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**The Effects of Emergency and Potential Reciprocity on Helping Behavior**

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Analysis of Psychological Data

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## Abstract

This study examined the effects of cost (exam timing) and reward (reciprocity) on participants' willingness to help in an academic context. Using a two-way ANOVA, the research investigated how situational time pressure (exam scheduled tomorrow vs. in two days) and the promise of a return favor influenced helping behavior among 248 undergraduate students. Participants responded to hypothetical scenarios, and their willingness to help was measured using a composite variable ($\alpha = .792$). Results showed significant main effects of cost ($F(1, 244) = 22.78, p < .001, \eta^2 = .085$) and reward ($F(1, 244) = 52.87, p < .001, \eta^2 = .178$). Participants were less willing to help under high-cost conditions and more willing when reciprocity was promised. The interaction between cost and reward was not significant ($F(1, 244) = 1.54, p = .216, \eta^2 = .006$), indicating independent influences. These findings support the cost-benefit model of helping, emphasizing situational and social factors. Limitations include reliance on hypothetical scenarios and self-reports. Future research should investigate real-world applications and expand the cost-reward framework.

**Keywords**: helping behavior, cost-benefit model, time pressure, reciprocity, academic settings

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Social psychologists have long been interested in bystander intervention or lack thereof. Some classic studies - Darley and Latané, in one of their most famous works in 1968, demonstrated that diffusion of responsibility which is a consequence of having several people who have witnessed an emergency results in decreasing any one of those people from acting. This foundational research set the stage for understanding the complexities of helping behavior, particularly how situational and contextual factors can inhibit or encourage individuals to assist those in need.

Building on the framework established by Darley and Latané, Piliavin, Rodin, and Piliavin (1969) introduced a cost-benefit bystander intervention model. According to the model, people decide whether or not to help based on their cost-benefit analysis of helping. When bystanders perceive the costs of assisting (such as personal risk or time commitment) to outweigh the potential benefits (such as alleviating guilt or social approval), they are less likely to intervene. Conversely, when the costs of not helping (such as feelings of guilt or social disapproval) are higher than those of helping, individuals are more likely to offer assistance. The Piliavins extended this research by discussing specific variables that may change the cost of perceived helping, such as the sight of blood, which increased bystanders' perceived risk and discomfort.

While the bystander effect and the cost-benefit model have primarily focused on emergencies with immediate physical or emotional consequences, similar psychological mechanisms may apply to non-emergency academic settings where peer assistance is sought. This study seeks to extend the understanding of helping behavior to a context where individuals are asked to assist peers with academic work, specifically under varying levels of time pressure related to their obligations.

Based on the cost-benefit model, this study examines how the urgency of personal academic commitments impacts a student's willingness to assist a peer in need. In this case, "costs" refer to time and effort invested, primarily when subjects feel driven by tasks that they perceive to be of greater priority. Four conditions include the experiment: A) For an exam the next morning, with promises of returning favors; B) An exam the next morning, no promises of returning favors; C) Exam in two days, promises of returning favors and D) exam in two days with no promises of returning favors.

       This study hypothesizes that people are less likely to help when an exam is scheduled for the following day rather than later in the week. In addition, the lack of promised return favors will reduce the willingness of people to help, particularly on high-pressure days. The study aims to explore whether reciprocity and situational time pressure interact to influence prosocial behavior in non-emergency settings.

## Method

### Participants

       The participants in this study were drawn from a sample size of 248 individuals as outlined in the demographic Table 1. The age of participants ranged from 18 to 24 years, with a median age of 20. Most participants were mainly either 19 years old (35.5%) or 20 years old (37.5%), representing a significant portion of the study population. Participants were classified based on their academic standing, with the largest cohort mainly being sophomores (48%) followed by juniors (35.9%). The gender distribution consisted of 88 males (35.5%), 159 females (64.1%), and 1 participant identifying as other (0.4%). The racial and ethnic distribution included 14 African American/Black (5.6%), 33 Asian (13.3%), 13 Latino/Hispanic (5.2%), 170 White/Caucasian (68.5%), 14 Biracial/Mixed (5.6%), and 2 individuals classified as other (0.8%). The demographic breakdown indicates a diverse pool of participants in terms of academic year, gender, and racial/ethnic background.

