by listening to the presentation you have already met the requirement for one point of extra-credit. We do realize that it would be possible for you to complete the cards necessary to reach the goal by completing the bottom portion of the card without actually handing out the card, but we trust that like most Virginia Tech students, you are honest and will use the cards as intended.

Finally, I want let you know that in two weeks you will have an opportunity to answer a short email survey for an additional point of extra credit. Everyone will be eligible to earn the additional point of extra credit regardless of how many cards they filled out and returned.

Are there any questions?

Independent Variable Paragraphs (1-4) inserted here

Although it is only a token amount, please don't mention the monetary reward to friends who are considering participating in this research. We would like to keep that a surprise rather than a reason to participate!

Paragraph 1: $1 Pre-Behavior

Thanks for listening to the presentation and being open to making a difference by recognizing people who actively care and making this experiment a success. On the way out, please collect your cards and a dollar bill, which is a gesture of my appreciation of your willingness to participate and to help us reach our goal of distributing 600 cards. Although this is only a token amount, it is my way of showing my appreciation for your participation.

Paragraph 2: $10 Pre-Behavior

Thanks for listening to the presentation and being open to making a difference by recognizing people who actively care and making this experiment a success. On the way out, please collect your cards and a ten-dollar bill, which is a gesture of my appreciation of your willingness to participate and to help us reach our goal of distributing 600 cards. Although this is only a token amount, it is my way of showing my appreciation for your participation.

Paragraph 3: $1 Pre-Behavior

Thanks for listening to the presentation and being open to making a difference by recognizing people who actively care. As an added incentive to use the cards and to help us reach our goal of 600 cards, you will receive a reward of $1 for giving out the first five cards and returning the bottom portions to me within the next two weeks. Although this is only a token amount, it is my way of showing my appreciation for your participation. Your reward will be mailed directly to you as soon as we receive the five returned cards from you.

Paragraph 4: $10 Post-Behavior

Thanks for listening to the presentation and being open to making a difference by recognizing people who actively care. As an added incentive to use the cards and to help us reach our goal of 600 cards, you will receive a reward of $10 for giving out the first five cards and returning the bottom portions to me within the next two weeks. Although this is only a token amount, it is my way of showing my appreciation for your participation. Your reward will be mailed directly to you as soon as we receive the five returned cards from you.

Appendix C: Instruction Sheet

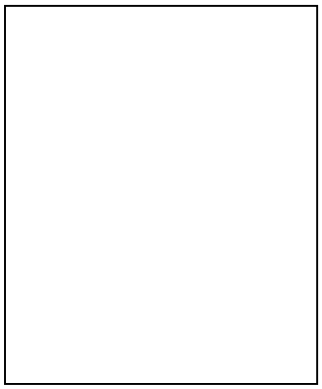
Instructions for Thank-you Card Research
Thanks for participating in our research. Please use as many of the attached cards as you can to thank people for actively caring behaviors over the **next two weeks**. Please return all completed card **"stubs"** by 1) campus mail 2) placing them in the drop box at 5100 Derring or 3) turning them in to Dr. Geller in Intro Class by _____.

Examples of Actively Caring Behaviors:

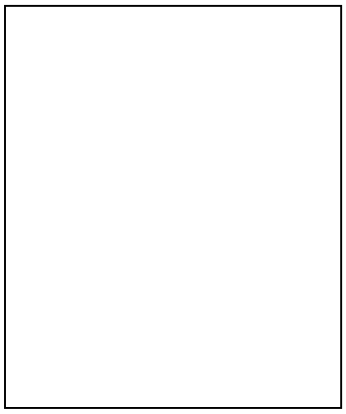
- Giving Blood
- Being a designated driver
- Delivering an outstanding lecture
- Recycling
- Taking the bus instead of driving
- Carpooling or giving a ride to someone who needs one
- Helping out someone who is sick (e.g., cooking a meal or running errands)
- Picking up litter
- Giving time or money to charity
- Teaching someone
- Listening to someone share about a problem or crisis
- Helping someone study
- Any action that helps someone in need

Example of a correctly completed Actively Caring Card:

Top portion: Complete, detach and give to person thanked.



Bottom portion: Complete and drop in campus mail or take to 5100 Derring.



Sample Script:
I am participating in research that thanks people who go beyond the call of duty to help others or protect the environment. Thanks for_____.

If you would like more cards, or have questions please call **231-8145**.

Thanks for making a difference! You will be receiving a link to an online questionnaire in two weeks. By completing it you will receive an additional point of extra credit.

