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**LA THÈSE A ÉTÉ
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PERSONAL AND SOCIAL CHARACTERISTICS OF
BLOOD DONORS AND NON-DONORS

by Melvin H. Wiener

Thesis presented to the School of
Graduate Studies of the University
of Ottawa as partial fulfillment of
the requirements for the degree of
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ABSTRACT

The literature on pro-social behavior contains few studies on blood donation per se and most research intended to procure more blood donors is based primarily on self-report.

Consistent with previous research on other forms of pro-social behavior, it is hypothesized that blood donors, in comparison to non-donors, perceive themselves to be more competent, socially responsible and internally controlled and, that reciprocity does not influence blood donation.

Subjects were 120 male and 101 female university students solicited by telephone, of whom 142 were donors and 79 non-donors; male donors significantly outnumbered female donors. Mean age of subjects was 21.9, and 90.5% were full-time undergraduates. Hypotheses were tested with data derived from the California Psychological Inventory, the Internal-External locus of control scale, semantic differential scales, and a blood donor questionnaire.

As hypothesized, blood donors perceive themselves to be more competent than non-donors and internal locus of control for males is predictive of more blood donations than is external locus of control. Donors ascribe significantly higher levels of social responsibility to themselves than do non-donors. Female donors, in comparison to female

non-donors, attribute traits of social responsibility to other donors to a significantly greater extent and indicate a significantly greater willingness to share community blood supplies. In relation to blood donation, donors do not operate on the basis of reciprocity.

When controlling for sex, results strongly suggest that males account for much of the observed variance. Apparently, blood donation is endorsed and enacted by females as a responsible and altruistic act, but not to manifest personal attributes. For males, it provides significant self-image feedback in relation to masculine strength and potency.

It is recommended that future blood donor research carefully examine sex difference connotations of blood donation.

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INTRODUCTION

Pro-social behavior refers to a broad category of interactional activities involving the exchange of help and goodwill. The object of this research project is to study blood donating behavior as a representative form of pro-social behavior. Although recent research has isolated some of the personal and situational factors which give rise to pro-social behavior, little is known about those factors which influence blood donation.

The Canadian Red Cross, through the patronage of its volunteer blood donors, collects and distributes blood supplies on a non-profit basis. It is one of the very few remaining organizations of its kind. Many other countries have been forced to develop donor recruitment systems, both public and private, whereby suppliers are given money or otherwise rewarded for their blood which is then sold to the recipient.

The existence and availability of a group of individuals, who have given and continue to give blood, often at a personal cost in terms of time, money, and/or physical discomfort offers very tempting opportunities to:

1. investigate blood donating behavior within the larger context of pro-social behavior;
2. gain a fuller understanding of personal and social factors which influence volunteer donors and non-donors;

3. enhance the effectiveness of recruiting volunteer blood donors.

The dual intent of the present research is to investigate one form of pro-social behavior, that is, blood donation and, if possible, submit new insights for increasing voluntary blood donation.

Chapter I begins with a review of the pertinent literature on pro-social behavior, including a review of studies relating more specifically to blood donation. Chapter I concludes with a statement of the problem, the strategy of the present research and a formulation of specific research hypotheses. Chapter II contains the methodology used in this research. It describes the process used to derive a subject pool, the psychometric instruments used, the specific data collecting procedures undertaken, the method of data preparation, and the statistical techniques employed in data analysis. Chapter III is mainly a tabular and quantitative presentation of results, also containing accompanying commentaries to draw attention to pertinent data. Chapter IV begins with a summary of the results and then addresses itself to a discussion and interpretation of these results. Limits as to the generalizability of results, a critique of the present study, suggestions for further research, and recommendations to the Canadian Red Cross complete the chapter. These chapters are followed by a summary and conclusions.

CHAPTER I

REVIEW OF THE LITERATURE

Helping, volunteering, gift-giving, sharing, aiding, and donating are terms which frequently appear in the literature to indicate behavior of a pro-social nature. People engaged in pro-social behavior are described, for example, as being helpful, charitable, or altruistic. While some authors employ these and similar terms interchangeably, others have been more exacting in their definition and usage of specific terminology. Midlarsky (1968) defines aiding as a general term which refers to all behaviors involving a sharing of one's wealth or sharing of discomfort or danger, where one person comes to the assistance of another in distress. Helping behavior, according to Rubenstein (1975), is any behavior that has the effect of benefiting someone else. Although helping behavior benefits another person, it need not be solely aimed at doing so.

Altruism, as a concept, has presented researchers with knotty definitional concerns and Krebs (1970) states that researchers have generally been content to assume that behavior that seems altruistic is altruistic and have concerned themselves with its determinants. A lack of consensus has not completely stifled others in their attempts to define and study altruism. According to Leeds (1963),

an altruistic act is an end in itself, is not directed at gain, is emitted voluntarily, and does good. Darley and Latané (1970a) suggest that any behavior which benefits another in need, regardless of the helper's motives, is altruistic. Midlarsky (1968) sees altruism as a subcategory of aiding, as helpfulness which incurs some cost but bringing very little or no gain to the helper. Berkowitz (1970) states that altruism is behavior carried out to benefit another without anticipation of rewards from external sources. Aronfreed (1970) identifies a basic motive for altruism and confines usage of the term to this motivational standard. Altruism, he says, is a dispositional component of behavior (not a specific form) which is shaped by anticipation of its consequences for another individual.

To define blood donation as an act of altruism or helpfulness or aid or charity will not be attempted in this study. Blood donation does seem congruent with most definitions found within the larger class of pro-social behavior. Consider some of the characteristics of voluntary blood donations:

1. there is an absence of major tangible rewards in monetary or non-monetary forms (coffee and donuts are excepted);
2. there are no financial penalties for not donating;
3. donors give their blood to unnamed strangers, regardless of age, sex, medical condition, income class, religion, or ethnic membership;

4. there is no formal contract nor legal bond;
5. there is no situation of power, domination, or compulsion;
6. there is no explicit guarantee of a reward or return gift.

It seems reasonable, therefore, to assume that blood donation is a legitimate form of pro-social behavior, and within the context of this research, will be considered as such.

It is surprising to note that the literature on pro-social behavior contains so few studies dealing with blood donation. Even the few studies which do mention blood donation, do not usually investigate blood donating per se. Researchers have occasionally considered blood donation but only to gain fuller insights into the influence of other variables such as age or guilt on pro-social behavior. In other words, practically all research on pro-social behavior has excluded blood donation.

A schism appears to have evolved whereby blood donation has hardly been studied experimentally by behavioral scientists, while on the other hand, agencies specifically concerned with the procurement of volunteer blood donors have conducted their work along separate lines and usually using quasi-experimental methodologies. In this latter group, nearly 90% of the studies are of one archetypical variety, wherein questionnaires have been distributed to large numbers of donors and, sometimes, non-donors. Published reports contain average measures of donor

and non-donor age, sex, education, marital status, income level, religion, and occupation. Motivational statements for donating or reasons given for not becoming a donor are also documented, but almost exclusively from the use of direct questions. By the contents of their reports and intimated in the study titles as well, the authors apparently accept the validity of subjects' motivational statements. But these responses can surely be distorted by social desirability and/or respondent bias.

Because the literature on pro-social behavior is not exempt from the information explosion, it is already difficult to present an integrated perspective. Nonetheless, some semblance of order is still possible, partly through an organizational framework which begins by dichotomizing the prototypical pro-social interaction into its constituent components--that is, a benefactor(s) and a recipient(s); someone who gives and someone who receives. The nature of this particular study dictates that the focus of attention be directed only upon characteristics and variables which affect the behavior of benefactors. The recipient, the individual who ultimately receives the blood gift, remains essentially anonymous to the donor and there is no interaction between benefactor and recipient. Thus, while characteristics of the recipient would, in other research paradigms, be of prime importance, this study will

concentrate exclusively on benefactors. Furthermore, the Canadian Red Cross has established a minimum donor age of 17 for males and 18 for females, thereby imposing definite sampling limitations. Logically, then, this study and the pertinent previous research to which it is linked will concern itself only with pro-social behavior as it occurs in subjects who meet the above-mentioned age criteria. Studies to be reviewed in this section are grouped according to the following scheme:

Situational State Variables: conditions under which people help others.

Personality Trait Variables: characteristics of people who are helpful.

Social Roles and Demographic Variables: Large group factors which influence the behavior of benefactors.

Social Norms: societal influences on the behavior of benefactors.

Blood Donor Motivation: motives submitted by donors and non-donors.

Summary.

Situational State Variables

The preponderance of research on pro-social behavior has manipulated situational variables that mediate pro-social responses. These studies involve temporary psychological states such as those which accompany experiences of: (a) success (i.e., positive affective states); (b) failure

(negative affective states); (c) explicit demands for help (psychological reactance); (d) observing models.

Positive affective states

Researchers consistently support the theory that individuals are more likely to be helpful following their involvement in a successful experience than in the absence of such an experience. Berkowitz (1972) found that women shoppers were more helpful if they had received praise and approval for their responses to a questionnaire, as opposed to neutral feedback or no feedback at all. Isen and Levin (1972) predicted that subjects who were made to feel good would be more helpful than control subjects. The results of their study supported the predictions. Adelman (1972) found that subjects who were induced to feel elated were more willing to be helpful than those who experienced feelings of depression. Too, more elated subjects volunteered for an unpleasant future experiment. Isen (1970) replicated and confirmed the research by Berkowitz and Connor (1966) in which college students given a success experience worked harder for a highly dependent peer than those who had a failure experience or those who were control subjects.

Negative affective states

The theory that negative affective states also increase the likelihood of helping behavior has been supported

by different studies, but theoretical interpretations of the relationship are not always in agreement. Krebs and Baer (1970) report that charitable behavior was greatest after subjects had been exposed to a situation in which they believed they had harmed someone and least after they understood that they had helped. Using a Milgram-type paradigm, Carlsmith and Gross (1969) found that subjects who delivered shocks to another were more likely to volunteer to support a humanitarian project than those who did not shock. A study by Rawlings (1968) found that the observation of a person being harmed is sufficient in itself to induce pro-social behavior. Lerner and Matthews (1967) assert that helpful behavior occurs in situations where success for self causes failure for another. Subjects who drew a slip of paper assigning them to a control condition and their partner to a shock condition (fates interdependent) were more prone to comfort the other and offer to take his place than subjects who determined their own fate (fates independent) or subjects whose fates were determined by an experimenter. Freedman, Wallington, and Bless (1967) observed that subjects who knocked over a pile of index cards were more willing to volunteer for an experiment to help another than those who did not, providing the solicitor was not the owner of the cards. In the study by Darlington and Macker (1966), subjects who were led to believe that they had harmed another person were more likely to volunteer

to donate blood than control subjects. According to the work done by Wallace and Sadalla (1966), private transgressions are not as likely to lead to helping behavior as are public ones.

Lerner and Matthews (1967) contend that subjects led to believe that they are in any way responsible for the suffering of a peer may try to justify their own behavior by devaluing the peer instead of helping him. Walster and Berscheid (1968) offer some reconciliation for the seemingly disparate findings. Depending on certain eliciting conditions, a harm-doer may choose either to help his victim (compensation) or to devalue him (justification). They reason that, in any particular situation, compensation or justification is selected on account of such factors as the amount of compensation available to the harm-doer and the amount of time since the harm was perpetrated. Other explanations have also been suggested to account for the observed relationship between negative affective states and helping behavior. Krebs (1970) states that:

many studies have supported the notion that public transgression, whether intentional or unintentional, whether immoral or only situationally unfortunate, leads to reparative altruism. Reparative altruism would seem to alleviate a negative state associated with lowered self-esteem. When amends cannot be made to the victim, reparative responses are generalized to others; in fact, in some situations reparative responses are made only if they can be directed toward a third party (p. 267).

By contrast, Darlington and Macker (1966) suggest that harming another creates feelings of guilt, which leads to pro-social behavior. Female college students given impossible pencil-and-paper tasks were led to believe that, by having failed the tasks, they did not help a needy peer-confederate. The subjects were also misinformed that the confederate had succeeded in gaining points for them. More subjects in the experimental group--exposed to a confederate who had fallen on hard times--volunteered to donate blood than did those in the control group. The experimenters interpret this result in terms of displaced guilt, suggesting that the subjects in the experimental group were more willing to volunteer in order to assuage the guilt they experienced for not helping their "fellow student." This study must be viewed cautiously because of a 50% subject attrition rate and because differences were found only after the third of three appeals for blood.

Explicit demands for help
(psychological reactance)

Brehm (1966) has studied people's reaction to interference with what they believe to be their personal freedom. He theorizes that:

If a person's behavioral freedom is reduced or threatened with reduction, he will become motivationally aroused. This arousal ... is directed against any further loss of freedom and ... also ... toward the reestablishment of whatever freedom had already been lost or threatened (p. 420).

A demand to help someone, and even a felt obligation to do so, is often resented because the demand or obligation is a bothersome threat to the individual's freedom of action. Increased pressure to help a person in need sometimes reduces the individual's willingness to help. Berkowitz (1973) cites evidence in support of Brehm's theory of psychological reactance and adds that reactance is lessened when the helper is in a good mood and increased when he is self-concerned and when the help request seems improper or unwarranted. Latané and Darley (1970), studying reactance effects in college students, used an experimental design in which subjects were under the impression that a child was being bullied by another child in a room adjacent to where the subjects were supposedly waiting to be interviewed. In one condition, the subjects were led to think that the children were alone, while in another group they were informed that an adult was with the children. Only 25% of the men in the first group later reported a belief that the fight was real, while 88% in the second group thought the children were in a genuine fight. This result was interpreted to mean that the felt responsibility to intervene was an unwelcome burden, leading subjects to deny it. In Jackson's (1972) research, which also supports Brehm's reactance theory, the experimenter's explicit request generated a lessening in the subject's motivation to help. Subjects who had received a prior favor from the experimenter

showed less verbal conditioning under high than under low experimenter dependence. Presumably because the prior favor had increased the pressure they felt, subjects helped the experimenter to a lesser degree--reflected by lowered rates of learning. It has also been suggested that reactance could be generated by the possibility of a request for a long-standing commitment to help someone. Jones (1970) found that college males were least willing to help a dependent peer when the request for assistance implied a need for aid over an extended period of time.

In an experiment by Schwartz (1970), those subjects most reluctant to volunteer to be a bone marrow donor were the ones who had been exposed to the greatest pressure tactics. Investigating self-sacrificing behavior among blood donors, Schwartz (1970) hypothesized that compliance with a request to be a potential bone marrow donor is:

(a) positively related to the salience of consequences and personal responsibility, and (b) negatively related to the likelihood of ever having to incur the costs of being a bone marrow benefactor. Donors who had just given blood were asked to become potential bone marrow donors. They were solicited using different experimentally manipulated appeals. Subjects were randomly assigned to: (a) one of three levels of salience of consequences (low--a 30-year-old female might be helped by a transplant; moderate--a

young mother is in need of a transplant; high--without a match, survival for this woman is unlikely); (b) one of two levels of salience of personal responsibility (high--suggesting to the subject that he/she was one of a limited and uniquely qualified pool; low--inferring that there were many potential donors all equally qualified); and (c) one of two levels of odds (low--1 chance in 1000 of actually being called upon to donate bone marrow; high--1 chance in 25 of actually being chosen). Schwartz found a positive and linear relationship between volunteering and salience of consequences for the welfare of others under 1 in 1000 odds, and a curvilinear relationship between salience of consequences and volunteering under 1 in 25 odds. He also found the salience of personal responsibility to be significant, with greater commitment to volunteer under high responsibility than under low responsibility. No main effect was found for odds.

Horowitz (1968) found that college students were more willing to help a person requesting assistance because of his own inadequacies if they had a choice to refuse help than if they had believed they were obliged to help their needy peer.

Modeling

The modeling or imitation theory, which predicts people to be more likely to help after they have seen

someone else do so, has accumulated convincing and frequent support in laboratory studies as well as in those conducted in naturalistic settings. Wagner and Wheeler (1969) found a significantly greater amount of money donated to charity by subjects who were exposed to a generous model as compared to control subjects and to subjects who witnessed the model refuse to give money to charity. Bryan and Test (1967), in a series of three field experiments, observed that helpful and charitable models elicit more helping behavior from experimental subjects than do non-helpful models or in the absence of such models. In an earlier study, Test and Bryan (in press) found potential benefactors were more helpful after they themselves had been helped than after having been exposed to an indifferent model or no model at all. Blake et al. (1955) discovered that the amount graduate students donated to a retiring secretary hinged upon the amount these students thought their peers had donated. Rosenbaum and Blake (1955) asked students to volunteer for an experiment and found that the ones who had observed another student volunteer were more likely to volunteer themselves. Similar results were obtained by Schachter and Hall (1952) and by Rosenbaum (1956).

Scant reference is made to the possible modeling effect as it influences blood donation. London and Hemphill (1965) state that 75% of the donors in their study had friends or family members who had given blood. Based

on a total of 792 respondents (571 donors and 221 non-donors) Phillips (1961) found that significantly more donors came from families in which other members gave blood. The data came from a questionnaire item which read, "Is any member of your family a Blood Donor?".

One form of pro-social behavior has evoked considerable public interest, namely, the willingness in emergencies of people helping others in need. The Latané and Darley (1969) model of bystander intervention assumes that a bystander makes a number of important decisions before helping. First, he/she must take notice of something unusual happening, determine whether help is required, and the extent to which he/she has a responsibility to act. Once having decided to help, the form and method of implementation must be chosen. At each decision point, the presence of others is thought to affect the individual bystander's behavior. In a series of ground-breaking studies, Darley and Latané (1970b, 1968), Latané and Darley (1970, 1969, 1968), and Latané and Rodin (1969) clearly demonstrate the likely reduction or absence of helping behavior as a result of modeling inactive bystanders. The term bystander apathy, originally coined to characterize behavior of individuals failing to come to the assistance of needy others, has been shown to be a misnomer. The inhibiting effect of passive bystanders on others occurs because they supply, by their

apparent lack of concern, an innocuous definition of the situation.

