

# Credit Cards as Spending Facilitating Stimuli: A Conditioning Interpretation

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Four experiments and one study were conducted to test the hypothesis that stimuli associated with spending can elicit spending responses. In all experiments, credit card stimuli were either present or absent in situations in which subjects were given an opportunity to spend. Credit card stimuli directed spending such that the probability, speed, or magnitude of spending was enhanced in the presence of credit card cues. A conditioning explanation was used to interpret the results.

The "buy now, pay later" philosophy has affected the American way of life. At their inception, credit cards simply facilitated commerce; today they are a vital component of business, banking, and personal money management (e.g., Clark 1975; Savage 1970). The importance of responsible and irresponsible use of credit cards necessitates a thorough understanding of how individuals come to use or abuse them. However, consumer behavior research has traditionally centered on understanding the antecedents of purchase; the effects of the mode of transaction (e.g., cash, check, or credit card) have not been extensively explored. Because alternative systems of payment differ in important economic and social characteristics, the type of payment may exert a significant influence on individual consumer behavior (Hirschman 1979).

## INTRODUCTION

### Summary of Credit Card Research

Research on credit cards has mainly centered on the development of user profiles and exploration of broad economic issues. Economic work has been directed toward predicting consumer demand and use via a number of economic parameters such as finance charge and consumption (Batra 1975; Garcia 1980; Haberler 1942; McAlister and DeSpain 1975; Russell 1975). Further work has attempted to assess the effects of credit card use on the money supply (Mandell 1972), banking (Mandell and Murphy 1976; Russell 1975), and retailing

(e.g., Borgen 1976; Hirschman and Goldstucker 1978; Hirschman, Greenberg, and Robertson 1978).

Behavioral work has been primarily descriptive. Who is the credit card user—e.g., age, education, or socioeconomic status (Plummer 1971; Slocum and Mathews 1970)? How is the user different from the nonuser (Maledon and Rucks 1974; Martell and Fitts 1981)? How do users of different types of credit cards (retail vs. bank) differ (Goldstucker and Hirschman 1977; Hirschman 1979; Hirschman and Goldstucker 1978; Hirschman et al. 1978)? How do attitudes relate to credit card use (Awh and Waters 1974; Mandell 1972)? How can we identify good/bad credit risks (Fletcher and Wood 1974; Grablowsky 1975)? How does credit use vary by product type (Mathews and Slocum 1968)? How does credit card use reflect changes in public policy—e.g., awareness of consumer credit legislation such as the Truth in Lending Law (Cunningham and Cunningham 1976; Day and Brandt 1974; Penner 1977; Shay and Schober 1973)?

### Credit Cards and Facilitated Spending

The apparent enhancement of spending with credit cards is the characteristic of primary concern in this research. Retailers (Borgen 1976; Huck 1976), credit researchers (Hirschman 1979), and popular writers (Galanoy 1980; Merchants of Debt 1977) generally agree that credit cards facilitate spending. Indeed there is a range of correlational and survey data supporting this view. Yet there is no special aspect of the credit card that is implicated as the causal factor in facilitating spending (Federal Reserve System 1968; Zipprodt 1969).

Behavioral studies that show the facilitative effects of credit cards are descriptive or correlational. Consumers report that they spend more with credit cards (Burman 1974; Mathews and Slocum 1968). Credit card possession and use is positively correlated with the anticipation and actualization of further use (Hirschman

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1979; Wise, Brown, and Cox 1977). Explanations of this relationship are generally economic and rational. Credit cards are seen as a convenient and relatively painless way of spending (Hirschman 1979), and debt has become more socially acceptable (Eastwood 1975). Moreover, the use of credit cards lowers the perceived cost and begets further use (White 1980). Finally, it may be that consumers need the credit to make particular purchases, or consumers who are price sensitive may recognize the potential dollar savings involved in credit card use (Ingenie and Levy 1982). However, the correlational and self-report nature of these studies and explanations precludes determination of whether it is the credit card that causes spending or whether, for example, high spenders gravitate toward credit card usage. The cause and effect relationship between credit cards and spending has yet to be adequately explored.