### Materials

       The study utilized a set of physical and self-reported data collection tools to evaluate participants' responses to hypothetical scenarios involving academic assistance and time constraints. It was conducted through a data collection of a questionnaire that used a between-subjects 2x2 factorial design with two levels of exam timing (scheduled for the next day and scheduled for two days later) and two levels of reciprocal favor (willing or not willing to return a favor). Participants were asked to imagine a realistic situation where they were preparing for an important examination scheduled at different times. The scenarios varied based on the willingness of an acquaintance to reciprocate help and the time remaining until the participant's examination.

- **Scenario 1**: (A) Examination scheduled for tomorrow morning, and the acquaintance is willing to return a favor.

- **Scenario 2**: (B) Examination scheduled for tomorrow morning, and the acquaintance is not willing to return a favor.
- **Scenario 3**: (C) Examination scheduled for Thursday morning, and the acquaintance is willing to return a favor.
- **Scenario 4**: (D) Examination scheduled for Thursday morning, and the acquaintance is not willing to return a favor.

The questionnaire contained Likert scale items that measured the willingness to help in three specific areas: re-teaching material, going over practice problems, and quizzing using flashcards. Participants will also provide demographic information, including age, gender, class year, and racial/ethnic background.

**Procedure**

Participants were randomly assigned to one of four groups, with each group representing a different scenario, ensuring an even distribution across the groups. This random assignment helped minimize bias and control for extraneous variables that might influence participants' decisions.

Each participant was presented with a scenario describing a stressful situation in which they were studying for an important exam scheduled either for the next day or two days later. In the scenario, an acquaintance requested help with mathematics homework that was due the following morning. The critical independent variables manipulated were the proximity of the exam (immediate vs. two days away) and whether the acquaintance offered to return a favor. The dependent variables measured were the levels of help participants were willing to provide (categorized into re-teaching material, assisting with practice problems, and quizzing) and the degree of annoyance they felt towards the request. Participants read their assigned scenarios individually and responded to the questionnaire items.

**Measures**

Respondents rated their willingness on a scale from 1 to 7, where 1 = No help at all and 7 = Extensive help, and reported how annoyed they felt by the request of the peer on a scale from 1 to 7, where 1 = Not annoyed at all and 7 = Extensively annoyed.

- **Re-Teaching Material**: Participants indicated their level of willingness to help by re-teaching mathematical concepts.

- **Going Over Practice Problems**: Participants assessed their willingness to assist by helping the acquaintance work through practice problems.
- **Quizzing Using Flashcards**: Participants rated how willing they would be to quiz the acquaintance using flashcards.
- **Annoyance Level**: Participants indicated their annoyance on a scale ranging from "Not at all annoyed" to "Extensively annoyed."

The study primarily used Likert scale ratings for each form of assistance and the annoyance levels. Mean ratings, standard deviations, and distributions were calculated for each group to assess patterns in willingness and annoyance under different conditions.

**Data Analysis**

The data were analyzed using a two-way ANOVA to assess the impact of Cost (exam timing: low vs. high) and Reward (reciprocity: low vs. high) on participants' willingness to help. The two independent variables each had two levels: for Cost (Exam Timing), the levels were low (exam in two days) and high (exam tomorrow), while for Reward (Reciprocity), the levels were low (no favor offered in return) and high (favor offered in return). The dependent variable was overall willingness to help. It was computed as a composite score by averaging participants' ratings across four measures: willingness to re-teach, assist with practice problems, annoyed received and quiz their acquaintance. These items demonstrated acceptable internal consistency, with a Cronbach's alpha of $\alpha = .792$.

Statistical decisions included testing for the main effects of Cost and Reward, as well as their interaction (Cost × Reward). Descriptive statistics, including means and standard deviations, were computed for all conditions. The interaction effect was visualized using a profile plot generated in SPSS. Homogeneity of variance was confirmed using Levene's test ($p >$ .05), and the significance threshold was set at $\alpha = .05$. To evaluate the effect sizes, eta-squared ($\eta^2$) values were calculated.