Also, people are sometimes cautious about taking responsibility--they fear getting blamed if anything goes wrong. The presence of more than one bystander leads to the perceived responsibility (and possible blame) to be diffused among the observers. Consequently, each bystander feels less personally responsible for the situation (and may anticipate less guilt) than if he or she were alone. People in emergency situations tend to keep their responses at a minimum until a consensus is reached about the seriousness of the situation. Korte (1971) and Bickman (1971) both have shown that feelings of responsibility in an emergency can diffuse among bystanders, but their results also suggest that no diffusion of responsibility occurs when other bystanders are clearly unable to help the victim. Schwartz and Clausen (1970) simulated an emergency in the laboratory and found that the least intervention was volunteered by subjects who believed that there was someone present who was more appropriately trained to handle the situation. Thus the decision to help or not to help in emergencies involves assessment, not only of the number of people present, but also of their potential as interveners and of their relative capacities to be of assistance.

Bandura and Walters (1963) assert that models may induce either the acquisition of long-term behavioral dispositions which have become internalized or the performance of imitative behavior, associated with situation-specific behavior occurring as a result of the induction of temporary states. Krebs (1970) believes that, although most research on modeling relates to the performance of imitative altruistic behavior, results tend to be interpreted as evidence for the internalization of pro-social dispositions.

Before conclusions can be drawn about the acquisition of behavioral dispositions, two criteria should be met: (a) the behavior in question should be general to situations other than that in which it was elicited, and (b) it should be relatively enduring (p. 268).

Personality Trait Variables

Sarason and Smith (1971), echoing the sentiments of Krebs (1970), assert that most research on pro-social behavior has largely ignored the roles of personality variables involved in helping behavior. More recently, research has alleviated this deficiency somewhat and studies reviewed in this section are those which try to discover what enduring personality traits and syndromes are typical of helping people. The review is grouped into the following four categories: (a) self-perceived competence; (b) locus of control; (c) dependency, and (d) empathy.

Self-perceived competence

The construct of competence has been conceptualized both in specific as well as in general terms. Barton (1962) defines competence as the extent of correspondence between role requirements and personality traits. This definition seems to refer to specific situations where a person assesses his skills and abilities relevant to the task at hand. Another kind of self-perceived competence may be based on a broader range of experience. The individual with a history and background of success may perceive himself to be a potent, effective person without basing this belief on any given talent, skill, or single experience. Self-perceived competence, based on a variety of achievements and the expectancy that one will continue to be successful, is similar to the concept of positive self-esteem. It also corresponds closely to Rotter's concept of locus of control, when expectation of outcomes depends on the exercise of one's own skill (internal locus of control) rather than upon chance or luck (external locus of control). Wiggins et al. (1971) note that "competence is the natural consequence of fulfillment of self" (p. 559), and that the degree of felt competence defines what a person is capable of doing and is, therefore, related to the development of self-esteem.

A number of studies in the literature have confirmed the theory which asserts that people who perceive themselves to be competent are more likely to be helpful than those who are in some greater doubt as to their competence.

Midlarsky and Midlarsky (1973) found support for the relationship between helping behavior and self-perceived competence and their conclusions are in agreement with those of Harris and Huang (1973), Midlarsky (1971), Kazdin and Bryan (1971), Berkowitz and Connor (1966), and Withey (1962).

Midlarsky and Midlarsky (1973) and Midlarsky (1971) used laboratory manipulations to create high and low competence groups. Subjects were either told that they adapted well to shock (high competence condition) or that they adapted poorly (low competence condition). A positive correlation was found between helping behavior and competence, operationally defined, in this instance, as degree of adaptation to shock. Harris and Huang (1973) manipulated perceived competence by providing subjects with false feedback in relation to visual creativity and found a positive relationship between duration and magnitude of helping behavior and degree of competence feedback. Isen and Levin (1972) demonstrated that increased helpfulness was offered by people in a good mood. Subjects in this study, who had a pleasant experience with one individual, were later more willing than others, who did not have this experience, to assist a second individual soliciting their help. Competent

individuals, deriving pleasure and a sense of well-being from success experiences, may also be more helpful because of their good feelings. Kazdin and Bryan (1971) manipulated competence by indicating to subjects that they were either physically fit or unfit. Significantly higher rates of volunteering to give blood were found for subjects in the group led to believe that they were physically fit as opposed to those subjects who were told that their physical fitness was not very good. In the first phase of the experiment by Berkowitz and Connor (1966), subjects were asked to complete a preliminary and seemingly irrelevant task. Subjects who were allowed to succeed on this task were more helpful than those subjects who experienced failure. On the assumption that success promotes feelings of competence, these results confirm the relationship between self-perceived competence and helping. Withey (1962) noted that people are best able to endure stressful situations over which they feel capable of exercising control. Janis (1962) suggests that self-perceived competence leads to an increase in helping behavior because individuals who regard themselves as competent anticipate less stress than those who do not.

Locus of control

A fundamental assumption in Rotter's (1966) theory of locus of control is that people constantly respond to

aspects in both their internal and external environment. Those who believe that reinforcement occurs as a function of specific behaviors on their part are said to be internally controlled. Individuals with a fatalistic outlook, who have little confidence in the utility of their own efforts, are said to be externally controlled. The conceptual similarity between Rotter's locus of control theory and the theoretical position of self-perceived competence is readily apparent. In fact, Midlarsky (1971) used locus of control scores as a measure of competence. Furthermore, Brown and Strickland (1972), Tseng (1970), Hersch and Scheibe (1967), and Phares (1965) found internals to be generally more competent than externals. It is not surprising, therefore, to find recent research adding to the well-documented suggestion that people who help tend to see themselves as in control of their own fate. Midlarsky and Midlarsky (1976) found a significant relationship between locus of control scores and helping. They report that 28% of the variance in the helping behavior of their subjects was accounted for by locus of control and conclude that internals are much more likely to help than are externals. Similar results were found by Peters (1974), Sherrod and Downs (1974), and Midlarsky (1971).

Miller and Minton (1969) found that externals tend to agree with Machiavellian positions more so than internals. The Machiavellian V scale reflects a readiness to be

opportunistic, guided by indiscriminate cynicism and suspicion. These characteristics do not appear to be congruent with a helping attitude and it seems to suggest a negative correlation between external locus of control and helping behavior. Strickland (1965) and Ryckman et al. (1972) report that internally controlled subjects are not only more apt than externals to commit themselves to social action, but are also significantly more likely to be among active participants in civil rights movements, which replicated the research done by Gore and Rotter (1963).

Although, in general, the literature on the relationship between helping behavior and locus of control suggests that one can expect more help from internals than from externals, Phares and Lamiell (1975) contend that an internal locus of control may actually inhibit rather than facilitate helping behavior. They begin their reasoning by reference to the notion of egocentricity, wherein people operate on the conviction that whatever applies to them also applies to others. Hence, an internal may conclude that a plea for help is unreasonable because the person making the request must assume responsibility for his predicament. Phares and Lamiell asked subjects to assume they were functioning as social workers in assessing written case histories and then decide on how much help ought to be authorized. Externals offered more monetary assistance, understanding, and sympathy than did internals. Phares and

Lamiell acknowledge the contradiction between their findings and those of Midlarsky (1971) who, like most other researchers, found internals to be more helpful than externals, and suggest that "the differences may reside in (1) the face-to-face nature in Midlarsky's situations or (2) the competence-achievement facets which Midlarsky's helping behavior probably engaged (aspects on which much evidence indicates internals to be superior)" (p. 36).

Dependency

Dependency is care-seeking, help-seeking, attention-seeking, and affection-seeking (McDavid & Harari, 1974). Dependent people look to others for succorance and one of the best ways to increase the likelihood of having their needs met is to please others by doing things for them. The dependency theory, supported by some studies, contends that dependent people are more helpful than independent people. Satow (1975) had 95 college students complete the Marlowe-Crowne Social Desirability Scale and then asked them to donate money to a research fund. Those subjects high in need approval--as measured by the Marlowe-Crowne--donated more money than those low in need approval. The altruistic female college students in Ribal's (1963) experiment had significantly higher Need Affiliation scores on the Edwards Personal Preference Scale than the respective normative sample of the Edwards Personal Preference Scale.

Empathy

Empathy, broadly stated, is the ability to appreciate how someone else feels, by putting oneself into that other's situation and experiencing his feelings. A few studies support the theory that empathic people are more helpful than unempathic people. Krebs (1975) found that subjects who responded with the greatest empathy were those who behaved most altruistically. Krebs (in press) also found a significant relationship between scores on Hogan's (1969) empathy scale and willingness to help a peer. In an earlier study, Adelman and Berkowitz (1969) hypothesized that subjects empathizing with a person in need will become motivated to help to the extent that the empathy led the individual to feel bad and that subjects empathizing with a helping model will act helpful to the extent that the empathic response was pleasurable. Their data led them to conclude that "empathy can provide motivation for at least some altruistic behavior" (p. 380).

Social Roles and Demographic Variables

Researchers of helping behavior have often studied social characteristics of individuals which might be expected to account for variations in pro-social behavior. Some of the variables studied are age, sex, ordinal position, social class, occupation, and nationality. But,

because people of different sex, ordinal position, or social class, for example, share a large number of other traits, it is very difficult to separate out particular and individual antecedents which relate to helping behavior. It is highly improbable that any one of these variables by itself contributes more than just a partial understanding of observed differences in pro-social behavior.

Age

The greatest proportion of research in this category has studied children's pro-social behavior from a developmental approach and has generally found an increase in helping behavior with age (Handlon & Gross, 1959; Lowe & Ritchey, 1973; Midlarsky & Bryan, 1972; Ugurel-Semin, 1952). The study by Lowe and Ritchey (1973) found adults to be more helpful than adolescents, lending further credence to the notion of increased helpfulness correlating with the aging process.

The average age of donors is a most frequently cited statistic in blood donor studies and a comparison of age related data provides an estimate of general trends. Figures derived from studies using subjects from the general population indicate an age range beginning in the very late teens and tapering off in the very late fifties. A fairly sharp increase is noted in the 20- to 30-year-old

category, a relatively stable but slightly decreasing rate in the 30- to 40-year-old range and a marked decline at 45 years.

Sex

In reference to blood donation, all studies reviewed, in all countries and under all varying research conditions, are unanimous in having found significantly greater numbers of male donors than female donors. Oswalt and Hoff (1975) report that once having become donors, fewer males than females discontinue their blood donor habits and, according to Wallace and Pegels (1974), females donate half as frequently as males and take 50% more time between donations.

The status of gender as a mediating factor in other forms of helping behavior at first glance appears to be an equivocal one. According to Krebs (1970), most studies on adults have failed to come up with sex differences in prosocial behavior and a number of other studies support his contention (Berkowitz et al., 1964; Blake, Rosenbaum & Duryea, 1955; Bloom & Clark, 1976; Bryan & Test, 1967; Gruder & Cook, 1971; Hornstein et al., 1968; Latané & Darley, 1970; Rotton, 1977; Simon, 1971; Thayer, 1973). But studies by Singer (1975), Pomazal and Clore (1973), Wispe and Freshley (1971), and by Borofsky, Stollak, and Messe (1971) found males to be more helpful than females.

In a study by Piliavin and Piliavin (1972), 94% of the first helpers were males, although only 47% of the subjects were male. Gaertner and Bickman (1972), using a non-emergency paradigm, found male subjects helping more often than females. Piliavin et al. (1969) concluded that in emergency situations men are more likely to help than are women. Contrarily, Schopler and his associates (Schopler, 1967; Schopler & Bateson, 1965; Schopler & Matthews, 1965) found that females helped highly dependent others more frequently than did males.

Walster et al. (1972), in a symposium on sex and helping, summarized a wide range of variables which, when considered in relation to sex, may explain some of the many inconsistencies in observed differences. They suggest that males and females are found to differ in their helping behavior because of: (1) the context within which help is sought (e.g., on a highway or in a supermarket); (2) the character of the help requested (e.g., changing a tire or typing letters); (3) the potential costs related to helping (e.g., females more than males tend to refuse help in situations that may be embarrassing [Moss & Page, 1972]); (4) the potential rewards for helping (e.g., money or verbal praise); (5) the expectations and attributions that people have and make about helping (e.g., greater expectation for males than females to help in emergency situations and higher levels of competence

attributed to males in similar circumstances); (6) the variations in regional subcultures (e.g., black males have been found to help more than black females, but white males were not found to be more helpful than white females [Wispe & Freshley, 1971]); (7) the different motives for helping (e.g., only female helpers were found to be significantly higher on Need Affiliation than female non-helpers [Ribai, 1963]); (8) the presence of witnesses (bystanders reduced helping in females but not in males [Schwartz & Clausen, 1970]).

Other studies have documented at least two additional variables which might account for male-female differences in helping: (9) the nature of the appeal (e.g., males more than females respond to appeals based on equity rather than on dependency [Fink et al., 1975]); (10) the different sources of self-esteem for males as opposed to females (e.g., derived from success through competition or from feelings of acceptance by others [Wilson & Wilson, 1976]).

Clearly, sex differences in helping behavior cannot be understood without specification of and accounting for the many classes of variables documented above as well as other variables which may also mediate the helping behavior of males and females (e.g., age, physical health). In subsequent sections of this report, the consistent and repeated finding that males donate blood more frequently

than females will be compared to the results of the present study and will be discussed in relation to the specific nature and circumstance of blood donation.

Marital status

The literature on blood donation indicates marital status to be one of the variables about which researchers are in near unanimous agreement. In the studies surveyed, married donors always outnumber unmarried donors and, in the case of Schwartz (1970), the percentage difference was quite extreme--78% of the subjects were married. More typical it seems are the results obtained by the American National Red Cross (undated)--66% married, 31% single; London and Hemphill (1965)--50% married, 33% single; Upton (1974)--60% married, 39% single; and Alsever (1969)--56% married, 37% single. Divorced and widowed donors generally do not represent more than a few percentage points at most.

Ordinal position

Research on ordinal position has been carried out primarily with children and the data suggest that children from larger families are more helpful than those from smaller families, but that other-than-only children are not more helpful than only children. McCutcheon (1974) hypothesized that first-borns would not volunteer more often to be research subjects than would be expected by

chance and found the hypothesis confirmed by the results obtained. Volunteering to be a research subject was not affected by birth order in the study by Roodin and Vaught (1974). Sawyer (1966) studied college students and found that helpfulness was correlated with the number of older sisters. Ribal (1963) found that pro-social college students tended to come from large families and to be the eldest in the family. Discrepant findings on the effects of ordinal position are commented upon by Schooler (1972), who hypothesized that by the middle 1960s, changing population trends had attenuated many prior birth order and personality relationships. He concluded that "for people in the middle 1960s there is almost no evidence of any birth order effects among men, and that these effects increase only marginally when restrictions on time, place and sex are removed" (p. 161).

Social class

Researchers have theorized that pro-social behavior is related to differences in socioeconomic status. Fink et al. (1975) dichotomized subjects according to family occupational type--bureaucratic or entrepreneurial--and did not find differences in helping behavior which they could ascribe to this variable. But, because of inadequate cell distributions for statistical analyses, the authors

caution against unequivocal acceptance of results.

Berkowitz and Friedman (1967) did find members of the bureaucratic middle-class more willing to aid others regardless of how much the situation was expected to benefit them than were members of the entrepreneurial middle-class. The latter gave aid only to the extent that they had received it. Lowe and Ritchey (1973) state that members of the upper middle-class are more helpful than those belonging to the lower- and middle-classes. Diener et al. (1973) assert that lower-class individuals are influenced more by the norm of reciprocity, while middle-class people are motivated by the norm of social responsibility. The more recent studies in this area appear to have superseded the research by Muir and Weinstein (1962) in which middle-class subjects were thought to be motivated by the norm of reciprocity and lower-class subjects to be operating on the basis of the norm of social responsibility. Furthermore, the study by Muir and Weinstein (1962) has been criticized for sampling techniques which led to the overrepresentation of middle-class entrepreneurs. The disparities in research methodology, especially the wide variety of indices used to measure social class, preclude any integrative and/or comprehensive statement on the relationship between pro-social behavior and socioeconomic status.

Religion

Very few studies on blood donation report data on stated religious denomination of donors and fewer still make the distinction between religious affiliation versus religious observance and activity. Both Upton (1974) and London and Hemphill (1965) found 51% of their subjects to have identified themselves as Protestant. Forty percent in Upton's (1974) study and 32% in London and Hemphill's (1965) work were classified as Roman Catholic. Three percent of the subjects in London and Hemphill's (1965) study were Jewish. Those subjects still unaccounted for were grouped in one of two catch-all categories entitled "Other" or "No preference." Condie and Maxwell (1970) found that paid donors are less likely to attend religious services than are volunteer donors.

Occupation

While it seems reasonable to assume that the occupation an individual chooses as his life work should correlate with helping behavior, there is insufficient evidence to support this assumption. Sawyer (1966) reports that students in a YMCA training program indicated a greater willingness to react generously to friends, strangers, and antagonists than did students in business school and social science. A series of different studies

(Chapman, 1962; Form & Nosow, 1958; Hamilton, Taylor & Rice, 1955; Wallace, 1956) relating primarily to natural disasters and the kinds of behavior these situations elicit, found that individuals who had had the most previous experience in similar catastrophies--regardless of their occupation--were the ones who helped most. These conclusions seem to lend more support to the self-perceived competence hypothesis rather than to occupational differences as determinants of helping behavior.

Data pertaining to occupation as it relates to blood donation is so disparate as to make meaningful integration futile. Even within a single study, such as Upton's (1974), who collected data from two urban centers (Kansas City and Denver), there is no consistency whatsoever. Differences in subject selection procedures, geographic location, and status of subjects (volunteer versus paid) most likely contribute to the dissimilarities.