### Credit Cards as Spending Facilitating Stimuli

The present research is predicated on the assumption that some purchase situations are controlled by the stimulus properties of that situation rather than solely by the instrumental ends that might be served by the purchase (e.g., receipt of goods or services). Specifically, through experience and use, credit cards may acquire the ability to elicit spending behavior.

In light of the prediction that some purchases may be under the stimulus control of the spending situation, the research by Berkowitz and his colleagues (Berkowitz 1971, 1974; Berkowitz and LePage 1967) on the stimulus control of aggression is particularly interesting. They have demonstrated that the presence of aggression related stimuli can enhance aggressive responding. In Berkowitz and LePage (1967), subjects with minimal experience with weapons were put into a situation in which aggression was called for while the presence or absence of weapons was varied. The major finding was that the presence of weapons triggered aggressive responses (the "weapons effect"). Both the conceptual and methodological form of Berkowitz and LePage 1967 can be viewed as the model for the present studies. Just as cues related to aggression triggered aggression, in this study cues related to spending (credit card stimuli) are seen as being able to trigger greater spending.

In these studies it is hypothesized that credit card stimuli, as unique and distinctive cues in the spending sequence (e.g., credit cards are used for little else but spending), direct spending responses. Thus in spending situations, the instrumental act of spending may be enhanced or facilitated by credit card cues that elicit supplementary spending reactions. As a result, it is hypothesized that the magnitude of the spending response will be affected by the presence or absence of credit card cues. Individuals will be more likely to spend, spend more, or spend more quickly in the presence of credit

card cues. Thus while people may spend with credit cards because of the ease of transaction, credit card stimuli may acquire the ability to elicit spending behavior.

The present studies were designed to test the latter hypothesis. At one level this research attempts to demonstrate that situational stimuli can influence consumer behavior. At a second level the research attempts to understand the antecedents and consequences of credit card use as a mode of payment.

## STUDY 1

In Study 1, tips left by cash and credit card customers were observed in a restaurant. It was predicted that for equivalent check amounts, credit card tips would be greater than cash tips. Credit card stimuli, present while a credit card customer is paying the check, will increase the size of the tip.

### Procedure

With the cooperation of a local restaurant, 135 customers were observed at random intervals over a period of one week. Party size, check amount, mode of payment, and amount of tip were recorded by the waiters and waitresses. A random sample of credit card receipts indicated 100 percent accuracy in recording the check size and tip.

### Results and Discussion

The tip was the dependent measure of interest. A 2 (payment by cash or charge card)  $\times$  4 (amount of check divided into quartiles) analysis of variance indicated that when credit card stimuli were present subjects left a significantly higher tip,  $F(1,127) = 4.48, p = 0.03$ . Quartiles were used as a convenience. The following tabulation displays the median check size in parentheses below each quartile. Analyses based on median and triadic splits yielded equivalent results. The tabulation indicates that at each level of check size individuals paying with credit cards left a larger tip. (The tip as an average percentage of the check is in parentheses under the dollar amount.) Overall, the tip averaged 16.95 percent of the check when left with a credit card and only 14.95 percent when left in cash.

	Check size (in quartiles)			
	1 (\$17.00)	2 (\$23.00)	3 (\$31.00)	4 (\$47.00)
Credit card	\$3.03 (17.8%)	\$3.92 (17.1%)	\$4.91 (15.8%)	\$8.04 (17.1%)
Cash	\$2.36 (13.9%)	\$3.60 (15.6%)	\$4.64 (14.9%)	\$7.23 (15.4%)

Thus credit card stimuli enhanced the magnitude of spending in an applied setting. Unfortunately the correlational nature of this design makes it impossible to determine whether the credit cards facilitate the tipping or greater tipping results from other social processes. One can reasonably postulate that some of the credit card users were on expense accounts, thus making generosity more likely. Experiments 1 through 4 attempt to better define the cause and effect nature of the relationship between credit cards and spending.