## Results

The composite variable, overall willingness to help, demonstrated moderate reliability with a Cronbach's alpha of $\alpha = .792$, confirming acceptable internal consistency. A two-way ANOVA was conducted to analyze the effects of Cost (exam timing) and Reward (reciprocity) on participants' willingness to help.

The results revealed a significant main effect of Cost, $F(1, 244) = 22.78$, $p < .001$, $\eta^2 = .085$. Participants reported significantly lower willingness to help in the high-cost condition, where the exam is tomorrow ($M = 3.37$, $SD = 1.13$), compared to the low-cost condition, where the exam is in two days ($M = 4.06$, $SD = 1.33$). Similarly, the main effect of Reward was significant, $F(1, 244) = 52.87$, $p < .001$, $\eta^2 = .178$, indicating that participants were more willing to help in the high-reward condition, where a favor was offered ($M = 4.23$, $SD = 1.17$), than in the low-reward condition, where no favor was offered ($M = 3.19$, $SD = 1.17$).

However, the interaction between Cost and Reward was not significant, $F(1, 244) = 1.54$, $p = .216$, $\eta^2 = .006$, suggesting that the effects of Cost and Reward on willingness to help were independent of each other. These findings underscore the distinct contributions of both factors in influencing participants' willingness to help as visualized in Figure 1. The lack of a significant interaction is reflected in the relatively parallel patterns of the bars across conditions, underscoring that Cost and Reward had additive rather than interactive effects on helping behavior.

## Discussion

This study examined how cost (exam timing) and reward (reciprocity) influence willingness to help in an academic context, finding significant main effects for both variables. Participants were less willing to help under high-cost conditions (exam tomorrow) and more willing when reciprocity was promised (high reward). However, the interaction between cost and reward was not significant, indicating that these factors independently influence helping behavior. These findings align with the cost-benefit model proposed by Piliavin, Rodin, and Piliavin (1969), which posits that individuals weigh costs and benefits when deciding to assist.

The results reflect prior theories on situational and social factors in prosocial behavior. Cost, operationalized as exam timing, supports discussions on how time pressure reduces helping, consistent with Darley and Latané's (1968) findings. Similarly, the promise of reciprocity highlights the role of social norms, where the expectation of a return favor increases willingness to assist. The lack of interaction suggests that in non-emergency contexts, cost and reward operate independently, contrasting with emergency-focused studies where such factors often interact.

**Limitations**

This study, while contributing valuable insights, is subject to several limitations that warrant consideration. First, its reliance on hypothetical scenarios to simulate academic dilemmas, while ensuring consistency across participants, lacks ecological validity. Real-life situations, where emotional engagement and stress levels are heightened, may elicit different responses. In addition, the homogeneity of the sample, predominantly undergraduate students aged 18–24, limits the generalizability of the results to broader populations, such as older adults or individuals in professional environments. Moreover, the study's operationalization of cost as exam timing and reward as reciprocity, while relevant to academic contexts, may not capture the full range of costs and rewards influencing helping behavior. For instance, emotional costs like stress or intrinsic rewards like personal satisfaction could play significant roles. Broadening these variables could enhance the model's relevance across diverse settings. The non-significant interaction between cost and reward also raises questions about the strength of the manipulations. Finally, the reliance on self-reported data may introduce the potential for social desirability bias, particularly in conditions emphasizing reciprocity.

## Conclusion

The study provides valuable insights into how situational and social factors influence prosocial behavior in non-emergency contexts. The significant effects of both cost and reward highlight the applicability of the cost-benefit model beyond emergency settings. Specifically, individuals' willingness to help is heavily influenced by their own obligations and the perceived benefits of helping others. These findings emphasize the importance of considering both personal and social factors when designing interventions to promote helping behavior.