The effect of unemployment on donor activity merits further research, particularly in those situations where blood is bought and sold. Seventy-eight percent of Alsever's (1969) subjects were paid donors, while 90% of Mason's (1966) received cash for their blood. The rate of unemployment in these two studies (36% and 40%, respectively) was much higher than those which only examined volunteer donors. Titmuss (1972), in a general conclusion

of research conducted in America, states that unemployed donors are over represented.

Income

As might be expected, Alsever (1969) found a significantly higher income for non-paid donors in comparison to those who sell their blood. Alsever reports 39% of the subjects in his study, 78% of whom were paid donors, had reported incomes of below \$3,000. Ninety percent of the subjects in Mason's (1966) study were paid donors and 37% of them claimed incomes of less than \$3,000. Condie and Maxwell (1970) obtained very similar results. These findings suggest that people who sell their blood do so because of economic need, while those who give their blood freely are higher up the economic scale.

Education

Only a few studies on blood donation cite statistics on the educational level of subjects, requiring generalizations to be guarded at best. Widely divergent findings suggest even greater caution. London and Hemphill (1965) and Mason (1966) found slightly less than 20% of the subjects in their respective studies had no more than primary school education. Alsever (1969) reports only 5% in this category. Results pertaining to high school experience are also quite dissimilar. Thirty

percent of London and Hemphill's (1965) subjects had some high school training, while 50% of Alsever's (1969) and 75% of Mason's (1966) subjects report having gone to high school. London and Hemphill (1965) found that 52% of their subjects had had some college education and, of that number, 23% had gone beyond the B.A. level. Mason (1966) and Alsever (1969), however, report that less than one-quarter of their subjects attained collegiate standing. Almond and Verba (1963) found the positive values of generosity and considerateness increased as did levels of education.

Nationality

Krebs' (1970) assessment of research on the relationship between nationality and pro-social behavior contends that because

no real trend appeared across experiments, seems to indicate that altruism is largely a function of the specific situations, with people from different countries reacting more or less altruistically according to the circumstances surrounding the requests for help (p. 291).

A study by Lowe and Ritchey (1973) confirms Krebs' (1970) opinion in that they found ethnic identity to be incapable of predicting altruistic behavior. Berkowitz (1966) found no differences in the altruistic behavior of subjects from the United States compared to subjects from England. Contrarily, Feldman's (1968) study indicated that compatriots

were better treated in Boston, while foreigners were helped to a greater extent in Athens. Although Feldman's study raises the possibility of cross-national differences, appropriate controls on educational level, socioeconomic status, and religious beliefs, for example, have not been utilized. Based on available research, then, nationality as an isolated predictor variable does not yet merit indiscriminate acceptance.

Social Norms

Norm of social responsibility

A recurring theme in the literature on pro-social behavior is that helping is based on an individual's responsiveness to a norm of social responsibility. This theory formulated and advanced by Berkowitz and his colleagues (Berkowitz, 1966; Berkowitz & Daniels, 1964; Berkowitz, Klanderman & Harris, 1964; Daniels & Berkowitz, 1963) asserts the existence of a societal norm prescribing that people should help those who need help. Other studies lend further confirmation to the theoretical postulations of Berkowitz. The data collected by Jiohu and Knowles (1974) was interpreted as support for a normative theory of helping behavior. In the research by Willis and Goethals (1973) subjects operationally defined as high on the dimension of social responsibility helped

more than those who rated low on social responsibility. The Allport-Vernon Study of Values was used to define social responsibility. Threats to behavioral freedom and modeling variations did not influence these results. Berkowitz (1972) has suggested that the moral norm of social responsibility is a key determinant to altruism, but he emphatically stresses the importance of situational conditions and personal factors in that they likely interact with and have an influence on internalized moral standards.

Recently, the norm of social responsibility as it relates to helping behavior has been severely criticized. A reprieve seems to be found in the work of Schwartz (1973) who tested the hypothesis that the impact of norms on behavior is a function of the tendency to deny or to ascribe responsibility to the self (AR). As predicted, volunteering to join a pool of potential bone marrow donors was a function of the AR X personal norm interaction. Personal norms had no impact on volunteering among those low on AR (deniers). A more complete exposition of Schwartz' theory on personal norms is contained in the summary section of this chapter (p. 48).

Titmuss' (1971) theory of altruism, conceptually similar to the norm of social responsibility, contends that humans have a basic need to help others. Providing blood donors with monetary rewards, precludes free

expression of altruism in this form and Upton (1974) expected that, as a consequence, less blood would be donated under conditions of remuneration than under conditions of non-payment. He explored the effect of monetary rewards on donors classified either as high or low in their intrinsic motivation to donate blood. Subjects recruited at random from a Red Cross list of donors willing to donate blood at any time were assumed to possess high intrinsic motivation. Subjects on a second list of former donors who had not given blood for a period of about five years were assumed to be low in intrinsic motivation. Additionally, he examined the impact of a message which ascribed "doer" attributes to half of his subjects. During the phone conversation between recruiters and potential subjects, the recruiter informed donors who agreed to appear at the blood bank, that their commitment was typical of people who act upon their attitudes (i.e., a "doer"). Former and current blood donors were solicited by telephone, using three different manipulations: (a) high versus low intrinsic motivation; (b) monetary payment versus non-payment; and (c) exposure or non-exposure to a "doer" message. He found that a monetary reward inhibited subjects with a high intrinsic motivation to donate blood, but that it enhanced the probability of procuring a blood donation in those subjects with low intrinsic motivation. The high motivation-low reward condition was the most

effective in obtaining blood donors. The data did not confirm that money or a "doer" attribution alone, or any combination of the two, could significantly increase the blood donating behavior in subjects with high intrinsic motivation to do so.

Reciprocity

Several theorists in the field of social psychology and sociology (Adams, 1965; Blau, 1968; Homans, 1961; Gouldner, 1960; Thibaut & Kelly, 1959) have proposed the application of economic principles to human behavior and have evolved three related theories, namely, exchange, equity, and reciprocity. Exchange theory proposes that interpersonal activities involve an exchange of costs and benefits, an assessment of expenditures against possible returns. Equity theory holds that interpersonal transactions are ultimately determined by establishing a point of equity between the parties involved in the transaction. According to the norm of reciprocity, people help those who have helped them and do not harm those who have been helpful. In general, the basic stance is that individuals in social interactions are governed by consideration of relative cost and reward, so that the basis of pro-social behavior is alleged to be due to someone having received, expecting to receive, or trying to be worthy of receiving something from someone else.

Greenberg and Bar-Tal (1976) found that exposure to and learning of information instrumental to repaying another is a positive function of amount of prior help received. Using college students, Leventhal and Whiteside (1973) report a significantly greater amount of work output by those individuals led to believe that they were being overpaid for doing a given task than those who were told that their remuneration was in keeping with their qualifications and work standards. The authors hypothesized that the difference in quantity of work completed was due to a desire to reciprocate on the part of those subjects who felt that they were being overpaid. Wilke and Lanzetta (1970) found evidence that a process of exchange governs reciprocity of pro-social behaviors: the more help a subject offers another, the more help the second subject is likely to reciprocate when the original benefactor is in need. Frisch and Greenberg (1968) studied college students and found that males in their study were more likely to help when they thought they had received a lot of prior help, especially when the help was perceived as intentional. Subjects were less likely to help when they were led to believe they had received only a little assistance. Pruitt (1968) also found support for the norm of reciprocity. The subjects in his study gave more to a peer when they had received a lot from the peer. The reverse held true when the subjects felt they had received very little. Undergraduate females in the study by Goranson and

Berkowitz (1966) did more work for their supervisors when the help they received was given in a voluntary fashion rather than a compulsory one. Berkowitz and Daniels (1964) report that subjects were more willing to help peers when they themselves had been previously helped. When Muir and Weinstein (1962) interviewed housewives, many of the subjects claimed that the giving and receiving of favors within the home was based on the norm of reciprocity.

The literature suggests that reciprocity is not a very important factor in blood donation. A rank order of nine categories of reported incentives for current and prior blood donations in the study by London and Hemphill (1965) contains two entitled "Replacing for a Friend" and "Possible Future Need." These two categories were ranked fifth and sixth, respectively. Phillips (1961) found that only 8% of the donors in her study were repaying debts to the blood bank and only 6% were investing for their own future needs.

Blood Donor Motivation

Positive motivations

Most studies which investigated blood donor motivation used varying questionnaire formats. In some instances, subjects were instructed to choose from a list of possible motives, while in others, open-ended

questions were used. Also, there appear to be definitional differences across studies in the categorizing and coding of responses. For example, motives classified as being humanitarian in one study seem synonymous with those defined to be altruistic in another. Sixteen different motivational categories are cited in the literature, but nine lend themselves to further grouping.

Within the first general classification, are altruistic, humanitarian, and duty-bound motives. Statements of this type regularly occurred with the greatest frequency. A second cluster contained those motives founded on the principle of reciprocity (that is, repayment for blood received or "banking" for possible future need). Social factors, such as individual or group pressure, personal request or direct appeals characterized the third category. These latter two subclasses were considerably underrepresented in comparison to the first. The remaining motives, mentioned much less frequently, were: modeling, disaster prompted donations, blood required by relatives or friends, convenience, curiosity and, lastly, financial reward.

Using six different psychological scales and inventories, Cataldo et al. (1976) compared test-derived scores of 25 high frequency male plasmapheresis donors with the normative data on each of the six tests. A significant difference was found only on the Machiavellian IV scale and was interpreted by Cataldo to mean that the motives

of high frequency donors are in no way different from the normative groups, except that they are less Machiavellian. However, his results may be suspect for the fact that Cataldo gave no indication of knowing how many subjects within the normative groups were also high frequency donors and because his sample was unusually small.

Condie et al. (1975) suggest radically different donor motives from those agreed upon by most other researchers. While much of the literature supports altruism and social responsibility as two of the most influential motivational factors, Condie et al. (1976) posit three other variables as being more important in determining whether people will donate their blood. They are: (a) social pressure, (b) incentives, and (c) a free rider tendency, reflected by statements such as "even if I never donate, others will donate in sufficient numbers to provide an adequate supply of blood." The subjects in this study were donor and non-donor university students who completed a 132-item questionnaire. The researchers conclude that:

There is no important relationship between altruism, as we measured it, and blood donation (being a donor or non-donor). We draw the same conclusion for social responsibility inasmuch as there were no significant differences and eta approached zero (p. 10).¹

These results contradict findings in most other studies on blood donor motivation and might be explained on the basis of the measuring instrument used to collect the data.

¹Underlining present author's.

Basic indices of reliability and validity are not included in the published report and the items of the questionnaire appear to have been culled from different sources and combined into a customized but unstandardized single inventory.

Mai and Beal (1967) administered a Neuroticism Scale Questionnaire, plus further questions concerning health and motivation to 100 consecutive blood donors in South Australia and to a comparative control group. Results indicate that blood donors are neither more nor less neurotic than non-donors, but that they are more likely to describe themselves as completely healthy than non-donors. Sievers (1968), using MMPI scales and projectives, studied 166 habitual voluntary donors. He reports having found a conflict in donors between strong desires for self-sacrifice and strong needs for prestige and social recognition. Giving blood voluntarily, in contradiction to the stereotype of a self-centered and consumer-oriented society, was seen as one of the few acceptable ways of resolving this conflict. Similar findings were published earlier by Sievers, Nagel, and Strabing (1967).

Negative motivations

Bartel et al. (1975) conclude that personal concerns, fear of needles, sight of blood, dizziness, adverse after-effects (fainting and weakness), and inconvenience motivate non-donors to a greater degree than they are able

or willing to admit. This particular research effort, unlike the vast majority of others, did not accept direct answers as valid explanations as to why some people donate blood and others do not. Their methodology was based on the assumption that subjects responding to questions about others will unconsciously reveal their own motivations. The research by Osborne and Bradley (1975), Hocking et al. (1974), Cagnard (1966), The American National Red Cross (undated), The French Red Cross (1962), Simeray-Massé and Riffault (1962), and Phillips (1961) support the hypothesis that generalized fear and nervousness, specific aversion to needles, finger pricks, sight of blood, and concern about negative after-effects do inhibit blood donation. Inconvenience, indifference, and lack of awareness are also cited but in much smaller percentages. Fifty-seven percent of the 150 non-donors in the study by Oswalt and Hoff (1975) said that they could not give blood because of medical prohibitions. But the authors readily concede doubt as to the legitimacy of some of these responses.

Summary

In reference specifically to blood donor studies, two major criticisms are: (a) the stereotyped approach to most blood donor research (i.e., distribute, collect, and tabulate responses to questionnaires), and (b) the

equating of what people say their motives are, with what those motives may actually be.

Oswalt (1977), in his extensive review of 60 English-language articles on blood donation, is clearly in support of the first criticism:

While there is a substantial body of scientific information on the medical and chemical aspects of blood, there is a woefully inadequate foundation of scientific data upon which to draw information about acquiring blood from donors (p. 133).

He found only two studies which "have begun to manipulate and experimentally control the variables that are involved in donating" (p. 133). Rados (1977) likewise laments the paucity of blood donor research: "Considering the voracious demand for blood, it is surprising that so little research has been done on those who give blood and those who do not. The number of published studies is few" (p. 221).

Oswalt (1977) also concurs with the second criticism mentioned above: "Even though the altruism/humanitarian motivation is given the most frequently, one might question whether this is a true motivation or a rationalization" (p. 124). Similarly, Dichter (1972) claims that the true motivation of blood donors is not quite as altruistic nor humanitarian as donors express it to be.

Continuing the overall evaluation of blood donor research, attention is again directed to Oswalt (1975) who, in a personal communication, stressed the undesirability

of excluding non-donor subjects from studies on the nature of blood donation. Basic research methodology tends to support his suggestion, but in approximately³ 75% of the studies surveyed, non-donors were entirely neglected. Further, Oswalt and Napoliello (1974) report that in the United States only 3% to 5% of the total eligible general population are donors, whereas 40% of the college sample in their study were donors. But more than 85% of the studies in this review were restricted to subjects taken from the general population.

A unified, comprehensive theory of pro-social behavior does not exist. In view of the overwhelming complexity and breadth of the concept, it is not surprising that an all-encompassing theoretical structure has not yet been formulated. Numerous and varying theories have been generated and, in some instances, robust experimental evidence has accumulated in support of them. On occasion, a given theory has survived critical scrutiny by several independent sources, only to be found lacking unanimous support because of differences in interpretation of results. For example, the literature is unequivocal in accepting the theory in which the arousal of negative affective states increases the likelihood of helping behavior. Whether this increase is due to feelings of guilt or lowered self-esteem or is a reparative act, remains unclear. Schwartz (1977) offers a succinct

summation when he states, "The burgeoning literature on helping behavior is characterized by a plethora of variables, few of them related to each other in any coherent way" (p. 223).

In this dissertation, one specific form of pro-social behavior, namely, blood donation, has been selected as an appropriate and reasonable dependent variable. Testing for relationships between the dependent variable, blood donation, and relevant independent variables selectively and critically culled from the literature is the intended function of this research. The theoretical rationale for choice of independent variables flows in part from the positions taken by the following theorists.

Schwartz (1977) asserts that most social psychologists have concerned themselves with the specification of situational factors that inhibit or enhance helping. He believes that, as a consequence, the investigation of internal sources of altruistic motives has been impeded.

Krebs (1970) also claims that the preponderance of research on pro-social behavior has manipulated situational variables that mediate pro-social responses. Sarason and Smith (1971) contend that most research on pro-social behavior has largely ignored the roles of internalized personal characteristics involved in helping behavior. Krebs (1970) adds further substantiation:

Before conclusions can be drawn about the acquisition of behavioral dispositions, two criteria should be met: (a) the behavior in question should be general to situations other than that in which it was elicited and, (b) it should be relatively enduring (p. 268).

Together, these opinions point to an imbalance of research attention given situational factors over personal ones in the Person X Situation paradigm.

The theoretical position of the present research supports personal norms as crucial but not exclusive mediating forces in pro-social behavior. The activation or non-activation of these personal norms in varying situational conditions are believed to explain significant amounts of individual differences in helping behavior. Schwartz (1973) defines personal norms as an individual's self-expectations which flow from socially shared norms. These norms are products of the interaction between learned expectations of societal norms and personal experience in the socialization process. Personal norms are tied to a person's self-concept. Schwartz proposes that "anticipation or actual violation of the norm result in guilt, self-deprecation, loss of self-esteem; conformity or its anticipation result in pride, enhanced self-esteem, security" (p. 353). Further, Schwartz (1977) submits that the "intention to help is initiated by exposure to the need of another" (p. 223). He states that explanations of helping acts differ, depending upon which process is

postulated to connect the perception of need to helping intentions: (1) arousal of emotion; (2) activation of social expectations; or (3) activation of self-expectations. Schwartz focuses attention upon the self-expectation process and observes that it

may be characterized as a normative explanation of helping based on internalized or personal norms.... Social norms consist of expectations, obligations and sanctions currently anchored in social groups. The expectations, obligations and sanctions which constitute personal norms, by contrast, while originating in social interaction, are currently anchored in the self (p. 223).

Activation of self-expectations leads to behavior that is

motivated by the desire to act in ways consistent with one's values so as to enhance or preserve one's sense of self-worth and avoid self-concept distress....

If general social norms recognized as prevalent in a society are also accepted as bases for self-evaluation by an individual (i.e., internalized), they too may influence behavior through the activation of self-expectations. Two widely accepted social norms that have been mentioned as generating self-expectations are equity and social responsibility (p. 226).

These two social norms, along with two personal norms, namely, self-perceived competence and locus of control, are the theoretical links to the hypotheses tested in the current research. Specification of hypotheses is submitted in a subsequent section of this chapter (p. 52).