## EXPERIMENT 1

The first experiment was designed simply to test the hypothesis that the presence of credit card stimuli will facilitate spending—increase the amount an individual spends. Experiment 1 also assessed whether the credit card effect was in any way bounded by the sex of subjects, the type of product used as the dependent measure, or their interaction.

### Method

**Subjects.** The subjects were 60 undergraduates (30 male and 30 female) who participated for extra course credit. Subjects were run in individual testing sessions. Male and female subjects were randomly assigned (controlling for gender) to one of two experimental conditions—credit card stimuli present or absent.

**Procedure.** The experiment was presented as a study concerning attitudes towards consumer products. Subjects were told that they would be looking at pictures of various products and would be asked for information on those products. Subjects were led to a bare experimental room in which there was a looseleaf book on a table. This book was labeled "Consumer Products" and contained pictures of seven consumer items selected from various mail order catalogues. The pictures of these products were pasted in the center of plain white paper in clear plastic. The products were clearly labeled on the top of each page with an identifying number (e.g., Product 1, Product 2, etc.). The order of the products in the book was determined randomly and presented to subjects in one of four random orders to control for any unintended order effects. The products consisted of two dresses, a man's sweater, a tent, a lamp, a chess set, and an electric typewriter.

For half of the subjects, credit card stimuli were present on the upper left hand corner of the table near the book. These subjects were informed that the credit card paraphernalia belonged to another experiment. Since this experiment, research in my lab has shown that the presence or absence of this admonishment has no effect on results. A pilot survey showed MasterCard to be the most popular and widely recognized charge card for the subject population. The stimuli were MasterCard insignias used on retail store doors and regular and large size replicas of actual MasterCards. In the credit card

absent condition the looseleaf book was on an empty table. Subjects were instructed to open the "Consumer Products" book, proceed at their own pace, and answer the corresponding questions about the products on the answer sheet.

Subjects were asked two questions. First, in a space provided, they were asked to indicate the amount of money they would be willing to spend for that item; this was the dependent variable. Second, to mask the nature of the research, they were asked to write out the most distinctive aspect(s) of the product one-fourth of the way down the page under the first question.

### Results

A 2 (male–female)  $\times$  2 (credit card present vs. absent)  $\times$  7 (the seven different products) ANOVA on the amount spent was completed. There was a statistically significant main effect for credit card present vs. absent,  $F(1,58) = 17.97$ ,  $p < 0.01$ . When credit card stimuli were present, subjects consistently said they would spend more per product. This was true for each of the seven consumer products as shown in the next tabulation.

Products	Credit card present	Credit card absent
Dress	\$ 41.50	\$ 27.77
Dress	\$ 33.91	\$ 21.09
Tent	\$ 77.73	\$ 69.95
Man's sweater	\$ 20.64	\$ 13.91
Lamp	\$ 40.41	\$ 28.36
Electric typewriter	\$165.36	\$131.45
Chess set	\$ 43.14	\$ 35.29

Tukey's individual comparisons showed all product comparisons to be significant ( $p$ 's  $< 0.05$ ). There was also a significant main effect for item,  $F(6,294) = 96.75$ ,  $p < 0.001$ , indicating that the items differed in estimated price; e.g., average cost for the dress was \$34.63, the tent was \$70.34, and the typewriter was \$148.41. There was no significant main effect for sex, and there were no significant interactions ( $F$ 's  $< 1$ ).

### Discussion

In a simulated buying task, individuals confronted with credit card stimuli estimated they would spend more than did individuals who were not in the presence of such stimuli. This effect appears to be independent of the sex of the subject and the type of item under consideration.

The similarity in the conception, methodology, and results of Berkowitz's studies and the present studies suggests that some of the issues that surround the validity of Berkowitz's work need to be addressed here. First, it should be pointed out that the results, methodology, and interpretations of the aggression eliciting properties of aggression related stimuli studies are still controversial 15 years after the original work. Although

the "weapons effect" has been replicated and extended (e.g., Fraczek and Macauley 1971; Schuck and Pisor 1974; Turner and Simons 1974), several studies have failed to replicate Berkowitz's findings (e.g. Buss, Booker, and Buss 1972; Page and Scheidt 1971). As Berkowitz (1974) argues, guns "clearly do not always stimulate increased aggression" (p. 167). In the same sense, credit cards will not always stimulate spending. The goal of future research should be the discovery of the boundary conditions for this phenomenon.