From a practical perspective, the study underscores the need to reduce perceived costs and enhance perceived rewards to encourage prosocial behavior. In academic settings, institutions might consider promoting reciprocity - whether through formal incentives or fostering informal norms of mutual assistance - could enhance collaboration and support among students.

The study also invites further exploration into how situational pressures, social norms, and individual differences interact to shape helping behavior. By expanding this line of research,

we can better understand the psychological mechanisms underlying prosocial behavior and develop strategies to foster supportive, cooperative environments in both academic and broader social contexts.
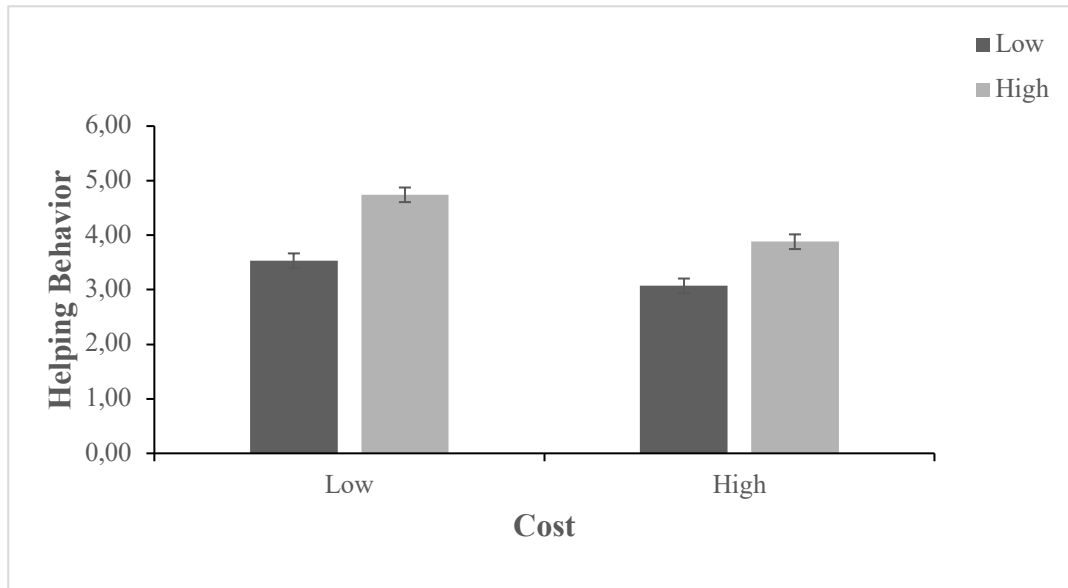
**Table 1:**

*Demographic Characteristic of Study Population*

| Characteristic | N | % |
|---|---|---|
| Age | | |
| 18.00 | 20 | 8.1 |
| 19.00 | 88 | 35.5 |
| 20.00 | 93 | 37.5 |
| 21.00 | 42 | 16.9 |
| 22.00 | 4 | 1.6 |
| 24.00 | 1 | .4 |
| Total | 248 | 100.0 |
| Class year | | |
| First Year | 20 | 8.1 |
| Sophomore | 119 | 48.0 |
| Junior | 89 | 35.9 |
| Senior | 20 | 8.1 |
| Total | 248 | 100.0 |
| Gender | | |
| Male | 88 | 35.5 |
| Female | 159 | 64.1 |
| Other | 1 | .4 |
| Total | 248 | 100.0 |
| Racial Ethnic Group | | |
| African American/Black | 14 | 5.6 |
| Asian American/Asian/Pacific Islander | 33 | 13.3 |
| Latino/Hispanic | 13 | 5.2 |
| White/Caucasian | 170 | 68.5 |
| Biracial/Mixed | 14 | 5.6 |
| Other | 2 | .8 |
| Total | 246 | 99.2 |
| Missing System | 2 | .8 |
| Total | 248 | 100.0 |

*Note:* N=248

**Figure 1:**

*Interaction between Cost (Exam Timing) and the Reward (Reciprocity).*

# References

Piliavin, J. A., & Piliavin, I. M. (1972). Effect of blood on reactions to a victim. *Journal of Personality and Social Psychology, 23*(3), 353–361.