Statement of the Problem

A synthesis of blood donor research done to date is characterized by two distinct features. In the first instance,

a survey of the pro-social literature yields few studies on blood donation per se. In some isolated cases, blood donation has been tangentially considered, but not as the prime focus of investigation. A second group of studies contains those which were directed more specifically to the procurement of blood donors, but without blood donation being linked to, or conceived as, a representative form of pro-social behavior. Also, the typical research method used in approximately 90% of these studies was based on self-report, many of which seemed to this author to be susceptible to respondent biases. Consequently, the status of research on blood donation, it seems, is not only incomplete but somewhat constricted by a limited perspective.

Furthermore, while it is granted that Canadians share many similarities with citizens of other countries, it is not known whether blood donation in Canada is shaped and influenced by the same factors as exist elsewhere. In addition, because blood recruiting systems vary considerably from country to country and because Canada is one of the few remaining ones which relies practically entirely on volunteer donors, it would seem eminently appropriate to study Canadian blood donors. As far as is known, not a single blood donor study has been conducted in Canada.

To recapitulate, a considerable portion of previous research on the nature of blood donors has been criticized for:

1. excluding non-donors from experimental samples;
2. basing conclusions on data derived only from questionnaires, answers to which seemed influenced by demand characteristics, interviewer bias, and/or social desirability;
3. ignoring university students who donate blood in much greater proportions than do members of the general public;
4. using inadequate numbers of subjects;
5. employing quasi-research methodologies;
6. not considering blood donation as a legitimate form of pro-social behavior.

The current research strategy is intended to rectify some of the shortcomings listed above. It

1. includes both donors and non-donors in the research sample;
2. bases its conclusions on data obtained through psychological instruments somewhat protected from conscious dissimulation;
3. studies university donors who give blood in proportions which are reported to be nearly 10 times as great as non-university donors;
4. uses an adequate sample size;
5. conceives blood donation to be a valid form of pro-social behavior.

Strategy of the Research Design

The basic strategy of this research was determined in accordance with the previously stated intention of adding to the understanding of blood donation. An assumption and some support for asserting that blood donation is

a representative form of pro-social behavior was stated earlier. And if (as it appears reasonable to so state) blood donation is a form of pro-social behavior, it would seem equally appropriate to question whether tenable hypotheses on the nature of pro-social behavior also apply to blood donation.

The dependent variable, then, is blood donation. The independent variables, specified and justified more precisely in subsequent sections of this report, are measures of: (a) self-perceived competence; (b) locus of control; (c) social responsibility; and (d) reciprocity. The plan of the present research is to administer psychometric instruments to a sample of donors and non-donors. The data collected will then be used to test for relationships between the dependent and independent variables.

Statement of the Hypotheses

Many different theories claim to provide some understanding of the helpful individual. Only a small number, however, are cited in both the literature on pro-social behavior and in the group of blood donor studies which were done primarily by agencies attempting to procure greater numbers of volunteer donors. That these few theories are endorsed by the two relatively independent camps, tends to lend greater credence to them. Hypotheses chosen to be tested in the current research possess this dual claim for acceptance.

(a) A well-documented position asserts that people who perceive themselves to be competent are more likely to be helpful than those whose self-image suggests a lesser sense of competence. It is hypothesized that blood donors, in comparison to non-donors, possess a higher degree of self-perceived competence.

(b) Some people believe that they are masters of their own fate and see the control of their lives as coming from within themselves (internal locus of control). Others believe that they are helpless pawns of the gods, controlled by outside forces over which they have little control (external locus of control). Research tends to support the theory that internally controlled people are more helpful than those who are externally controlled. It is hypothesized that blood donors, in comparison to non-donors, are more internally controlled.

(c) Another theoretical stance frequently encountered and supported is that of an internalized norm of social responsibility. Helpfulness is attributed to a process whereby the societal value of helping people who need help has been introjected into the belief system of the helper. It is hypothesized that blood donors, in comparison to non-donors, are more socially responsible.

(d) A fourth contention, which stresses an equity theory of helping, claims that people who help do so because they function on the basis of reciprocity--to repay

some favor that they themselves have received or hope to receive. It is hypothesized that, in relation to blood donation, donors do not function on the basis of reciprocity.

The purpose of this research is to treat the concepts inherent in the above-mentioned theories as independent variables and test for relationships between them and the dependent variable, blood donation.

Research hypotheses - null form

1. There are no differences between donors and non-donors in self-perceived competence.
2. There are no differences between donors and non-donors in internal locus of control versus external locus of control.
3. There are no differences between donors and non-donors in social responsibility.
4. There are no differences between donors and non-donors in reciprocal giving.

CHAPTER II

RESEARCH METHODOLOGY

This chapter presents the process used to derive a subject pool, the psychometric instruments used, the specific data collection procedures undertaken, data preparation, and statistical methods for data analysis.

Research Subjects

Five hundred and twenty-five (525) volunteer blood donors participated in a Red Cross mobile blood donor clinic conducted at the University of Ottawa on October 9 and 10, 1974. These donors represent the initial source from which an eventual subject pool was derived. As each donor presented himself to the blood drawing area, a receptionist registered identifying information on documents prepared for this purpose (e.g., name, address, telephone number, year of birth, and blood type). This information was computerized for future use by the Canadian Red Cross, creating at the same time the enumeration of donors which was used in procuring subjects for this research. With the assistance and cooperation of the registrar's staff at the University of Ottawa, student donors were distinguished from among all other donors (i.e., staff members, non-university affiliated donors) who had given blood at the same clinic. Identification of student donors was achieved by comparing

family names, first names, addresses, and birth dates on the Red Cross printout with the University's Master Student File. Those donors on the Red Cross printout who did not appear on the Master Student File were assumed to be non-students and were, therefore, eliminated from further consideration in this study. For each student donor, the following biographical and academic information was extracted from the Master Student File: student identification number, family name, first name, age, sex, marital status, year of birth, local address and telephone number, student classification, year of studies, degree sought, country of origin, and language of instruction. An analysis of the registration data for each student who had participated in the blood donor clinic revealed 199 to have chosen English as their preferred language of instruction. These 199 students represent the initial group upon which the selection of a matched group was based. Those students whose registration data indicated French as their preferred language of instruction were deleted from the list of potential subjects. This regrettable decision was necessary because of probable invalidation of data that would have been derived using psychological tests originally published in English and then translated into French without appropriate standardization procedures.

A matched group was derived the following way: for each of the 199 student donors, two other students were

selected by matching for course communality, language of instruction, age, sex, and marital status. In this way, a subject pool of 596 individuals was gathered, comprised of 199 English-speaking students who had donated blood at the mobile clinic in October 1974, and 397 Match students who had not. (In one instance, only a single match could be located, resulting in an N of 596 rather than 597.)

Using the matching procedure just described, it was only possible to state, at that point in time, that Match students had not donated blood at the University of Ottawa mobile clinic in October 1974. Later, responses to a questionnaire identified Match students who actually were blood donors, but who had not participated in the October 1974 campus clinic.

In the first phase of this study, 397 individuals in the subject pool were solicited by telephone and were asked to volunteer to be research subjects in this experiment. The original subject pool of 596 was reduced to 397 because of an inability to contact 199 of them. Failure to reach these potential subjects was due to phone numbers no longer in service, students having moved from their place of residence without having left a forwarding address or new phone number, or students who were not in at the time of the first call nor reached after several other attempts. Out of 397 students who were contacted, 221 honored their commitment to participate in the study.

Research Instruments

Biographical and academic information for each subject was obtained from University of Ottawa registrar records. In addition, standardized psychological scales, inventories, and a devised questionnaire were selected for use in this study. Measures derived from each of these sources provided the empirical data upon which the testing of hypotheses was based.

The California Psychological Inventory (C.P.I.)

The C.P.I., developed for use with normal populations, consists of 480 items to be answered True or False. It yields 18 scales, addressed principally to personality characteristics important for social living and social interactions. The 18 C.P.I. scales are grouped into the following four classes:

- Class I - measures poise, self-assurance, and interpersonal adequacy.
- Class II - measures responsibility, maturity, and socialization.
- Class III - measures intellectual efficiency and achievement potential.
- Class IV - measures interest modes.

Although published critiques of the C.P.I. are not unanimous, many are unequivocal in their support of it. Goldberg (1972) reports that "the knowledgeable practitioner

should be able to provide more valid predictions from the C.P.I. than from most other comparable instruments on the market today." Anastasi (1968) claims that the C.P.I. is "one of the best personality inventories currently available." According to Kleinmuntz (1967), the C.P.I. is "well on its way to becoming the best if not the best personality measuring instrument of its kind." According to Kelly (1965), the C.P.I. is "one of the best if not the best available instrument of its kind."

Megargee's C.P.I. handbook (1972) provides detailed descriptions of the procedures followed in constructing each of the 18 C.P.I. scales and he reviews studies relevant to the validity of each scale. The validation studies cited are those which explained the relationship of the scales to observations of relevant overt behavior. A C.P.I. manual (Gough, 1964) also contains representative indicators of the validity of each scale (e.g., (a) the Dominance scale of 70 medical school applicants correlated +.48 with staff ratings of "dominance"; (b) for 70 graduate students in psychology, a correlation of +.44 between the Intellectual Efficiency scale and the Miller Analogies Test was found).

The Internal-External Locus of Control Scale

This instrument, a 29-item, forced-choice test, including six filler items intended to obscure its purpose, was developed by Rotter and his associates (1966).

This scale measures the degree to which an individual perceives his behavior and its consequences as the result of luck, chance, or fate, and if an event is interpreted in this way, the person is said to function on the basis of external control. If an individual perceives events to be contingent upon his own behavior and acquired abilities, the person is said to believe in internal control. Scores range from 0 to 23, with lower scores reflecting internal control and higher ones reflecting external control. Rotter (1966) provides data in support of the scale's internal consistency (coefficients cited range from .65 to .74) and test-retest reliability (coefficients cited range from .49 to .83) and he states that the scale correlates satisfactorily with other methods used to assess the same variable. Discriminant and construct validity of the internal-external locus of control scale are also reported by Rotter (1966) to have satisfied the necessary criteria.

Semantic Differential Scales

The semantic differential technique, developed by Osgood et al. (1957), measures connotative meanings of words, phrases, or concepts and the format used in this research project was modeled after Osgood's Form ~~CI~~ (Osgood et al., 1957, p. 81). Twenty bipolar scales were chosen according to the selection criteria set down by Osgood et al. (1957, p. 78) to measure the connotative meaning, donors

and non-donors ascribe to the following five concepts:
THE FRIEND I MOST ADMIRE, THE IDEAL CITIZEN, THE WAY I SEE
MYSELF, THE WAY OTHERS SEE ME, THE WAY I WOULD LIKE TO BE.

A variation of the usual semantic differential methodology was also used by modeling the experimental paradigm of Haire (1950). All subjects were asked to rate a fictional citizen whose characteristics were provided in a 1-paragraph description (see Appendix 1). This fictional citizen was portrayed identically to all subjects, except that in half the protocols the man was said to be a blood donor, while in the other 50%, this fact was omitted.

Factor analyses have reduced the enormous variety of potentially usable scales to a more limited and manageable number and have consistently identified three major clusters: Evaluation, Potency, and Activity. The most prominent cluster consists of adjective pairs that are evaluative in nature (e.g., good-bad). A second cluster has contrasting adjective pairs that seem to share strength or potency ideas (e.g., strong-weak). A third prominent factor is called Activity because its adjectives seem to express motion and action (e.g., fast-slow). Scales representing each of these three factors, maximally loaded on one and minimally on the others, were selected for use in this research. An important criterion in scale selection is relevance to the concepts being judged, and as

Osgood et al. (1957) state, "the purpose of the investigator dictates the choice" (p. 79). The guiding rationale for scale selection in this instance was largely determined by the genus of variable being researched, namely, pro-social behavior and the specific formulation of hypotheses. Thus, contrasting adjective pairs with loadings on the factor Evaluation (e.g., responsible-irresponsible, moral-immoral) were selected to gather data for the testing of the relationship between social responsibility and blood donation. Five Potency factor scales (e.g., strong-weak, decided-undecided) were chosen to test the relationship between blood donation and self-perceived competence, this latter concept conceptualized in this instance in terms of strength and decisiveness. The inclusion of four Activity factor scales was not based on any preconceptions other than to tap the third major known factorial cluster.

A number of authors (Grigg, 1959; Kelly & Levy, 1961; Messick, 1957; Moss, 1960; Osgood et al., 1957) have documented satisfactory evidence for the validity of the semantic differential. Osgood et al. (1957) report test-retest coefficients ranging from .87 to .93, with the second administration following the first after a 5-week interval. Norman (1959) reports that "a rather high degree of time and sampling stability exists for the semantic differential for groups of subjects chosen from an undergraduate population" (p. 584).

Blood Donor Questionnaire

This instrument (see Appendix 2) was devised to gather a wide range of information, both for the purpose of testing the research hypotheses and to collect other seemingly pertinent facts which might also relate to blood donation. The questionnaire was used to obtain data such as:

1. total number of blood donations given by each subject;
2. frequency with which subjects sold their blood for money;
3. frequency of transfusions received by subjects, their families, relatives, or other close acquaintances;
4. frequency of blood donations given by persons well known to each subject;
5. subject's stated motives for donating or not donating blood;
6. number of siblings and subject's ordinal position;
7. subject's religious affiliation and estimate of activity in religious practices.

Question 16 describes a hypothetical situation wherein blood supplies from the Ottawa area are urgently needed in Toronto. A Likert-type response format measured each subject's willingness to share this precious commodity.

Question 17 reads as follows: "All financial considerations aside and assuming they were interested, in which of the following would you encourage your child to seek a career"? (Politics; Business; Literature;

Theology; Social Service; Philosophy). Answers to this question, a variant of an item from an early form of the Allport-Vernon Study of Values, provided an indirect measure of personal values. It is assumed that subjects who select Social Service as the occupation of choice for their offspring are more socially concerned than those subjects who state that they would want their children to enter the world of business.

This questionnaire, its items and basic structure is a composite version modeled after blood donor questionnaires cited in the literature (The American National Red Cross, undated; Phillips, 1961; Titmuss, 1971; Upton, 1974). Oswalt's (1975) Blood Donor/Non-Donor Survey, obtained via personal communication, was also used as a guide.

Measures Derived for Testing Experimental Hypotheses

Measures Derived for Testing the Relationship between Self-perceived Competence and Blood Donation

Hypothesis 1 states that there are no differences between donors and non-donors in self-perceived competence. Measures of competence in the present study were derived from: (a) C.P.I. Class I scales; (b) semantic differential Potency factor scores; (c) C.P.I. Class III scales; and (d) semantic differential Potency factor difference scores between perceived self and ideal self.

Measures based on C.P.I. Class I scales. According to Gough (1964), Class I measures poise, self-assurance, and interpersonal adequacy. As many as 20 factor analytic studies are cited in Megargee (1972) which found that the first five scales in Class I form a single, extremely stable factor. The different names given to this factor--assertive self-assurance, self-acceptance and outgoingism, social confidence and drive, social poise and extraversion, interpersonal effectiveness--are all congruent with terms which would be used to describe an individual who sees himself or herself as being socially competent. Indices of the measuring stability of Class I scales with a one-year interval between testings range from .65 to .68 and split-half reliability coefficients range from .70 to .80 (Megargee, 1972).

Although the Sense of Well-being scale does not load on the same factor as the first five scales in Class I, Gough includes it in Class I because he believes that the scale describes an individual's effectiveness in interpersonal relations. The Sense of Well-being scale has consistently been found to have significant loadings on a factor which measures positive adjustment. Megargee (1972) cites a .71 test-retest reliability over one year and a split-half reliability of .86 for Sense of Well-being. The higher scores on Sense of Well-being indicate health

and verve, and lower scores suggest diminished vitality and lesser abilities in meeting the demands of everyday life. The scale contains items reflecting independence, self-sufficiency, and a confidence in the future.

Measures based on semantic differential Potency factor scores. Five bipolar scales with high factor loadings on the factor Potency were used in this study (Hard-Soft, .97; Strong-Weak, .62; Dominant-Submissive, .84; Decided-Undecided, .83; Large-Small, .62). In accordance with the semantic differential rationale, connotative interpretations of terms and concepts relating to potency and strength are assumed by this author to measure competence of a kind requiring such attributes.

Measures based on C.P.I. Class III scales. C.P.I. Class III scales--Achievement via Conformance, Achievement via Independence, and Intellectual Efficiency--are designed to assess achievement potential and intellectual efficiency.

Based on a sample of 234 males and females, Megargee (1972) cites a test-retest reliability of .69 (one-year interval) and a split-half reliability of .86 ($N = 500$) for the Achievement via Conformance scale. Megargee reports that Achievement via Conformance has consistently correlated with achievement for high school subjects, but has proven less useful in other settings. High scorers on Achievement via Conformance regard themselves as diligent

workers who plan their efforts, as accepting rules and regulations, and as having confidence in their own abilities.

The Achievement via Independence scale was constructed to predict achievement in college undergraduate courses and evidence reported by Megargee (1972) shows that Achievement via Independence correlates significantly with Grade Point Averages in college and high school samples. Respective test-retest and split-half reliabilities for this scale are reported in Megargee (1972) to be .60 and .75.

The Intellectual Efficiency scale has been found to correlate significantly with conventional tests of verbal intelligence (cf., Gough, 1964, p. 24) and high scorers according to C.P.I. rationale are assessed as being efficient, capable, intelligent, and as placing a high value on cognitive and intellectual matters. Based on a sample of 70 graduate students in psychology, Gough (1964) cites a correlation of .44 between the Intellectual Efficiency scale and the Miller Analogies Test. Megargee (1972) reports a test-retest reliability of .76 and a split-half coefficient of .81 for the Intellectual Efficiency scale.

Measures based on differences between perceived self and ideal self. Semantic differential Potency factor scores for the concepts HOW I SEE MYSELF, HOW OTHERS SEE

ME, and HOW I WOULD LIKE TO BE were used to derive measures of self-perceived competence, basing the construct of competence on notions relating to strength and decisiveness. Assessing differences between measures of ideal self and perceived self is a standard research technique wherein it is assumed that the greater the correspondence between self-perceived traits and desired traits, the greater the degree of self-perceived competence. Conversely, the greater the difference between these two concepts, the lesser the degree of self-perceived competence.