Second, the major criticism regarding the Berkowitz work, and therefore this study, focuses on demand characteristics (e.g., Berkowitz 1974). That is, the facilitation effect may be due to demand characteristics inherent in the experimental situation. Subjects may come into the laboratory, see the credit card stimuli on the table, and conclude that "this experimenter wants me to spend." However, there is very little evidence from discussion and empirical examination of the conceptually similar studies (e.g., the "weapons effect" of Berkowitz and LePage 1967) that subjects are motivated to confirm the experimenters' hypothesis, even if known. In a series of studies designed to assess the demand characteristics explanation of the "weapons effect," Berkowitz (1971) found no evidence that subjects were aware of the hypotheses or that demand characteristics were responsible for his findings. Further, in the present experiment extensive debriefing did not uncover any suspicion regarding the credit card stimuli. Subjects were asked:

1. *What do you think the experiment was about?* Nineteen subjects (eight in the credit card condition) either wrote "did not know" or left it blank. Everyone else reported the experiment to be about attitudes and/or estimated price of products. No individual mentioned credit or credit cards.
2. *What do you think my hypothesis was (i.e., What did you think I was trying to study)?* There was no mention of credit or credit cards in either group. Most responses centered on estimating prices and attitudes toward products.
3. *During the experiment, and before this questionnaire was given, what suspicions did you have, if any?* Only five individuals in the no credit card condition and three individuals in the credit card condition reported any suspicion (none of which mentioned credit cards).
4. *Did you ever suspect that the credit cards on the desk had something to do with the experiment?* (Given only to the credit card condition.) Twenty-nine of the 30 individuals answered "no" (one person left it blank).
5. *If yes, how suspicious were you?* Only two individuals marked the 10-point Likert type scale from 1 (quite suspicious) to 10 (not suspicious).

Although there is little evidence from these questions that the results may be due to demand characteristics, it should be pointed out that the adequacy of the questions themselves can be questioned as being subject to

demand characteristics of their own: "I'm not supposed to say that I'm suspicious about credit cards."

Third, the empirical model presented here assumes that the stimulus properties of credit card cues develop the ability to elicit spending responses in spending situations in part by their association with spending and their distinctiveness in spending situations. The use of college students as subjects may be seen as a problem because of their relative lack of familiarity with credit cards. It is assumed here that by the time we are in college we have developed a positive association between credit cards and spending from viewing the very positive credit card television commercials or actually seeing others spend with credit cards. Indeed, a preliminary study showed "spending" to be the most common associate to credit card stimuli in a population of similar "naive" credit card users. In that study 125 undergraduates were surveyed to determine the most frequent associate of credit cards. One hundred and nine (87 percent) indicated spending (to spend, to buy, etc.) to be the most common associate. This is consistent with a similar study conducted by Richards (1975) and supports the assumption that credit cards are distinctively associated with the instrumental act of spending. Moreover, the use of college students as subjects may have minimized the strong associative histories that would obscure or confound the effects of credit card stimuli. Thus the use of relatively naive subjects leaves the effect of credit card cues relatively unambiguous. It should be noted that one could possibly use the individual's positive or negative credit histories to predict the associative value and consequence (facilitative or inhibitive) of credit card cues.

Putting aside, for the moment, questions of demand characteristics (it is difficult to prove a negative result), the findings suggest that the presence of credit card cues facilitates spending. Since this empirical generalization is only a statement of probability, further research will strengthen (or weaken) the likelihood of this relationship. Experiments 2 to 5 were designed to replicate and extend the "credit card effect."

## EXPERIMENT 2

If credit card cues produce supplementary spending reactions, individuals may not only spend more (Experiment 1), but be more likely to spend (increased motivation to spend) as well as spend more quickly (reduced decision time).