Appendix D: Post-Experiment Online Survey

Follow-up Survey For Experiment 26

Please enter your name_____

Please enter your Virginia Tech email address_____

Please record your ethnicity:

_____ American Indian or Alaskan Native

_____Asian or Pacific Islander

_____Black, not of Hispanic Origin

_____Hispanic

_____White, not of Hispanic Origin

_____Other: _____

1. What was your overall impression of the Actively Caring Thank-You Card program? (Answer 1 2 3 4 5 6 or 7, where 1=very negative and 7= very positive)

1 Very negative

2 Negative

3 Moderately negative

4 Neutral

5 Moderately positive

6 Positive

7 Very positive

2. Please list three behaviors you might observe on the VT campus that are deserving of a Thank-You Card.

(1) _____

(2) _____

(3) _____

3. Has the Actively Caring Thank-you Card program made you more aware of the positive things people do for others and the environment? (Answer 1 2 3 4 5 6 or 7, where 1=not at all and 7=very much)

Not at all 1 2 3 4 5 6 7 Very Much

4. Did you receive, or were you offered any monetary reward for participating in the Thank-You card program?

___ Yes ___ No

5. How much (if any) money were you offered for participating in the Thank-You Card program?

List the amount: _____

6. How many cards (if any) were you required to complete for the money?

List # or cards (write 0 if you were not required to return any cards) _____

7. How many cards did you hand out and return?

List # of cards _____

8. How much did the money that you were offered influence your distribution of Actively Caring Thank-You Cards? (Answer 1 2 3 4 5 6 or 7, where 1=not at all and 7=very much)

Not at all 1 2 3 4 5 6 7 Very Much

9. Do you want any additional Thank-You Cards?

___ Yes ___ No

10. If "Yes" to Question 9, how many?

# of cards _____

11. Rate yourself on the following scale, describing how easy it is for you to approach others and interact with them. (Answer 1 2 3 4 5 6 or 7, where 1=Very shy and 7=Very outgoing)

Very Shy 1 2 3 4 5 6 7 Very Outgoing

Appendix E: Curriculum Vita

Curriculum Vita

Philip K. Lehman

PO Box 124
Newport, VA 24128
plehman@vt.edu (540) 544-3070

Education

Bachelor of Arts-Psychology — April 1989
Eastern Mennonite University
Harrisonburg, VA
GPA: 3.89

M. S. Clinical Psychology — September 2003
Virginia Polytechnic Institute
and State University
Blacksburg, VA
GPA: 3.9

Employment

Introductory Psychology Coordinator — August 2001-Present
Department of Psychology
Virginia Polytechnic Institute and State University
Blacksburg, VA

Collaborate with professors to administrate course of 1,100 students each semester. Duties include test construction and administration, grading, website maintenance and occasional lecturing duties.

Manage Introductory Psychology Recitation program. Supervise 12 graduate teaching assistants, providing feedback, training and problem solving regarding course issues.

Manage the online recruiting system for Virginia Tech's psychology research pool. Duties include coordinating posting of experiments, training students to use system and managing extra credit awarding.

Graduate Teaching Assistant — September 2001-May 2002
Department of Psychology
Virginia Polytechnic Institute and State University
Blacksburg, VA

Taught three sections of Introductory Psychology Recitation each semester. Work included preparing and conducting lectures, leading discussions and demonstrations, writing quizzes, assigning and grading essays.

Associate Director Of Admissions July 1995-August 2001
Eastern Mennonite University
Harrisonburg, VA

Began in May of 1989 as Admissions counselor. Promoted to Assistant Director of Admissions in 1992 and to Associate Director of Admissions in 1995. Primary responsibilities included managing a recruitment territory to enroll 80-90 prospective students each year. Conducted interviews with visiting students and parents and traveled extensively throughout east coast presenting at high schools and representing the University at college fairs.

Additional Roles and Responsibilities Included**:**

- **Advisor:** Assisted new students with course selection and scheduling at off campus registration sites.
- **Coordinator:** *The Edge* newsletter, circulation 20,000. Chose themes, selected content and articles and assisted in editing.
- **Instructor**: First Year Experience Class (1995-97, 99). Led small group discussions, graded papers, and supervised service projects.
- **Presenter:** College choice seminars to groups ranging in size from a few people to over 200; included presentations to diverse populations at inner city schools and presentations in Spanish at high schools in Puerto Rico.
- **Supervisor:** Supervised a team of 20 college student phone callers. Designed and implemented system for student workers to call prospective students using contact management software.
- **Committee Member:** Served on various committees including: Admissions, Enrollment Strategies, Quality Service, Financial Aid Task Force, and Participatory Decision-Making Task Force.

Additional Employment Experience

President, **Student Government Association** September 1988-April 1989
Eastern Mennonite University

Resident Assistant September 1987-April 1988
Eastern Mennonite University

Reporter: *Weathervane* (college newspaper) September 1986-April 1987
Eastern Mennonite University

Research Experience

Graduate Research Assistant: Center for Applied Behavior Systems, Virginia Polytechnic Institute and State University.

Leader of social influence research group (two graduate students and 15 undergraduates) studying the effect of social influence on behavior and assessing the validity of a survey designed to measure individual differences in propensity to be influenced by consistency, reciprocity, conformity, ingratiation, authority, scarcity and novelty. Responsibilities include running meetings, writing IRB proposals, designing and running experiments.