Difference scores were established for each of the designated groups in this study according to the formula $D = X_1 - X_2$, where X_1 equals Potency factor scores for the concept HOW I WOULD LIKE TO BE and X_2 equals Potency factor scores for the concept HOW I SEE MYSELF. Difference scores were also established in the same way for each of the designated groups on the basis of the two concepts HOW I WOULD LIKE TO BE and HOW OTHERS SEE ME.

A Measure Derived for Testing the Relationship between Locus of Control and Blood Donation

Hypothesis 2 states that there are no differences between donors and non-donors in internal versus external locus of control. The measure of locus of control in the present study was derived from Rotter's (1966) internal-external locus of control scale.

Measures Derived for Testing the Relationship between
Social Responsibility and Blood Donation

Hypothesis 3 states that there are no differences between donors and non-donors on measures of social responsibility. Measures of social responsibility in the present study were derived from: (a) C.P.I. Class II scales; (b) C.P.I. Class IV scales; (c) semantic differential Evaluation factor scores in the rating of a fictional "donor" and a fictional "non-donor"; (d) subject's stated willingness to share community blood supplies; and (e) subject's choice of vocation on behalf of their offspring.

Measures based on C.P.I. Class II scales. Class II scales of the C.P.I. measure levels of responsibility, socialization, maturity, and intrapersonal structuring of values. The Class II scales, originally devised as trait measures (as opposed to validity scales), are reported by Megargee (1972) to have one-year test-retest reliabilities ranging from .66 to .72 and split-half reliabilities of from .83 to .87.

Megargee (1972) sums up the evidence for the validity of the Responsibility scale by asserting that "it is clear that groups characterized by anti-social behavior obtain low scores on the Responsibility scale" and that the scale "correlates with performance on tasks emphasizing attention to duty" (p. 59).

In reference to the Socialization scale, Megargee (1972) states:

In short, an impressive array of data have accumulated demonstrating the concurrent, predictive and construct validity of the CPI socialization scale in the United States and elsewhere. There seems to be little doubt that the So scale is one of the best-validated and most powerful personality scales available (p. 65).

The scale reflects the degree of social maturity, integrity and rectitude the individual has attained.

The Self Control scale was designed to measure adequacy of self-regulation, self control, and the degree of freedom from impulsivity and self centeredness, and hence, similar to the Responsibility and Socialization scales. Although Megargee (1972) suggests that more research is needed on the Self Control scale, he cites evidence which found significant differences between Self Control scores of extreme groups of students rated as most impulsive and least impulsive.

The Tolerance scale identifies social beliefs and attitudes that are permissive, accepting, and non-judgmental. Gough (1964) documents one study in which Tolerance scores of 152 adult males correlated .34 with scores on the Chicago Inventory of Social Beliefs (a measure of fairmindedness and humanitarian values), and another, with a sample of 419 college students, in which Tolerance correlated .48 with the California F scale (fascism: authoritarian personality).

Measures based on C.P.I. Class IV scales. The C.P.I. scales in Class IV are Psychological Mindedness, Flexibility, and Femininity. Psychological Mindedness identifies individuals who are psychologically oriented and insightful concerning others, and measures the degree of interest in and responsiveness to the inner needs, motives, and experiences of others. The Flexibility scale indicates the degree of flexibility and adaptability of a person's thinking and social behavior. Masculinity or femininity of interests is assessed by the Femininity scale.

Megargee (1972) submits one-year test-retest coefficients of reliability: Psychological Mindedness, .48; Flexibility, .63; Femininity, .85 ($N = 234$). Respective split-half reliabilities of .62, .71, and .73 ($N = 500$) are also cited (pp. 30-31). Gough (1964) reports respective correlations of .44 and .40 between scores on the Psychological Mindedness scale and the Psychologist scale of the Strong Vocational Interest Blank for 70 medical school applicants and for 152 adult males. The inference drawn by Gough is that both scales reflect "psychological mindedness" of the respondents.

Evidence for the validity of the Flexibility scale is contained in Gough (1964) wherein he states that in an assessment of 40 graduate students, Flexibility correlated

-.48 with staff's rating of "rigidity," and in a class of 180 students, there was a -.58 correlation between the Flexibility scale and the California F (authoritarian personality) scale.

The validity of the Femininity scale is supported in Gough (1964) by reference to a -.41 correlation between the C.P.I. Femininity scale and the Masculinity scale of the Strong Vocational Interest Blank, and a .43 correlation with the Mf (feminine interests) scale of the MMPI.

Measures based on semantic differential Evaluation factor scores in the rating of a fictional "donor" and fictional "non-donor." Research using the semantic differential technique has repeatedly identified an Evaluation factor made up of bipolar adjective pairs such as Good-Bad and Responsible-Irresponsible. Eleven scales with loadings that ranged from .69 to .88 on the factor Evaluation were used to assess the connotative meanings attributed by donor and non-donor groups to such concepts as HOW I SEE MYSELF and HOW I WOULD LIKE TO BE (see Appendix 1).

In addition, all subjects used the semantic differential technique to rate a fictional citizen, portrayed in identical terms, except that, in some cases, subjects were led to believe that the man was a blood donor (fictional "donor"), while in others, no mention of blood

donation was made (fictional "non-donor"). The term fictional "non-donor" is only intended to identify those protocols where blood donation was not mentioned in the description of the fictional citizen (see Appendix 1). These ratings thus reflect the way in which actual donors and non-donors evaluate people who give blood--a measure of the "responsible-ness" attributed to blood donors.

A measure based on statements of willingness to share community blood supplies. Question 16 of the Blood Donor Questionnaire used in this study reads as follows: "Suppose there was an emergency in Toronto and the local Red Cross decided to ship blood supplies to help the people in Toronto who needed them. However, by sending blood to Toronto, a dangerously low shortage was created here in Ottawa. What are your feelings about this decision?" (I very strongly agree; I partly agree; I partly disagree; I strongly disagree; I very strongly disagree). It is assumed by this author that a willingness to share one's community blood supplies with needy others reflects social responsibility.

Measures based on vocational choices made by subjects on behalf of their offspring. Question 17 of the Blood Donor Questionnaire used in this study reads as follows: "All financial considerations aside, and assuming they were interested, in which of the following would you

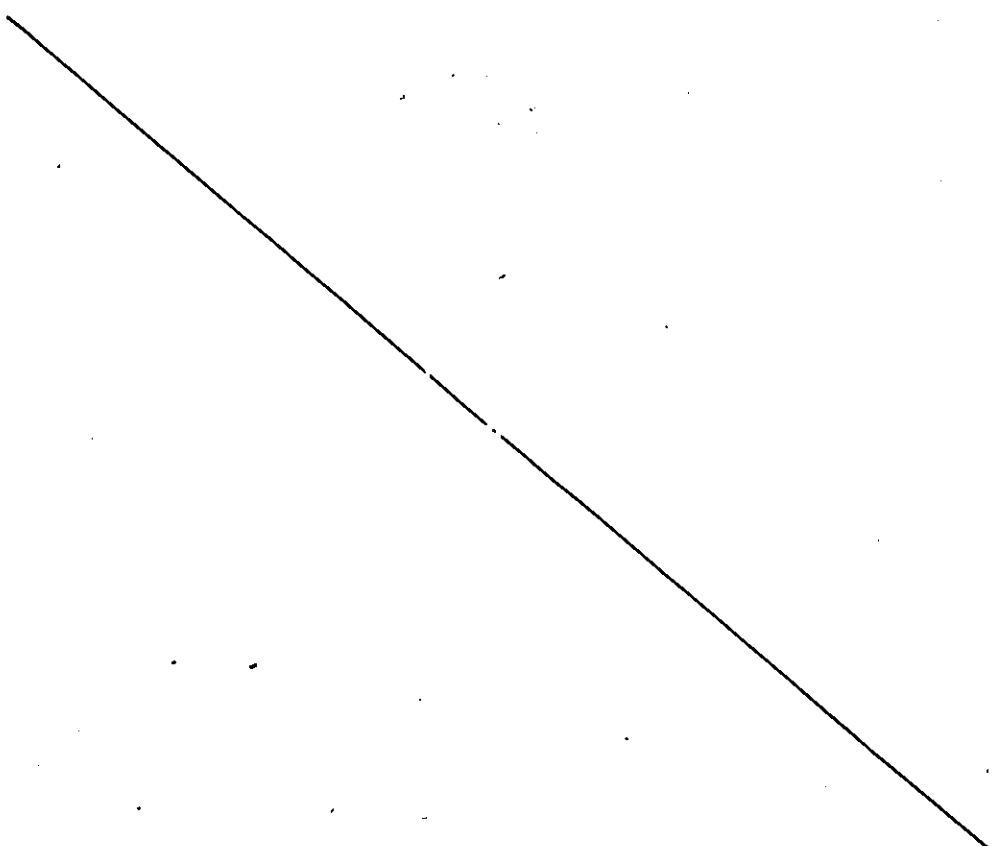
encourage your child to seek a career?" Subjects were asked to choose between Politics, Literature, Business, Theology, Social Service, and Philosophy. The format and rationale for this question is linked to the Allport-Vernon Study of Values (1960) and it is assumed by this author that subjects wanting their children to enter a career in Social Service are more socially responsible than those wanting their children to enter a career in Business. It is not suggested that entrepreneurs are lacking in social responsibility, but a profit or personal gain motive seems inherent to a greater degree in Business than in Social Service.

Measures Derived for Testing the Relationship
between Reciprocal Giving and Blood Donation

Hypothesis 4 states that there are no differences between donors and non-donors in reciprocal giving. The Blood Donor Questionnaire used in this study provided three indices of reciprocal giving in relation to blood donation. Subjects were asked if they had ever: (1) sold their blood for money; (2) received a blood transfusion; and also if, (3) a "significant other" had ever received a blood transfusion. It is assumed by this author that a monetary reward or the "repayment" of prior transfusions received reflects a reciprocal influence on the transactions.

Research Procedures

The collection of data was preceded by the following: a combined listing of student donors from the October 1974 mobile blood donor clinic at the University of Ottawa and match subjects was collated, without identifying subjects as belonging to either group. This list, containing only names and local telephone numbers, was given to research assistants trained in a standardized appeal procedure (see Appendix 3), who then contacted potential subjects by telephone to request their participation in



this research project. The assistants were cognizant of the general nature of the study, but were blind as to how subjects were selected and they could not distinguish known student donor subjects from match subjects. Male research assistants were responsible for calling female subjects and vice versa. Subjects who were not contacted on the first attempt were phoned again at a later time. Subjects who indicated a willingness to take part in the study, but were unable to participate on either of the two regularly scheduled data-collecting sessions, were offered specially arranged appointments on an individual basis. During these telephone calls, research assistants documented one of three possible responses obtained from each potential subject -- an acceptance or refusal to participate or request for a special appointment. The date and time preference of those who agreed to participate was recorded. A total of 221 subjects honored their commitment to participate in the study.

A large room was reserved in a central University of Ottawa campus location and subjects were processed on two separate days. The data collecting procedure for each of the two sessions was identical. Subjects were registered upon arrival with an immediate identity check. Student identification cards were used for this purpose. Subjects were then directed to desks containing test materials.

Group instructions on how to complete the forms and questionnaires were given verbally in addition to the written directions on each research instrument. Assistants were available throughout the session for individualized help. After having completed the first batch of test materials, each subject's test data was examined by assistants who then provided subjects with the second and final batch. One last check for possible errors or omissions was conducted just before each subject departed, and then complete protocols were deposited in one central location in preparation for coding and statistical analysis.

General Methods of Data Analysis

Prior to the statistical analysis of data it was first necessary to organize subject data files so as to be amenable to major computer analyses. The methods used in this coordination process are now described. The identification and subsequent aligning of all raw data was achieved by reference to student identification numbers, documented on each response sheet by each subject at the time of data collection.

Information received from the University of Ottawa Registrar's Office. Biographical and academic facts, such as subject's age, marital status, faculty, and year (see p. 56) were made accessible by the registrar of the University

of Ottawa. These facts were extracted from computerized University records and transferred directly to a computer data file set up for this research. The director of the University of Ottawa Computer Operations wrote and ran the program to obtain the above-mentioned information. The director authorized access to the student files and maintained confidentiality for other, non-research related material in the student's dossier.

The California Psychological Inventory (C.P.I.). The standardized C.P.I. question booklet, published by Consulting Psychologists Press, Inc. (1956), was used to administer the C.P.I. Subjects recorded their responses directly onto optical scanning answer sheets produced specifically for the C.P.I. by National Computer Systems. This same company scored the test protocols and provided the 18 standardized C.P.I. scale scores for each subject on computer cards. These standardized scores were incorporated into the existing data file set up for this research and aligned with other information obtained for each of the research subjects.

The Internal-External Locus of Control Scale.

Instructions and questions for the internal-external locus of control scale were prepared and reproduced in accordance with those published by Rotter (1966). Responses were recorded by subjects on optical scanning data sheets.

After incomplete or invalid score sheets were identified by optical scanner, the data were entered onto computer tape and internal-external locus of control scores were derived using Rotter's scoring criteria. The internal-external locus of control scale yields a single index equivalent to the total number of external choices. Scores range from 0 to 23--the lower the score the more internally controlled the subject.

Semantic Differential Scales. Instructions and general format for the semantic differential scales used in this research were modeled on the prototype recommended by Osgood et al. (1957, p. 83) (see Appendix 1). A 7-point scale between bipolar contrasting adjectives was used and subjects rated concepts by positioning an X along the continuum of each scale. For preliminary coding purposes, Xs placed at the extreme left position of each scale were arbitrarily assigned a numerical value of 0, with each subsequent step toward the right given the next higher value. Raw data from the answer booklet was transferred by research assistants to optical scanning data sheets and examined by optical scanner for the purpose of identifying and correcting invalid records. Then the semantic differential data were read onto computer tape and added to the existing research data file.

Semantic differential scales for this research were selected from each of the three major factorial categories, namely, Evaluation, Potency, and Activity. In the form used to collect the data, scales were not listed sequentially according to their prime factorial characteristic, but were randomly dispersed. After the data had been collected, coded and read onto computer tape, but prior to statistical analyses, the scales were regrouped on the basis of their factorial loadings. Thus semantic differential data in their final pre-analysis form had been organized and made accessible according to subjects, concepts, scales (the higher the score the more positive, potent, or active the rating), and factor categories.

Blood Donor Questionnaire. Responses derived from the blood donor questionnaire were coded by research assistants and transferred to optical scanning data sheets. Each questionnaire and its corresponding optical scanning data sheet was re^eexamined by the primary researcher as a check against erroneous entries. The data sheets were then read onto computer tape to complete the data file for each of the 221 research subjects.

Statistical Analysis of Data

One-way analysis of variance was the major statistical procedure used to test the four experimental

2

hypotheses. Tests for significance of difference of means and tests for significance of difference of proportions were also used. Multiple regression equations were derived to analyze the relationship between the dependent variable, blood donation, and independent predictor variables operating jointly. All major statistical analyses were performed at the University of Ottawa Computing Centre using the Statistical Package for the Social Sciences (1975) by Nie et al. Although the minimal level of statistical significance for all data analyzed was set at $p < .05$, results at $p < .10$ are included in the report for discussion of possible trends.

CHAPTER III

PRESENTATION OF RESULTS

The content and format of this chapter is primarily quantitative and tabular, and it also contains commentaries to accompany and draw attention to pertinent aspects of the data. A more intensive discussion and interpretation of the results is submitted in Chapter IV.

A summary of biographical and academic data for subjects who participated in this study is presented in the first section of the chapter. Next, set out in separate sections, are the results of statistical analyses of data used to test each of the four experimental hypotheses. Subsequent statistical analyses relevant to, but not enumerated in, the experimental hypotheses are then submitted.

Definition of Terms

The subject sample in this study is made up of male and female donors and non-donors. For purposes of group comparisons and testing of hypotheses, subjects were classified into the following nine categories:

donors. male and female subjects who have donated blood on at least one occasion;

repeat donors. male and female subjects who have donated blood on at least two occasions;

male donors. male subjects who have donated blood on at least one occasion;

male repeat donors. male subjects who have donated blood on at least two occasions;

female donors. female subjects who have given blood on at least one occasion;

female repeat donors. female subjects who have given blood on at least two occasions;

non-donors. male and female subjects who have never donated blood;

male non-donors. male subjects who have never donated blood;

female non-donors. female subjects who have never donated blood.

The establishment of the above-mentioned subclasses allows for comparisons on the basis of sex as well as for comparisons between subjects who have manifested the dependent variable (i.e., blood donation) on more than one occasion and those subjects who have never expressed it. Excluding one-time donors from some group comparisons provides more homogeneous samples and, presumably, greater confidence in observed differences. It is acknowledged that some subclasses are not independent. For example, in the presentation of results, when differences are reported between male donors and male non-donors, and also between male repeat donors and male non-donors, there is no claim that the male donors and male repeat donors represent independent groups. Actually, the male donor group and the male repeat donor group is each comprised of the same subjects, except that one-time donors have been excluded from the latter group. Repeat donors are assumed to have

incorporated blood donation into their behavioral repertoire to a greater extent than the one-time donors (who may never give again) and thus may be more representative of the population being studied.

Summary of Biographical and Academic Statistics

Two hundred and twenty-one (221) subjects honored their commitment to participate in this study. Because University of Ottawa registrar records were unavailable for three subjects, summarized data in this section only is based on an n of 218, and is presented in Tables 1 and 2.

Sex and donor status. Of the 118 males who participated, 67.8% were donors and 32.2% were non-donors. Among the 100 females in the study, 60% were donors and 40% were non-donors. A test for significant differences between two sample proportions indicated a significantly higher number of male donor participants ($z = 1.9735$, $p < .05$). This result is congruent with findings in all other studies reviewed.