Research has shown decision time to be a reliable and valid indicator of strength of preference (Aaker, Bagozzi, Carman, and MacLachlan 1980), with shorter reaction time representing greater product preference. Experiment 2 was designed to serve as a replication of the basic phenomenon demonstrated in Experiment 1, and to further test predictions concerning increased motivation and decreased decision time for spending. As in the previous study, subjects were asked to estimate

the price they would be willing to pay for specific items and to indicate their willingness to charge specific items.

## Method

**Subjects.** The subjects were 24 female undergraduates randomly assigned to one of two experimental conditions—credit card stimuli present or absent. Subjects volunteered to receive extra course credit. Female subjects were used because male subjects were not available. Since other pilot work and Experiment 1 consistently showed that sex is neither a statistically significant main or interacting variable, the use of female subjects was not considered to be a limitation.

**Procedure.** Subjects, run individually, were led to a desk in an experimental room in which a rear projected slide screen was mounted on a table in front of them. In addition, a button labeled "Response" was attached to the desk in front of them. As in Experiment 1, subjects were told that they would be evaluating a number of consumer products that would be presented on the screen. They were told that they could look at a slide for as long as they wanted. They were instructed to press the response button as soon as they had decided "how much you will be willing to spend" and then write their response on an answer sheet that was given to them. Subjects were then presented with 12 slides of various consumer items (see Table 1 for a list of those items). A timing clock started automatically upon presentation of each slide and stopped automatically when subjects indicated that they had "decided" by pressing the response button (decision time). This procedure was followed for all 12 slides. To control for possible order effects, the order of the slides was determined randomly from one of four random orders of presentation.

Credit card stimuli consisted of the same insignias and replicas of charge cards used in Experiment 1. As in Experiment 1, the stimuli were in the upper left corner of the table. Unlike Experiment 1, no attempt was made to focus subjects' attention on the credit cards. After the slide presentation, subjects were given a questionnaire to assess their motivation to spend with credit cards. Subjects were asked to indicate on a five-point scale the acceptability (highly acceptable to highly unacceptable) of using credit cards to make a variety of types of purchases: 31 types of products (e.g., sporting goods, auto repair, insurance), in stores in two locations (out-of-town stores, local stores), in nine types of stores (e.g., shop at home, bar, drugstore), at 11 price levels (e.g., \$1–\$24, over \$1,000). The construction of this questionnaire was predicated on the assumption that motivation to purchase with credit cards can be measured by assessing how acceptable an individual feels credit cards are as a mode of transaction across a variety of situations. It was assumed that the greater the acceptability, the greater the motivation.

Three dependent variables were collected and analyzed: estimated amount spent per item, decision time,

TABLE 1  
MEAN PRICE FOR PRODUCTS IN THE PRESENCE OR  
ABSENCE OF CREDIT CARD STIMULI

Product	Credit cards absent	Credit cards present	F(1,22)
Toaster	\$ 21.50	\$ 67.33	3.58 <sup>b</sup>
Black & white T.V.	\$ 67.00	\$136.92	7.80 <sup>a</sup>
Lamp	\$ 34.42	\$ 47.17	2.09
Digital clock	\$ 18.08	\$ 31.25	9.02 <sup>a</sup>
Pocket camera	\$ 29.58	\$ 52.67	3.13 <sup>b</sup>
Home stereo system	\$157.42	\$191.17	16.58 <sup>a</sup>
Dress	\$ 25.42	\$ 49.42	3.10 <sup>b</sup>
Mixer	\$ 17.75	\$ 36.25	5.63 <sup>a</sup>
Tent	\$ 7.58	\$ 28.42	10.89 <sup>a</sup>
Saw	\$ 33.42	\$ 67.33	5.46 <sup>a</sup>
Chess set	\$ 8.67	\$ 25.75	2.14
Cassette tape recorder	\$ 26.50	\$ 42.75	6.81 <sup>a</sup>

<sup>a</sup> $p < 0.05$ .