Co-leader of research/service project analyzing littering behavior on the New River. Project featured in The Roanoke Times, November 15, 2002.

Work with Dr. E. Scott Geller and research team of graduate students developing research ideas and grant proposals.

Master's Thesis: *The Timing and Magnitude of Monetary Reward: Testing Hypotheses from Expectancy vs. Reciprocity Theory.* Designed and conducted experiment, collected and analyzed data.

Completed: National Institutes of Health Human Participants Protection Education for Research Teams online course.

Data Collection: National Forrest Service Breeding Bird Survey: Assisted collecting data on the presence of bird species by song. (June 2000)

Undergraduate Thesis: Attitudes and Beliefs About AIDS Transmission (completed spring 1989.)

Data Collection: Speeding and safety belt use. For Dr. Galen Lehman, Eastern Mennonite University, Spring 1987.

Professional Papers and Publications

Lehman, P. K., & Geller, E. S. (2003). Behavior analysis and environmental protection: Accomplishments and potential for more. Manuscript submitted for publication.

Lehman, P. K. (2003). Introduction to social psychology. In Lehman, P. K., Dula, C. S. & Finney, J. W. (Eds.). *Introductory psychology recitation reader*. McGraw Hill: Boston.

Lehman, P. K., Dula, C. S., & Finney, J. W. (Eds.). (2003). *Introductory psychology recitation reader*. McGraw Hill: Boston.

Professional Papers and Presentations

Lehman, P. K., Fournier, A. K., Ehrhart, I. J., & Hirota, T. (2003, October). *Who trashed our river? A content analysis of shoreline litter on the new river.* Poster presented at the semi-annual meeting of the Virginia Psychological Association, Charlottesville, VA.

Lehman, P. K., Hirota, T., Kimble, H., Elstein, N. S., & Turner, P. J. (2003, October). *Conforming to the Tastes of Others: A Test of the Criterion Validity of the Social Influence Survey Conformity Scale.* Paper presented at the semi-annual meeting of the Virginia Psychological Association, Charlottesville, VA.

Lehman, P. K., Dula, C. S., Geller, E. S., & Grandin, D. (2002, May). *Social influence survey: Emerging patterns in student populations and the development of a novelty scale.* Paper presented at the 80th Annual Meeting of the Virginia Academy of Sciences, Hampton, Virginia.

Keene, W. R., Geller, E. S., Lehman, P. K., Fournier, A. K. (2003, October). *Fast food can be healthier and so can you: Intervening to educate and reduce the weight of fast food consumers.* Poster presented at the semi-annual meeting of the Virginia Psychological Association, Charlottesville, VA.

Grandin, D. A., Dula, C. S., Lehman, P. K. (2002, April). *Cultural Effects on Social Influence Survey Scores.* Paper presented at the semi-annual meeting of the Virginia Psychological Association, Virginia Beach, VA.

Clinical Experience

Clinical Internship (In Progress): Cook Counseling Center, Virginia Polytechnic Institute and State University, Blacksburg, VA. Caseload of 5-6 clients per week.

Group Therapy: Observed sessions for general process group for one semester at Cook Counseling Center, Virginia Tech. Co-led six-member general process group in spring semester 2003.

Clinical Practicum: Psychological Services Center, Virginia Polytechnic Institute and State University, Blacksburg, VA. Completed four semesters and one summer of supervised clinical practicum. Caseload for summer and Fall 2002 practicum ranged from 3-5 clients. One hundred and twenty hours of therapy experience and over 626 total practicum hours.

Assessment Experience: Completed 83 hours of assessment experience. Received training and have experience administering and interpreting the following measures:

Bender Visual Motor Gestalt Test	BVMGT
Beck Depression Inventory	BDI
Conners' Adult ADHD Rating Scale-Other	CAARS-O
Conners' Adult ADHD Rating Scale-Self	CAARS-S
Conner's Continuous Performance Test-II	CPT-II
Developmental Test of Visual Motor Integration	VMI
Minnesota Multiphasic Personality Inventory-2	MMPI-2
Millon Clinical Multiaxial Inventory-III	MCMI-III
Paced Auditory Serial Attention Test	PASAT
Retrospective Structured Clinical Interview	RSCI
Rorschach Inkblot Test	RIT
Symptom Checklist 90, Revised	SCL-90-R
Wechsler Adult Intelligence Scale, 3rd Edition	WAIS-III
Wechsler Intelligence Scale for Children, 3rd Edition	WISC-III
Wechsler Individual Achievement Test, 2nd Edition	WIAT-II
Wechsler Memory Scale, 3rd Edition	WMS-III
Wender Parents' Rating Scale	WPRS
Wender Utah Rating Scale	WURS

Group Therapy: Observed sessions for general process group for one semester at Cook Counseling Center, Virginia Tech. Co-led six-member general process group in spring semester 2003.