Age. The average age of all subjects was 21.9; the average age of male subjects was 22.4; and the average age of female subjects was 21.4. The mean age of donors was 21.7 and the mean age of non-donors was 22.3. A one-way analysis of variance between the mean age of males and females indicates males to be significantly older ($F = 9.8944$;

Table 1

Measures of Central Value and Measures of Variability for
Male and Female Subjects

Variable	Males (n=118)	Females (n=100)	p
Donor status			
Donor	67.8%	60.0%	<.05
Non-donor	32.2%	40.0%	
Age			
Mean	22.42	21.40	<.01
Standard deviation	2.27	2.51	
Marital status			
Single	90.6%	99.0%	n.s.
Married	9.4%	1.0%	
Number of siblings			
Mean	3.41	3.05	n.s.
Standard deviation	2.04	1.85	
Ordinal position ^a			
Mean	2.50	1.94	<.01
Standard deviation	1.49	1.34	

^a Summarized data represents number of older siblings.

Table 2

Measures of Central Value and Measures of Variability for
Donors and Non-donors

Variable	Donors (<u>n</u> =140)	Non-donors (<u>n</u> =78)	p
Age			
Mean	21.75	22.30	n.s.
Standard deviation	2.71	1.79	
Marital status			
Single	92.9%	96.2%	n.s.
Married	7.1%	3.8%	
Number of siblings			
Mean	3.25	3.25	n.s.
Standard deviation	1.97	1.95	
Ordinal position ^a			
Mean	2.31	2.12	n.s.
Standard deviation	1.47	1.41	

^aSummarized data represents number of older siblings.

$df = 1,216$; $p < .05$). No significant age differences were found between donors and non-donors.

Marital status. Of all subjects, 94.6% were single and only 5.4% were married. Among donors, 92.9% were single and 7.1% were married. Among non-donors, 96.2% were single and 3.8% of them were married.

Siblings. The average number of siblings across all subjects was 3.26. The average number of siblings for male subjects was 3.41 and 3.05 for female subjects. The mean number of siblings for donor subjects was 3.25 and also 3.25 for non-donor subjects. No significant differences were found between groups for number of siblings.

Ordinal position. The mean number of older siblings across all subjects was 2.26. Male subjects had an average of 2.50 older siblings and female subjects had an average of 1.94 brothers or sisters older than themselves. Donor subjects had an average of 2.31 older siblings and non-donor subjects had 2.12. A one-way analysis of variance between the ordinal position of males and females indicates females to have significantly fewer older siblings ($F = 8.1236$; $df = 1,216$; $p < .01$). No significant differences were found between donors and non-donors for number of older siblings.

Class. Full-time undergraduate students accounted for 90.5% of all subjects. Undergraduate students registered on a part-time basis made up another 5.0% and 3.1%

of all subjects were full-time graduate students (missing data = 1.4%).

Year. First-year students made up 21.7% of the subjects; 19.0% were second-year students; 36.2% were third-year students; and 18.6% were in fourth year (missing data = 4.5%).

Faculty. More than 60% of the participants were registered in two faculties--Science (31.7%) and Arts (29.9%). Ten other faculties were also represented, but each to a much smaller extent.

Language of instruction. All subjects who took part in this study were pre-selected on the basis of having stated that English was their preferred language of instruction.

Mother tongue. Of all subjects, 68.3% claimed English to be their mother tongue and 22.6% claimed French to be the first language spoken at home. The remaining 7.7% fell within seven separate linguistic categories (missing data = 1.4%).

Country of birth. Of all subjects, 81.9% were born in Canada, 2.3% were born in the United States, and 2.3% were born in England. The rest of the subjects (13.5%) were born in 19 other countries.

Citizenship. Of all subjects, 92.3% were Canadian citizens. Subjects from the United States represented

another 1.8%. Eleven other countries accounted for the citizenship status of the remaining subjects (5.9%).

Summary. A composite resumé of 218 out of 221 of the participants in this study indicates that:

- I.
 1. Male ($n = 118$) and female ($n = 100$) subjects were nearly equally represented.
 2. Male donor subjects significantly outnumbered female donor subjects, $p < .05$.
 3. The average age of all subjects was 21.9.
 4. 94.6% of all subjects were single.
 5. On the average, subjects had 3.26 siblings.
 6. Typically, subjects had 2.26 older siblings.
 7. Female subjects had significantly fewer older siblings than male subjects, $p < .01$.
- II.
 1. 90.5% of all subjects were full-time undergraduates.
 2. Subjects were fairly evenly distributed in first, second, and fourth year, with a slightly higher concentration in third year.
 3. 61.6% of all subjects were registered either in the faculty of Science or the faculty of Arts.
- III.
 1. All subjects were pre-selected on the basis of having chosen English as their preferred language of instruction.
 2. English was the mother tongue of 68.3% of all subjects, and French was the first language of another 22.6%.
 3. 81.9% of all subjects were born in Canada, 2.3% in the United States, and 2.3% in England.
 4. 92.3% of all subjects were Canadian citizens.

Results of Testing the Relationship between Self-perceived Competence and Blood Donation

Hypothesis 1 states that there are no differences between donors and non-donors in self-perceived competence. Measures of competence in the present study were derived from: (a) C.P.I. Class I scales; (b) semantic differential Potency factor scores; (c) C.P.I. Class III scales; and (d) semantic differential Potency factor difference scores between perceived self and ideal self. Results of statistical analyses pertaining to hypothesis 1 are now submitted.

Results based on C.P.I. Class I scales. The C.P.I. yields 18 different scales grouped into four classes. Gough's C.P.I. Manual (1964) and Megargee's C.P.I. Handbook (1972) both identify the following six scales in Class I: Dominance, Capacity for Status, Sociability, Social Presence, and Sense of Well-being. According to Gough (1964), Class I measures poise, self-assurance, and interpersonal adequacy. As many as 20 factor analytic studies are cited in Megargee (1972) which found that the first five scales in Class I form a single, extremely stable factor. The different names given to this factor--assertive self-assurance, self-acceptance and outgoingism, social confidence and drive, social poise and extraversion, interpersonal effectiveness--are all congruent with terms which would be used to describe an individual who sees himself or herself as being socially competent. Although

the Sense of Well-being scale does not load on the same factor as the first five scales in Class I, Gough includes it in Class I because he believes that the scale describes an individual's effectiveness in interpersonal relations. The Sense of Well-being scale has consistently been found to have significant loadings on a factor which measures positive adjustment. The higher scores on Sense of Well-being indicate health and verve, and lower scores suggest diminished vitality and lesser abilities in meeting the demands of everyday life. The scale contains items reflecting independence, self-sufficiency, and a confidence in the future.

Table 3 presents the scales in Class I with significant differences between donor and non-donor groups and it indicates four out of the six scales in Class I differentiating between groups. It also shows that donor groups consistently outscored non-donor groups and that donors scored significantly higher than non-donors on Capacity for Status and Sense of Well-being. C.P.I. Class I scales were significantly higher for repeat donors than for non-donors on Capacity for Status, Sociability, and Sense of Well-being. Male donors obtained significantly higher scores than male non-donors on Social Presence and Sense of Well-being. Male repeat donors obtained significantly higher scores than did male non-donors on Social Presence and

Table 3

One-way Analysis of Variance of C.P.I. Class I Scales between Donor and Non-donor Groups

	Dominance		Capacity for status		Sociability		Social preference		Self-acceptance		Sense of well-being	
	$\bar{X}$ (SD)	F (df)	$\bar{Y}$ (SD)	F (df)	$\bar{Y}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)
Donors vs.	51.92 (12.55)	0.7348 (1,219)	49.38 (10.03)	4.1730** (1,219)	51.64 (10.49)	2.6208 (1,219)	54.95 (11.56)	3.4820 (1,219)	55.74 (11.56)	0.7433 (1,219)	45.91 (11.61)	4.2595** (1,219)
Non-donors	50.35 (13.84)		46.29 (11.99)		49.34 (11.58)		57.58 (11.42)		54.31 (12.26)		42.44 (12.62)	
Repeat donors vs.	52.54 (12.50)	1.2792 (1,185)	49.94 (10.33)	4.0764** (1,185)	52.67 (10.21)	4.3398** (1,185)	54.59 (11.92)	3.0125 (1,185)	56.10 (10.97)	1.0936 (1,185)	47.16 (11.07)	7.3697** (1,185)
Non-donors	50.35 (13.84)		46.29 (11.99)		49.34 (11.58)		57.58 (11.42)		54.31 (12.26)		42.44 (12.62)	
Male donors vs.	54.27 (13.12)	-0.0007 (1,118)	50.39 (10.08)	2.6147 (1,118)	53.02 (8.94)	1.5149 (1,118)	57.01 (12.34)	5.9658** (1,118)	57.87 (10.83)	0.2585 (1,118)	47.66 (10.93)	5.1050** (1,118)
Male non-donors	54.25 (14.48)		47.07 (11.40)		50.79 (9.98)		51.38 (10.63)		56.76 (11.83)		42.74 (11.67)	
Male repeat donors vs.	53.50 (13.21)	0.0736 (1,101)	50.20 (10.38)	2.0397 (1,101)	52.99 (9.28)	1.1830 (1,101)	56.40 (12.62)	4.3971** (1,101)	57.01 (10.43)	0.0130 (1,101)	49.03 (9.94)	8.4805*** (1,101)
Male non-donors	54.25 (14.48)		47.07 (11.40)		50.79 (9.98)		51.38 (10.63)		56.76 (11.83)		42.74 (11.67)	

Table 3 (Cont'd.)

	Dominance		Capacity for status		Sociability		Social presence		Self- acceptance		Sense of well-being	
	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{Y}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)
Female donors vs.	48.80 (11.10)	0.9185 (1,99)	48.03 (9.89)	1.2429 (1,99)	49.80 (12.07)	0.5524 (1,99)	51.39 (9.63)	0.0303 (1,99)	52.91 (11.96)	9.1623 (1,99)	43.59 (13.16)	9.3073 (1,99)
Female non-donors	46.55 (12.21)		45.52 (12.63)		47.92 (12.92)		51.77 (12.28)		51.92 (12.34)		42.15 (13.63)	
Female repeat donors vs.	51.15 (11.40)	3.1996 (1,82)	49.56 (10.37)	2.5878 (1,82)	53.34 (11.52)	2.7401 (1,82)	51.95 (10.40)	0.0053 (1,82)	54.77 (11.70)	1.1777 (1,82)	44.45 (12.13)	9.6715 (1,82)
Female non-donors	46.55 (12.21)		45.52 (12.63)		47.92 (12.92)		51.77 (12.28)		51.92 (12.34)		42.15 (13.63)	

* $p = .10$
 ** $p = .05$
 *** $p = .01$
 **** $p = .0005$

Sense of Well-being. No significant differences were found for exclusively female groups.

Results based on semantic differential Potency factor scores. Factor analytic studies of semantic differential scales have consistently identified three main factors which have been named Evaluation, Potency, and Activity. Five bipolar scales with high factor loadings on the factor Potency were used in this study (Hard-Soft, .97; Strong-Weak, .62; Dominant-Submissive, .84; Decided-Undecided, .83; Large-Small, .62). In accordance with the semantic differential rationale, connotative interpretations of terms relating to potency and strength are assumed by this author to measure competence of a kind requiring such attributes.

Table 4 presents the significant differences of Potency factor scores between donor and non-donor groups tested by one-way analysis of variance, and it indicates that significant differences were found only for the concept THE WAY OTHERS SEE ME. Differences between repeat donors and non-donors, and between male repeat donors and male non-donors, were significant at the .05 level. No significant differences were found for exclusively female groups. The results indicate that repeat donors and male repeat donors think of themselves as being perceived to be more potent than do non-donors and male non-donors, respectively.

Table 4
One-Way Analysis of Variance of Semantic Differential Potency Factor Scores between Donor
and Non-donor Groups

	The Friend I Most Admire		The Ideal Citizen		The Way I See Myself		The Way Others See Me		The Way I Would Like To Be	
	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)
Donors	20.04 (3.62)	0.4146 (1,219)	20.27 (3.77)	0.0847 (1,219)	18.71 (5.15)	1.8392 (1,219)	18.80 (5.46)	3.6765 (1,219)	22.50 (3.67)	1.2803 (1,219)
vs. Non-donors	19.73 (3.06)		20.41 (2.84)		17.72 (4.70)		17.35 (5.22)		21.94 (3.06)	
Repeat donors	20.08 (3.56)	0.4983 (1,185)	20.39 (3.49)	0.0064 (1,185)	19.10 (5.38)	3.3350 (1,185)	19.18 (5.42)	5.3654** (1,185)	22.50 (3.46)	1.3113 (1,185)
vs. Non-donors	19.73 (3.06)		20.41 (2.84)		17.72 (4.70)		17.35 (5.22)		21.94 (3.06)	
Male donors	19.70 (3.73)	0.0090 (1,118)	19.88 (4.01)	0.0181 (1,118)	19.74 (5.36)	1.7398 (1,118)	19.50 (5.38)	3.3210 (1,118)	23.04 (3.64)	0.8708 (1,118)
vs. Male non-donors	19.64 (2.86)		19.79 (2.76)		18.43 (4.39)		17.66 (4.72)		22.41 (3.22)	
Male repeat donors	19.51 (3.71)	0.0345 (1,101)	19.93 (3.78)	0.0427 (1,101)	19.79 (5.20)	1.8572 (1,101)	19.71 (5.20)	4.0395** (1,101)	22.65 (3.53)	0.1266 (1,101)
vs. Male non-donors	19.64 (2.86)		19.79 (2.76)		18.43 (4.39)		17.66 (4.72)		22.41 (3.22)	
Female donors		n.s.		n.s.		n.s.		n.s.		n.s.
vs. Female non-donors										
Female repeat donors		n.s.		n.s.		n.s.		n.s.		n.s.
vs. Female non-donors										

* $p = .10$
** $p = .05$

Results of tests of comparisons between donors and non-donors, and between male donors and male non-donors, suggest similar interpretations, $p < .10$. Self-perceived potency (i.e., HOW I SEE MYSELF) of repeat donors tends to be higher than that of non-donors, $p < .10$.

Results based on C.P.I. Class III scales. C.P.I.

Class III scales--Achievement via Conformance, Achievement via Independence, and Intellectual Efficiency--are designed to assess achievement potential and intellectual efficiency.

Table 5 presents the significant differences between donor and non-donor groups on C.P.I. Class III scales and it indicates that donor groups consistently outscore non-donor groups. It also indicates that, on Intellectual Efficiency, the .01 level of confidence was reached in comparisons between donors and non-donors and between repeat donors and non-donors. The Intellectual Efficiency scale has been found to correlate significantly with conventional tests of verbal intelligence (cf. Gough, 1964, p. 24) and high scorers according to C.P.I. rationale are assessed as being efficient, capable, intelligent, and as placing a high value on cognitive and intellectual matters. A significant difference was found between repeat donors and non-donors on Achievement via Conformance, $p < .05$, the items of which reflect effectiveness in academic settings. High scorers on Achievement via Conformance regard themselves

Table 5

One-way Analysis of Variance of C.P.I. Class III Scales between Donor and Non-donor Groups

	Achievement via Conformance		Achievement via Independence		Intellectual Efficiency	
	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)
Donors vs.	47.45 (10.46)	2.1241 (1,219)	53.95 (9.15)	3.4304 (1,219)	50.05 (10.87)	7.4189*** (1,219)
Non-donors	45.44 (8.62)		51.48 (10.09)		45.82 (11.41)	
Repeat donors vs.	48.33 (9.90)	4.3273** (1,185)	53.91 (9.25)	3.1053 (1,185)	50.12 (10.95)	6.7785*** (1,185)
Non-donors	45.44 (8.62)		51.48 (10.09)		45.82 (11.41)	
Male donors vs.	48.84 (9.97)	1.0889 (1,118)	54.45 (9.91)	3.9198 (1,118)	49.97 (10.98)	3.8051 (1,118)
Male non-donors	46.84 (7.72)		50.59 (10.23)		45.71 (11.64)	
Male repeat donors vs.	49.37 (9.62)	1.9317 (1,101)	54.60 (9.87)	3.9045 (1,101)	49.76 (11.18)	3.0765 (1,101)
Male non-donors	46.84 (7.72)		50.59 (10.23)		45.71 (11.64)	

Table 5 (Cont'd.)

	Achievement via Conformance		Achievement via Independence		Intellectual Efficiency	
	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)
Female donors vs.	45.75 (10.92)	0.6396 (1,99)	53.27 (8.05)	0.2642 (1,99)	50.16 (10.83)	3.5640 (1,99)
Female non-donors	44.07 (9.31)		52.35 (10.01)		45.92 (11.34)	
Female repeat donors vs.	46.81 (10.21)	1.6429 (1,82)	53.09 (8.28)	0.1374 (1,82)	50.63 (10.70)	3.8356 (1,82)
Female non-donors	44.07 (10.21)		53.35 (10.01)		45.92 (11.34)	

* $p = .10$
 ** $p = .05$
 *** $p = .01$

as diligent workers who plan their efforts, as accepting rules and regulations, and as having confidence in their own abilities.

Results based on differences between perceived self and ideal self. Semantic differential Potency factor scores for the concepts HOW I SEE MYSELF, HOW OTHERS SEE ME, and HOW I WOULD LIKE TO BE were used to derive measures of self-perceived competence, basing the construct of competence on notions relating to strength and decisiveness. Assessing differences between measures of ideal self and perceived self is a standard research technique wherein it is assumed that the greater the correspondence between self-perceived traits and desired traits, the greater the degree of self-perceived competence. Conversely, the greater the difference between these two concepts, the lesser the degree of self-perceived competence.