<sup>b</sup> $p < 0.10$ .

and motivation to purchase with credit cards. It was predicted that the presence of credit card stimuli would facilitate a greater amount spent per item, a faster decision time, and a greater motivation to purchase with credit cards.

## Results

**Amount Spent Per Item.** Table 1 presents the amount subjects were willing to spend for the 12 consumer items. The presence of credit card stimuli clearly facilitated spending. A multivariate analysis of variance showed the main effect for credit cards to be significant, Wilk's criterion,  $F(12,11) = 5.75$ ,  $p < 0.05$ . Follow-up univariate tests showed estimated spending was greater when credit card stimuli were present (10 of 12 reaching at least marginal statistical significance).

**Decision Time.** Decision time has been found to be a measure of product preference. It was expected that the presence of credit card stimuli would reduce relative decision time. Table 2 shows that except for the last two slides, the presence of credit card stimuli clearly decreased decision time. A MANOVA yielded a significant main effect for credit card, Wilk's criterion,  $F(12,11) = 6.65$ . Univariate tests showed that decision time was at least marginally statistically significantly reduced in the presence of credit card stimuli for 10 of 12 products (see Table 2).

**Motivation to Spend.** The presence of credit card stimuli did not affect the self-reported acceptability of credit cards in a variety of purchase situations. All subjects were equally motivated to use credit cards for various products, in different locations, in a variety of stores, and at a variety of prices. Thus, either this measure of acceptability is insensitive or inappropriate as

TABLE 2

MEAN DECISION TIME FOR PRODUCTS IN THE PRESENCE OR ABSENCE OF CREDIT CARD STIMULI

Product	Credit cards absent	Credit cards present	F(1,22)
	(seconds)	(seconds)	
Toaster	21.41	11.46	5.37*
Black & white T.V.	23.94	13.11	5.02*
Lamp	20.51	9.33	12.29*
Digital clock	20.77	11.90	4.78*
Pocket camera	18.99	9.49	6.39*
Home stereo system	23.96	11.35	11.88*
Dress	21.01	11.77	3.96 <sup>b</sup>
Mixer	15.46	7.95	3.93 <sup>b</sup>
Tent	14.90	8.60	4.05 <sup>b</sup>
Saw	20.61	8.35	9.77*
Chess set	14.21	12.53	.29
Cassette tape recorder	15.04	14.62	.009

\*  $p < 0.05$ .<sup>b</sup>  $p < 0.10$ .

a dependent measure of motivation or credit card stimuli did not affect motivation to spend.

## Discussion

The results of Experiments 1 and 2 show that the presence of credit card stimuli enhances the magnitude of estimated spending and reduces decision time. Experiment 3 was designed to replicate the "credit card effect" in a more realistic spending environment.

## EXPERIMENT 3

The purpose of Experiment 3 was to determine if credit card stimuli would facilitate spending in a controlled spending situation different from that already employed. If the presence of credit card cues will facilitate general spending responses similar to consumer spending, it should also facilitate a response such as donating money to charity almost as a form of response generalization.

To test this prediction, subjects were placed in an experimental setting that contained or did not contain credit card stimuli. During the course of performing a masking task unrelated to the issue of consumer spending or credit cards, subjects were asked to estimate the amount they would contribute to a charity (e.g., United Way). It was predicted that the presence of credit card stimuli would lead to relatively higher estimates of contribution.

## Method

*Subjects.* Forty subjects (20 male and 20 female), who volunteered for extra course credit, were randomly assigned to perform the experiment in the presence or absence of credit card stimuli.

*Procedure.* The experiment was presented as dealing with "impression formation." Subjects were given a short description of a person and were asked to form impressions on the basis of the information. To set the stage for the charity solicitation, a faculty office was used rather than the regular experimental rooms (no faculty member was present). Subjects sat at a table that contained stacks of file folders and reprints on the rear of the table against the wall. In the credit card condition, the same credit card stimuli used in the previous studies were placed in the upper left hand corner of the table. Ten minutes after arriving for the experiment, a stranger (an experimental confederate) knocked on the door, approached the subject, and indicated that the "United Way" was conducting a door-to-door survey concerning the practicality of collecting on campus. Subjects were asked to indicate how much they would be willing to donate if so approached. The experimental confederate exited and the subject completed the masking task.