Difference scores were established for each of the designated groups in this study according to the formula $D = X_1 - X_2$, where X_1 equals Potency factor scores for the concept HOW I WOULD LIKE TO BE and X_2 equals Potency factor scores for the concept HOW I SEE MYSELF. Difference scores were also established in the same way for each of the designated groups on the basis of the two concepts HOW I WOULD LIKE TO BE and HOW OTHERS SEE ME. One-way analyses of variance were used for testing for significance of differences.

For male repeat donors, Potency factor difference scores between the two concepts HOW I WOULD LIKE TO BE and HOW OTHERS SEE ME are significantly less than that of male non-donors ($F = 4.38$, $df = 1, 102$, $p < .03$). Also, repeat donors tend to have lesser difference scores between the concepts HOW I WOULD LIKE TO BE and HOW OTHERS SEE ME ($F = 2.85$, $df = 1, 186$, $p < .09$).

These results show that male repeat donors ascribe significantly greater degrees of achieved potency to themselves than do male non-donors, and that repeat donors tend to think of themselves to be more potent than do non-donors. No other intragroup comparisons were significant.

Summary of results of testing the relationship between competence and blood donation. Hypothesis 1 states that there are no differences in self-perceived competence between donors and non-donors. This hypothesis was tested using four different sets of data, each conceptualizing the construct of competence from a different perspective. Results in all of these analyses do not support hypothesis 1 and it is therefore rejected.

The rejection of hypothesis 1 affirms that donors perceive themselves to be significantly more competent than non-donors. Recall that donor and non-donor groups contain male and female subjects and, hence, these results pertain to both sexes. However, when controlling for sex, significant differences are consistently found for males, but not

for females. Thus, despite statistically significant support for the generalization of results to males and females, males apparently account for most of the observed differences. Furthermore, results to be reported in subsequent sections of this chapter repeatedly affirm significant differences between male donor groups and male non-donor groups, but not (with three exceptions) between female donor groups and female non-donor groups. This consistent finding is accorded central importance in the present study and will be elaborated upon in Chapter IV.

Scale scores on two C.P.I. Class I scales, measuring social poise, self-assurance, and interpersonal adequacy were significantly higher for donors than for non-donors (Capacity for Status, $p < .05$ and Sense of Well-being, $p < .01$). Repeat donors obtained significantly higher scores than did non-donors on Capacity for Status, $p < .05$, Sociability, $p < .05$, and Sense of Well-being, $p < .01$. Male donors scored significantly higher than male non-donors on Social Presence, $p < .05$ and Sense of Well-being, $p < .05$. Male repeat donors obtained significantly higher scores than male non-donors on Social Presence, $p < .05$ and Sense of Well-being, $p < .005$. No significant differences were found for exclusively female groups.

Potency factor scores for the concept THE WAY OTHERS SEE ME were significantly higher for repeat donors and male repeat donors in comparison to respective groups of non-donors.



$p < .05$. For the concept THE WAY OTHERS SEE ME, there was a tendency for donors and male donors in comparison to respective groups of non-donors to have higher Potency factor scores, $p < .10$. Potency factor scores for the concept THE WAY I SEE MYSELF tended to be higher for repeat donors in comparison to non-donors, $p < .10$. No significant differences were found for exclusively female groups.

Donors obtained significantly higher scores than non-donors on Intellectual Efficiency, $p < .01$, and repeat donors obtained significantly higher scores than did non-donors on Intellectual Efficiency, $p < .01$, and Achievement via Conformance, $p < .05$. Male donors and male repeat donors tended to have higher scores than did male non-donors on Achievement via Independence, $p < .10$, and Intellectual Efficiency, $p < .10$. Female donors and female repeat donors tended to score higher than female non-donors on Intellectual Efficiency, $p < .10$.

A measure of self-perceived competence in the present study was derived by assessing Potency factor difference scores between the two concepts HOW I WOULD LIKE TO BE and HOW OTHERS SEE ME. According to this measure of competence, male repeat donors attribute significantly higher degrees of achieved potency to themselves than do male non-donors, and repeat donors, in relation to non-donors, tend to do the same.

In brief, significant differences in favor of donor over non-donor groups were found on test measures of social competence, self-perceived competence ratings on traits of strength and decisiveness, test measured intellectual competence, and a measure of competence based on significance of differences between the concepts HOW I WOULD LIKE TO BE and HOW OTHERS SEE ME. A general trend suggests greater competence in donors, repeat donors, and male donors than in comparable groups of non-donors. No such trend was found for groups of exclusively female subjects.

Results of Testing the Relationship between Locus of Control and Blood Donation

Hypothesis 2 states that there are no differences between donors and non-donors in internal versus external locus of control. The measure of locus of control in the present study was derived from Rotter's (1966) internal-external locus of control scale.

Table 6 contains the results of testing hypothesis 2 by one-way analysis of variance. The .10 level of confidence was obtained in comparisons between donors and non-donors and between repeat donors and non-donors. Though these results are tenuous, a consistent trend emerges whereby donors more so than non-donors obtained scores reflecting an internal locus of control. The marginality of differences between donor and non-donor groups on internal-

Table 6
One-way Analysis of Variance of Internal-External Locus of
Control Scores between Donor and Non-donor Groups

	$\bar{X}$ (SD)	F (df)
Donors	9.76	2.3313
vs.	(4.33)	(1,219)
Non-donors	10.59	
	(4.21)	
Repeat donors	9.37	3.8168
vs.	(4.25)	(1,185)
Non-donors	10.59	
	(4.21)	
Male donors	9.18	1.4770
vs.	(3.83)	(1,118)
Male non-donors	10.10	
	(3.95)	
Male repeat donors	8.98	1.9943
vs.	(3.86)	(1,101)
Male non-donors	10.10	
	(3.95)	
Female donors	10.32	0.6089
vs.	(4.87)	(1,99)
Female non-donors	11.07	
	(4.44)	
Female repeat donors	9.93	1.2908
vs.	(4.75)	(1,82)
Female non-donors	11.07	
	(4.44)	

* $\underline{p}$ = .10

external locus of control scores warrants caution in the rejection of hypothesis 2. Accordingly, even though a trend suggests donors to be more internally controlled than non-donors, tenuous results preclude a rejection of hypothesis 2. In addition to a univariate analysis of locus of control, this variable is included in a multivariate regression analysis and further reference to it is contained in a subsequent section of this report.

Results of Testing the Relationship between Social Responsibility and Blood Donation

Hypothesis 3 states that there are no differences between donors and non-donors on measures of social responsibility. Measures of social responsibility in the present study were derived from: (a) C.P.I. Class II scales; (b) C.P.I. Class IV scales; (c) semantic differential Evaluation factor scores in the rating of a fictional "donor" and a fictional "non-donor"; (d) subject's stated willingness to share community blood supplies; and (e) subject's choice of vocation on behalf of their offspring.

Results based on C.P.I. Class II scales: Class II of the C.P.I. is comprised of six scales, namely: Responsibility, Socialization, Self-control, Tolerance, Good Impression, and Communality. These scales measure levels of responsibility, socialization, maturity, and intrapersonal structuring of values.

Table 7 contains C.P.I. Class II scales with significant differences between donor and non-donor groups, and it indicates three out of the six scales differentiating between groups. No significant differences were found for exclusively female groups. Tolerance scores for donors and repeat donors were significantly higher than for comparable non-donor groups, $p < .05$. Male donors and male repeat donors scored significantly higher on Tolerance than did male non-donors, $p < .01$. The development of the Tolerance scale is historically linked to early studies of social intolerance and anti-Semitism, and is intended to identify permissive, accepting non-judgmental social beliefs and attitudes. The manifest content of Tolerance items reflects openness and flexibility as opposed to rigidity or dogmatism.

Donors and male donors had Communality scores which tended to be higher than comparable non-donor groups, $p < .10$. Both repeat donors and male repeat donors obtained significantly higher Communality scores than did groups of non-donors, $p < .05$. Communality is both a validating scale for the C.P.I. and a scale whose items reflect good socialization, conventional behavior and attitudes, and conformity.

Repeat donors scored significantly higher on Responsibility than did non-donors, $p < .05$, and male repeat

Table 7
One-way Analysis of Variance of C.P.Y. Class II Scales between Donor and Non-Donor Groups

	Responsibility		Socialization		Self-control		Tolerance		Good Impression		Communality	
	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)
Donors vs.	45.87 (10.02)	2.3258 (1,219)	47.73 (10.43)	0.4597 (1,219)	44.86 (10.11)	0.0250 (1,219)	48.22 (10.55)	5.4618** (1,219)	44.19 (9.89)	0.0189 (1,219)	49.25 (9.73)	3.0626 (1,219)
Non-donors	43.83 (8.52)		46.77 (9.43)		44.64 (9.72)		44.70 (11.01)		44.61 (8.77)		46.87 (9.59)	
Repeat donors vs.	46.55 (9.75)	3.9421** (1,185)	47.78 (9.78)	0.5060 (1,185)	45.82 (9.71)	0.6630 (1,185)	48.56 (10.82)	5.7048** (1,185)	45.59 (9.02)	1.4316 (1,185)	50.48 (9.36)	6.6320** (1,185)
Non-donors	43.83 (8.52)		46.77 (9.43)		44.64 (9.78)		44.70 (11.01)		44.01 (8.77)		46.87 (9.59)	
Male donors vs.	46.51 (9.66)	2.3573 (1,118)	48.87 (10.07)	0.2465 (1,118)	44.82 (10.43)	0.0081 (1,118)	49.00 (10.02)	7.6235** (1,118)	44.97 (9.45)	0.0422 (1,118)	49.90 (9.85)	3.6374 (1,118)
Male non-donors	43.64 (9.51)		47.92 (9.32)		44.64 (10.27)		43.48 (10.32)		45.38 (9.89)		46.23 (9.91)	
Male repeat donors vs.	47.00 (8.88)	3.2850 (1,101)	48.54 (9.65)	0.1038 (1,101)	46.17 (10.21)	0.5417 (1,101)	49.40 (10.50)	7.7973** (1,101)	46.04 (8.63)	0.1275 (1,101)	51.28 (9.77)	6.3992** (1,101)
Male non-donors	43.64 (9.51)		47.92 (9.32)		44.64 (10.27)		43.48 (10.32)		45.38 (9.89)		46.23 (9.91)	

Table 7 (cont'd.)

	Responsibility		Socialization		Self-control		Tolerance		Good impression		Community	
	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)
Female donors	45.01 (10.50)	0.2664 (1,99)	46.21 (10.79)	0.0711 (1,99)	44.91 (9.75)	0.0189 (1,99)	47.79 (10.99)	0.3199 (1,99)	43.16 (10.22)	0.0659 (1,99)	42.32 (9.59)	0.2139 (1,99)
vs.												
Female non-donors	44.02 (7.55)		45.65 (9.52)		44.65 (9.40)		45.90 (11.66)		42.67 (7.40)		47.50 (5.35)	
Female repeat donors	45.90 (10.96)	0.8234 (1,82)	46.68 (9.96)	0.2336 (1,82)	45.31 (9.02)	0.1099 (1,82)	47.34 (11.27)	0.3311 (1,82)	44.93 (9.51)	1.4595 (1,82)	42.31 (8.71)	0.8709 (1,82)
vs.												
Female non-donors	44.02 (7.55)		45.65 (9.52)		44.65 (9.40)		45.90 (11.66)		42.67 (7.40)		47.50 (9.35)	

* $p = .10$ ** $p = .05$ *** $p = .01$

donors outscored male non-donors on this same Responsibility scale, $p < .10$. The Responsibility scale identifies people who are conscientious, responsible, dependable, and it assesses the degree to which values and controls have been conceptualized and understood. The manifest content of Responsibility items reflects a concern for social, civic and moral obligations, and an emphasis on duty.

Results based on C.P.I. Class IV scales. The C.P.I. scales in Class IV are Psychological Mindedness, Flexibility, and Femininity: Psychological Mindedness identifies individuals who are psychologically oriented and insightful concerning others, and measures the degree of interest in and responsiveness to the inner needs, motives, and experiences of others. The Flexibility scale was designed to identify people who are flexible and adaptable. Manifest content of Flexibility items reflects a rejection of statements and attitudes typical of the authoritarian personality. The Femininity scale assesses masculinity or femininity of interests.

Table 8 indicates the levels of significance reached in testing for differences between donor and non-donor groups on C.P.I. Class IV scales. Male donors and male repeat donors scored significantly higher on Psychological Mindedness than did comparable groups of non-donors, $p < .05$. Flexibility scores of male donors were significantly

Table 8

One-way Analysis of Variance of C.P.I. Class IV Scales between Donor and Non-donor Groups

	Psychological Mindedness		Flexibility		Femininity	
	$\bar{X}$ (SD)	F (dF)	$\bar{X}$ (SD)	F (dF)	$\bar{X}$ (SD)	F (dF)
Donors vs.	52.76 (10.72)	0.7974 (1,219)	56.31 (11.25)	1.4922 (1,219)	50.45 (10.69)	0.7213 (1,219)
Non-donors	51.44 (10.26)		54.29 (12.65)		49.24 (9.27)	
Repeat donors vs.	53.53 (10.61)	1.8251 (1,185)	55.50 (11.87)	0.4473 (1,185)	50.35 (10.88)	0.5377 (1,185)
Non-donors	51.44 (10.26)		54.29 (12.65)		49.24 (9.27)	
Male donors vs.	54.07 (10.07)	4.7921** (1,118)	56.29 (10.51)	4.8363** (1,118)	51.12 (10.25)	0.1815 (1,118)
Male non-donors	49.69 (10.67)		51.51 (12.42)		50.30 (8.76)	
Male repeat donors vs.	54.87 (9.21)	6.7915** (1,101)	56.06 (10.84)	3.8163 (1,101)	51.15 (9.95)	0.1923 (1,101)
Male non-donors	49.69 (10.67)		51.51 (12.42)		50.30 (8.76)	

Table 8 (Cont'd.)

	Psychological Mindedness		Flexibility		Femininity	
	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)
Female donors vs.	51.03 (11.37)	0.9389 (1,99)	56.32 (12.26)	0.0719 (1,99)	49.57 (11.27)	0.3985 (1,99)
Female non-donors	53.15 (9.68)		57.00 (12.44)		48.20 (9.73)	
Female repeat donors vs.	51.59 (12.21)	0.4146 (1,82)	54.68 (13.30)	0.6757 (1,82)	49.18 (12.13)	0.1646 (1,82)
Female non-donors	53.15 (9.68)		57.00 (12.44)		48.20 (9.73)	

* $p = .10$ ** $p = .05$

higher than scores of male non-donors, $p < .05$. There was a tendency for male repeat donor scores on Flexibility to be higher than those of male non-donors, $p < .10$. No significant differences were found for exclusively female groups nor for the Femininity scale.

Results based on semantic differential Evaluation factor scores in the rating of a fictional "donor" and fictional "non-donor." Research using the semantic differential technique has repeatedly identified an Evaluation factor made up of bipolar adjective pairs such as Good-Bad and Honest-Dishonest. Eleven scales with loadings that ranged from .69 to .88 on the factor Evaluation were used to assess the connotative meanings attributed by donor and non-donor groups to such concepts as HOW I SEE MYSELF and HOW I WOULD LIKE TO BE (cf. Appendix 1).

In addition, all subjects used the semantic differential technique to rate a fictional citizen, portrayed in identical terms, except that, in some cases, subjects were led to believe that the man was a blood donor (fictional "donor"), while in others, no mention of blood donation was made (fictional "non-donor"). The term fictional "non-donor" is only intended to identify those protocols where blood donation was not mentioned in the description of the fictional citizen (see Appendix 1).

Table 9 contains levels of significance obtained in testing for differences between donor and non-donor groups and it indicates that no significant differences were found between groups when the fictional "non-donor" was rated. When rating the fictional "donor," Evaluation factor scores from donors and repeat donors were significantly higher than comparable groups of non-donors, $p < .05$. Similarly, Evaluation factor scores from female donors and female repeat donors were significantly higher than comparable groups of non-donors, $p < .01$. No significant differences were found for exclusively male groups.

Results based on statements of willingness to share community blood supplies. Question 16 of the Blood Donor Questionnaire used in this study reads as follows: "Suppose there was an emergency in Toronto and the local Red Cross decided to ship blood supplies to help the people in Toronto who needed them. However, by sending blood to Toronto, a dangerously low shortage was created here in Ottawa. What are your feelings about this decision?" (I very strongly agree; I partly agree; I partly disagree; I strongly disagree; I very strongly disagree).

Table 10 presents results of testing for significant differences between donor and non-donor groups on statements of willingness to share community blood supplies and it indicates that donors and female repeat donors tend to be more willing than respective groups of non-donors

Table 9

One-way Analysis of Variance of Semantic Differential Evaluation Factor Scores between Donor and Non-donor Groups

	Fictional "Donor"		Fictional "Non-donor"	
	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)
Donors vs. Non-donors	50.16 (7.72)	5.6591** (1,122)	48.44 (7.75)	0.5368 (1,94)
Repeat donors vs. Non-donors	49.91 (8.16)	4.1196** (1,107)	49.82 (9.78)	0.1062 (1,75)
Male donors vs. Male non-donors	46.68 (8.23)	0.7221 (1,66)	48.40 (7.85)	0.7617 (1,50)
Male repeat donors vs. Male non-donors	47.63 (8.24)	0.0886 (1,58)	48.80 (7.98)	0.9529 (1,41)
Female donors vs. Female non-donors	52.06 (6.66)	7.3533*** (1,54)	48.50 (7.74)	2.3758 (1,42)
Female repeat donors vs. Female non-donors	52.92 (7.14)	8.0241*** (1,47)	49.72 (8.65)	0.8413 (1,32)

** $p = .05$

*** $p = .01$

Table 10

One-way Analysis of Variance of "Willingness to Share Blood"
Scores^a between Donor and Non-donor Groups

	$\bar{X}$ (SD)	F (df)
Donors	2.19	3.0780
vs.	(1.01)	(1,219)
Non-donors	2.43 (0.97)	
Repeat donors	2.25	1.3532
vs.	(1.06)	(1,185)
Non-donors	2.43 (0.97)	
Male donors	2.09	0.1080
vs.	(1.11)	(1,118)
Male non-donors	2.16 (0.94)	
Male repeat donors	2.19	0.0561
vs.	(1.15)	(1,101)
Male non-donors	2.16 (0.94)	
Female donors	2.31	4.5419**
vs.	(0.86)	(1,99)
Female non-donors	2.70 (0.93)	
Female repeat donors	2.31	3.4811
vs.	(0.93)	(1,82)
Female non-donors	2.70 (0.93)	

^aThe higher the score, the less willing to share blood.