## Results

The estimated donation was the dependent measure. A 2 (male-female)  $\times$  2 (credit card stimuli absent vs. present) ANOVA was completed on that estimate. The analysis of variance indicated that when credit card stimuli were present subjects indicated a significantly higher mean donation (\$4.01),  $F(1,38) = 4.17$ ,  $p < 0.05$ , than when credit cards cues were not present (\$1.66). This effect was independent of the subject's sex.

## Discussion

Thus in a simulated spending situation, individuals in the presence of credit card stimuli estimated that they would spend more than did individuals in the absence of credit card stimuli, even though the credit cards were not instrumental in the spending response. Consistent with the findings from Experiments 1 and 2, credit card stimuli facilitated simulated spending. Again, after debriefing, there was no evidence that the facilitation effect was due to demand characteristics. Subjects did not show any suspicion or awareness of the hypothesis.

In the first three experiments the relationship between credit card stimuli and spending made it necessary to create a highly controlled, precise, and artificial situation. To remedy this, Experiment 4 was designed to provide evidence on the impact of the presence of credit card stimuli on actual spending behavior in a more controlled environment than in Study 1.

## EXPERIMENT 4

The design of this study complements the previous one. In Experiment 3 subjects were asked to estimate their contribution to a charity with the presence of credit

card stimuli being varied. In Experiment 4 subjects were asked to make an actual donation to a charity with the presence of credit card stimuli varied. The experimental procedure was identical to that of Experiment 3 except subjects were asked to make an actual donation.

## Method

**Subjects.** The subjects were 30 undergraduates run in individual testing sessions and randomly assigned to one of two experimental conditions—credit card stimuli present or absent.

**Procedure.** Subjects were told that they were participating in an experiment of “impression formation.” Ten minutes into reading short descriptions of various individuals and answering various questions, a stranger (an experimental confederate) entered, approached the subject, and indicated that the “United Way” was collecting door-to-door across campus. Subjects were asked to make a donation to the charity. Decision time was measured from the time the collector asked for a donation to the moment the subject indicated they would or would not contribute. Following the donation the confederate exited and the subject completed the masking task. The credit card stimuli consisted of MasterCard insignia and regular and large size replicas of actual MasterCards. The stimuli were placed in the upper right hand corner of the subject’s table. Permission to use the “United Way” name was obtained from the local United Way director, and actual money collected was contributed.

## Results and Discussion

The amount of money donated by subjects was the dependent variable. Consistent with the results of the previous studies in which spending was simulated, subjects in this experiment actually contributed significantly more in the presence of credit card stimuli,  $F(1,28) = 12.9, p < 0.01$ . Of the 15 subjects in each group, 13 contributed in the presence of credit card stimuli, (average donation \$.36) while only five contributed when credit card stimuli were not present (average donation \$.11). Thus, as predicted, and consistent with Experiment 3, which showed estimated donation to a charity to be facilitated by the presence of credit card stimuli, actual donation to a charity was increased in the presence of credit card stimuli. Further, and similar to results in Experiment 2, credit card stimuli significantly decreased decision time for those who contributed,  $F(1,16) = 5.89, p < 0.05$ . Average time for decision to contribute was 6.72 seconds when credit card stimuli were present and 12.04 seconds in the absence of such stimuli.

The simplicity of the previous four studies (the only variable that differed between experimental and control conditions was the presence or absence of credit card stimuli) shows that the presence of credit card stimuli enhances the magnitude of spending. Credit card stimuli, having no instrumental purpose for the experimen-

tal task, were found to facilitate the magnitude of estimated and actual spending.

## GENERAL DISCUSSION

These experiments capitalized on major implications of the simple observation that people appear to spend more with credit cards. The present studies were based on the assumption that because credit card stimuli are so closely associated with spending, they may activate a sequence of behaviors that increases the motivation to spend, the amount spent, and the probability of spending, and decreases the decision time to spend. Study 1 explored an applied test. If credit card stimuli affect spending responses, then evidence of that relationship should be evident in “real life” spending situations. The finding that tipping was greater for equivalent check amounts when paid by credit card is supportive of the proposed analysis. The findings in Experiments 1 and 2 that the presence of credit card stimuli enhances estimated spending and decreases decision time (Experiment 2) substantiate the cause and effect relationship between credit cards and spending only implied by Study 1. Experiments 3 and 4 provide further support in two ways. First, the demonstration that the presence of credit card stimuli can facilitate a spending response differing from that used as a dependent measure in Experiments 1 and 2 serves as a strong conceptual and situational replication of the findings of those experiments. The findings of Experiment 4 are particularly important because probability, magnitude, and decision time were facilitated in a situation that combined a high degree of mundane and experiential realism without sacrificing experimental control over variables. Individuals were more likely to give money, give a greater amount, in a shorter period of time, in a situation in which the causal relationship between credit card stimuli and spending was not diluted.

The experiments here indicate that credit card stimuli can enhance the magnitude, probability, and decision time involved in spending. If an individual uses a credit card for a purchase or overspends with credit cards, we tend to assume that they wanted to do so or that they did it accidentally. The findings of these studies suggest another possibility: the presence of credit card cues may elicit spending responses. It might be that credit card use or abuse stems from the operation of credit card cues. More insidiously, the operation of credit card cues might be undetected in facilitated spending without credit cards and in impulsive spending.

## Conditioning as a Theoretical Mechanism

How are we to understand the relationship between credit card stimuli and spending behavior? Although much of consumer behavior may be purposive and goal directed, there may well be instances in which consumers respond relatively automatically to stimuli imposing on them.

As people spend with credit cards, a form of conditioning may occur in which credit card stimuli become associated with spending. Spending can be conceptualized as an instrumental response reinforced by the positive affect/feeling generated by the acquisition of goods and, possibly, by the affect generated by spending per se. Spending may therefore have both instrumental and classically conditioned components (Catania 1971; Staats 1968). In any instrumental conditioning situation the instrumental response may be conditioned to associated distinctive stimuli and the emotional response that the directive stimulus elicits. Thereafter the associated stimuli and emotional responses become directive for the instrumental response (see McSweeney and Bierley 1984 for a full development of this analysis in consumer situations and Staats 1968 for the theoretical development). For example, Lott and Lott (1968) have shown how interpersonal attraction can be conceived as a process by which anticipatory goal responses become conditioned to a discriminable stimulus present when an instrumental response is reinforced. In the present instance, it is hypothesized that the components of the goal response associated with reinforcement in spending become associated with the distinctive cues present at the start of the instrumental response: credit card stimuli, as unique and distinctive stimuli in the spending sequence (credit cards are used for little else but spending), become conditioned to spending. Thus in spending situations the instrumental response of spending may be enhanced by conditioned stimuli that elicit supplementary spending reactions. As a result, the magnitude of the spending response (as measured by time or intensity) will be affected by the presence or absence of cues that have been instrumental for the acquisition of consumer goods: individuals may be more likely to spend, spend more, or spend more quickly in the presence of credit card cues. Thus while people may spend with credit cards because of the ease of transaction, credit card stimuli acquire the ability to elicit spending behavior as a conditioned response.

The focus of these studies has been on the consequences of the assumed-to-be-conditioned credit card stimuli. Until research is completed that focuses on the antecedent conditions of this conditioning, the explanation offered is tenuous at best. For example, questions that are not directly studied here but that are essential for an understanding of the possible conditioning that occurs are: What is the conditioning that occurs? What is the reinforcement in this conditioning? The principles of conditioning are most clearly viewed in the artificial and highly controlled world of animal learning. It is difficult to translate these laboratory situations into their "credit card" equivalents. But it is clear that learning theories have yet to be fully exploited as they contribute toward understanding and promoting research on the nature, scope, and richness of the credit card phenomenon and consumer behavior in general.

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