* $p = .10$

** $p = .05$

to share community blood supplies, $p < .10$. Female donors were significantly more willing to share community blood supplies than female non-donors, $p < .05$. No other comparisons between donor and non-donor groups were significant.

Results based on vocational choices made by subjects on behalf of their offspring. Question 17 of the Blood Donor Questionnaire used in this study reads as follows: "All financial considerations aside, and assuming they were interested, in which of the following would you encourage your child to seek a career?" Subjects were asked to choose between Politics, Literature, Business, Theology, Social Service, and Philosophy. The format and rationale for this question is linked to the Allport-Vernon Study of Values (1960) and it is assumed by this author that subjects wanting their children to enter a career in Social Service are more socially responsible than those wanting their children to enter a career in Business. It is not suggested that entrepreneurs are lacking in social responsibility, but a profit or personal gain motive seems inherent to a greater degree in Business than in Social Service.

Table 11 presents results of testing for significance of differences by one-way analyses of variance and it indicates that male subjects who expressed a desire for their offspring to go into a Social Service career gave significantly more blood donations than male subjects who wanted their children to go into business, $p < .01$.

Table 11

One-way Analysis of Variance between Blood Donations Given by Subjects Wanting
 Their Children to Enter a Career in Business and by Subjects Wanting
 Their Children to Enter a Career in Social Service

Variable	Male and Female		Male		Female	
	Choice of Career		Choice of Career		Choice of Career	
	Business	Soc. Service	Business	Soc. Service	Business	Soc. Service
Blood donations						
Mean	1.75	2.75	1.98	3.90	1.20	2.00
SD	(2.40)	(3.01)	(2.59)	(3.85)	(1.76)	(2.03)
Difference	1.00		1.92		.80	
P	.05		.01		n.s.	

Subjects of both sexes who wanted their children in a Social Service career also gave significantly more blood donations than subjects of both sexes who wanted their children in a business career, $p < .05$. No significant differences were found in comparisons of career choices made by females.

Summary of Results of testing the relationship between social responsibility and blood donation. Hypothesis 3 states that there are no significant differences in measures of social responsibility between donors and non-donors. Donor, repeat donor, male donor, and male repeat donor groups scored significantly higher than did comparable non-donor groups on C.P.I. Class II scales, which measure levels of responsibility, socialization, and maturity. Male donor and male repeat donor groups had significantly higher scores than did comparable non-donor groups on the Psychological Mindedness and Flexibility Class IV scales of the C.P.I. Psychological Mindedness measures the degree of interest in and responsiveness to the inner needs, motives, and experiences of others, and the Flexibility scale identifies people who are flexible and adaptable. Thus, on the basis of standardized C.P.I. scales, donors have been found to be significantly more socially responsible than non-donors and, therefore, hypothesis 3 is rejected.

In the rating of a fictional "donor," semantic differential Evaluation factor scores of donors, repeat donors, female donors, and female repeat donors were significantly higher than Evaluation factor scores of comparable non-donor groups. No significant differences were found when subjects rated a fictional "non-donor" who was portrayed in identical terms as the fictional "donor," except that no mention of blood donation was made in reference to the "non-donor." Evaluation factor scores were derived using bipolar adjective pairs such as Responsible-Irresponsible, Moral-Immoral, and Altruistic-Egotistical. Hence, donor groups perceived the fictional "donor" in significantly more positive terms, including those which reflect social responsibility and, therefore, on the basis of these indices, hypothesis 3 is rejected.

Female donors were willing to share community blood supplies with needy others to a significantly greater extent than were female non-donors. Male subjects wanting their children to enter careers in Social Service gave a significantly higher number of blood donations than did males who chose Business as the profession they wanted for their children. Similar results were found for comparisons based on a group of subjects of both sexes, but not in the case of female subjects exclusively. On the assumption that a statement of willingness to share one's

community blood supplies with needy others, and indicating a desire that one's child enter a career in Social Service, both reflect social responsibility, hypothesis 3 is rejected.

In brief, standardized test scores (C.F.I.), self-rated indices (semantic differential ratings), and statements of a socially responsible nature made by subjects about themselves, all support the rejection of hypothesis 3. Therefore, the alternate hypothesis that donors are more socially responsible than non-donors is tentatively accepted.

Results of Tests Associated with Testing the Relationship between Reciprocal Giving and Blood Donation

Hypothesis 4 states that there are no differences between donors and non-donors in reciprocal giving.

Table 12 contains results of testing for significance of differences on three measures of reciprocal giving between donors and non-donors and it shows that there are no significant differences between donors and non-donors with regard to the number of times they have sold their blood for money. Out of 221 subjects, only six ever received cash for their blood. There were no significant differences in the number of blood transfusions received by donors and non-donors. No significant differences were found in the number of blood transfusions received by the parents, spouses, children, relatives,

Table 12

One-way Analysis of Variance of Measures of Reciprocal Giving
between Donors and Non-donors

	Frequency of blood sold for money		Blood transfusions received		Blood transfusions received by "significant others"	
	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)	$\bar{X}$ (SD)	F (df)
Donors	5.00 (3.46)	2.40 (1,3)	1.09 (0.30)	0.4375 (1,14)	0.97 (1.11)	0.1893 (1,219)
vs.						
Non-donors	1.00 (0.00)		1.00 (0.00)		1.03 (1.01)	

and close friends of donors versus the number of blood transfusions received by the parents, spouses, children, relatives, and close friends of non-donors. These three indices of reciprocal giving in relation to blood donation indicate that there are no significant differences between donors and non-donors and, therefore, hypothesis 4 is not rejected.

Subsequent Statistical Analyses

Results associated with testing the influence of modeling on blood donating behavior. Although modeling was not one of the experimental hypotheses of this study, the literature does support the concept of modeling as a significant influencing factor in pro-social behavior.

Table 13 summarizes results of comparisons between donor and non-donor groups with regard to modeling. Repeat donors state that, as a group, their parents, spouses, children, relatives, and close friends have tended to donate blood more often than the "significant others" of non-donors, $p < .10$. Male donors, in contrast to male non-donors, report a significantly higher number of "significant others" who have donated blood, $p < .05$. Male repeat donors, in contrast to male non-donors, also report significantly greater numbers of "significant others" giving blood, $p < .01$. No significant differences were found in comparisons between exclusively female groups.

Table 13

One-way Analysis of Variance between Donors and Non-donors for
Blood Donations Given by Their Respective Parents, Spouses,
Children, Relatives, and Close Friends

	$\bar{X}$ (SD)	F (df)
Donors	2.33	2.2827
vs.	(1.05)	(1,219)
Non-donors	2.01 (1.21)	
Repeat donors	2.40	3.3623
vs.	(1.05)	(1,185)
Non-donors	2.01 (1.21)	
Male donors	2.35	7.6060**
vs.	(1.09)	(1,118)
Male non-donors	1.82 (1.23)	
Male repeat donors	2.42	6.9504***
vs.	(1.05)	(1,101)
Male non-donors	1.82 (1.23)	
Female donors	2.31	0.0858
vs.	(1.00)	(1,99)
Female non-donors	2.37 (1.14)	
Female repeat donors	2.38	0.0024
vs.	(1.08)	(1,82)
Female non-donors	2.37 (1.14)	

* $p = .10$
 ** $p = .05$
 *** $p = .01$

Statements of motivation expressed by donors. In question 13a of the Blood Donor Questionnaire used in this study, donors were asked to say why they first became donors. Table 14 presents a summary of the most frequently cited reasons.

Statements of motivation relating to altruism and the norm of responsibility together accounted for 72.9% of all donor responses, while 78.3% of the reasons given by repeat donors came from these two categories. Group pressure, curiosity, and good feelings were also cited, but to a much lesser extent. Other reasons were given for becoming donors, but these represented 1 or 2 percentage points at most.

Donors claim that general and specific fears (i.e., fear of needles, pain, and/or fainting) were the negative aspects they had to overcome when they first gave blood. Table 15 summarizes the fears expressed by different donor groups, and Table 16 indicates that female donors said they were afraid of fainting to a significantly greater extent than did male donors, $p < .05$. Male donors claim to have had no fears the first time they gave blood to a significantly greater degree than did female donors, $p < .05$. There is also a tendency for repeat male donors to claim to have been fearless the first time they donated blood to a greater extent than did female repeat donors, $p < .10$.

Table 14

Most Frequent Statements of Motivation Expressed by Donors as
Reasons for Having Become Blood Donors

Motivational categories	Donors (n=140)		Repeat donors (n=106)		Male donors (n=79)		Male repeat donors (n=62)		Female donors (n=61)		Female repeat donors (n=44)	
	n	%	n	%	n	%	n	%	n	%	n	%
Altruism	60	42.9	48	45.3	37	46.8	30	48.4	23	37.7	18	40.9
Responsibility	42	30.0	35	33.0	20	25.3	16	25.8	22	36.1	19	43.2
Altruism & responsibility	102	72.9	83	78.3	57	72.1	46	74.2	45	73.8	37	84.1
Curiosity	9	6.4	5	4.7	5	6.3	4	6.5	4	6.6	1	2.3
Group pressure	6	4.3	2	1.9	4	5.1	2	3.2	2	3.3	-	-
Good feeling	4	2.9	4	3.8	4	5.1	4	6.5	-	-	-	-

Table 15

Negative Aspects Expressed by Donors in regard to Their First Blood Donation

Motivational categories	Donors (n=139)		Repeat donors (n=107)		Male donors (n=80)		Male repeat donors (n=63)		Female donors (n=59)		Female repeat donors (n=44)	
	n	%	n	%	n	%	n	%	n	%	n	%
General fear	20	14.4	18	16.8	12	15.0	10	15.9	8	13.6	8	18.2
Fear of needle	23	16.5	18	16.8	15	18.8	11	17.5	8	13.6	7	15.9
Fear of pain	18	12.9	12	11.2	8	10.0	6	9.5	10	16.9	6	13.6
Fear of fainting	18	12.9	13	12.1	6	7.5	5	7.9	12	20.3	8	18.2
No fears	49	35.3	40	37.4	34	42.5	28	44.4	15	25.4	12	27.3

Table 16

Tests of Significance of Difference of Proportions between Male Donors and Female Donors, and between Male Repeat Donors and Female Repeat Donors, for Negative Aspects Experienced When Giving Blood the First Time

Motivational categories	Donors (n=139)		Repeat donors (n=107)	
	Males (n=80)	Females (n=59)	Males (n=63)	Females (n=44)
General fear	12/80	8/59	10/63	8/44
	$\chi^2 = .2395$		$\chi^2 = .3173$	
Fear of needle	15/80	8/59	11/63	7/44
	$\chi^2 = .8147$		$\chi^2 = .2142$	
Fear of pain	8/80	10/59	6/63	6/44
	$\chi^2 = 1.2090$		$\chi^2 = .6672$	
Fear of fainting	6/80	12/59	5/63	8/44
	$\chi^2 = 2.2351^{**}$		$\chi^2 = 1.6015$	
No fears	34/80	15/59	28/63	12/44
	$\chi^2 = 2.0880^{**}$		$\chi^2 = 1.8111$	

* $p = .10$

** $p = .05$

Statements of motivation expressed by non-donors.

Question 14a of the Blood Donor Questionnaire used in this study was addressed to non-donors and asked them to say why they have never given blood. Question 14b reads as follows: "Blood donor programs find it difficult to recruit blood donors. Why do you think people hesitate to give blood?"

Table 17 presents results of testing for significance of differences between statements made by non-donors about themselves and statements made by non-donors about others. Non-donors said that they are afraid to give blood significantly less often than they ascribe general fear as the reason why others do not give blood, $p < .01$. Fear of pain was quoted by non-donors more often to be the reason why others do not give blood than why they themselves do not donate, $p < .10$. Non-donors stated significantly more often that they do not give blood because of health concerns than they said health concerns explain why others do not give blood, $p < .01$. In brief, non-donors said that they are not afraid to give blood but that others are, and that they do not give blood because of health reasons, while others, according to the non-donors, cannot claim the same reason.

Derivation of multiple regression equations to predict blood donation. The different sets of data collected in this study were tested individually through one-way

Table 17

Tests of Significance of Difference of Proportions between
Statements Made by Non-donors as to Why They Do Not Give
Blood and Statements Made by Non-donors as to Why They
Think Other People Do Not Give Blood

Motivational categories	Reasons given by non-donors about themselves (n=78)	Reasons given by non-donors about others (n=77)	χ^2
General fear	13/78	27/77	2.6285***
Inconvenience	6/78	7/77	0.3218
Fear of needle	5/78	4/77	0.3262
Apathy	17/78	22/77	0.9797
Fear of pain	0/78	3/77	1.9450
Health concern	26/78	1/77	5.3400***
Fear of fainting	1/78	4/77	1.4810

* $\underline{p} = .10$

*** $\underline{p} = .01$

analyses of variance, tests of significance of differences between means, and tests of significance of differences of proportions and then re-examined via multiple regression to analyze the relationship between the dependent variable, amount of blood donated up to the present time, and a group of independent variables considered collectively. All predictor variables were included in the regression except some which were found to be nonsignificant when tested in previous separate analyses. Tables 18, 19, and 20 contain results of multiple regression analyses for all subjects, male subjects, and female subjects, respectively.

Table 18 presents results of a multiple regression analysis for all subjects in the study, both male and female, and it indicates a multiple correlation of .46 between the dependent variable blood donation and seven independent variables. These seven predictor variables operating jointly explain 21.8% of the variance in blood donation. The overall F ratio of 8.51 is significant at $p < .005$. Three of the seven predictor variables are C.P.I. Class II scales (i.e., Socialization, Good Impression, Communality) which, as a group, measure socialization, maturity, and responsibility. An additional significant predictor variable is the C.P.I. Psychological Mindedness scale which measures the degree to which an individual is interested in and responsive to the inner needs, motives, and experiences of others. The variable measuring a

Table 18

Multiple Regression Equation to Predict Amount of Blood Donation in Male
and Female Subjects

Multiple R	0.4675	Analysis of variance	df	Sum of Squares	Mean Square	F
R square (R ²)	0.2186	Regression	7	407.89408	58.27058	8.5131
Standard error	2.6162	Residual	213	1457.93397	6.84476	
Variable	B	Beta	Standard Error B	Partial F	p	
Communality	0.10359	0.34621	0.02007	26.652	<.001	
Psychological mindedness	0.05411	0.19614	0.01781	9.235	<.005	
Willingness to share	-0.46421	-0.16035	0.17812	6.792	<.01	
Socialization	-0.06754	-0.23375	0.02033	11.147	<.001	
Sex ^a	-0.88548	-0.15191	0.36379	5.925	<.025	
Good Impression	0.05362	0.17357	0.02129	6.345	<.025	
Activity factor ^b	-0.10339	-0.15610	0.04145	6.221	<.025	
(Constant)	-1.57144					

^aMale = 0; female = 1.

^bSemantic differential Activity factor score for the concept THE WAY OTHERS SEE ME.

subject's stated willingness to share community blood supplies with another community is significant at the .01 level. The regression equation includes gender status as a significant predictor variable, indicating that blood donation is more likely to occur if a person is male, than if the person is female, $p < .025$. The last predictor variable in this regression equation is the semantic differential Activity factor score for the concept THE WAY OTHERS SEE ME. The relationship between this predictor variable and the dependent variable indicates that as Activity factor scores for the way in which people think of themselves as being seen increase, there is a corresponding decrease in the number of blood donations predicted.

Table 19 presents results of a multiple regression analysis for male subjects and it indicates a multiple correlation of .56 between the dependent variable blood donation and a set of six predictor variables operating jointly and that 32.0% of variance of blood donation in males is explained by these six variables. The overall F ratio of 8.87 is significant beyond the .001 level of confidence. Communality and Socialization are C.P.I. Class II scales which measure socialization, maturity, and responsibility, while Psychological Mindedness measures the degree to which an individual is interested in and responsive to the inner needs, motives, and experiences of others. The internal-external locus of control variable is significant

Table 19

Multiple Regression Equation to Predict Amount of Blood Donation in Male Subjects

Multiple R	0.56596	Analysis of Variance	df	Sum of Squares	Mean Square	F
R square (R ²)	0.32031	Regression	6	433.17925	72.19664	8.87548
Standard error	2.85209	Residual	113	919.18682	8.13440	

Variable	B	Beta	Standard Error B	Partial F	p
Psychological mindedness	0.07228	0.22368	0.02623	7.591	<.01
Communality	0.11070	0.32780	0.02787	15.781	<.001
Activity factor ^a	-0.28253	-0.20499	0.10875	6.750	<.025
Socialization	-0.07451	-0.21685	0.02806	7.050	<.01
Locus of control	-0.17430	-0.20064	0.06980	6.236	<.025
Modeling	0.47780	0.16535	0.22916	4.347	<.05
(Constant)	3.38752				

^aSemantic differential Activity factor score for the concept THE WAY I WOULD LIKE TO BE.

at the .025 level of confidence and indicates a greater likelihood of blood donation occurring in males who are internally controlled as opposed to those who are externally controlled. A modeling factor, significant at the .05 level, indicates that "significant others" (i.e., parents, spouses, children, relatives, and close friends) influence blood donating in males. A variable comprised of Activity factor scores for the concept HOW I WOULD LIKE TO BE is significant at the .025 level. This indicates that as there is an increase in the extent to which males express a desire to be more active, the less likely are they to donate blood.

Table 20 contains results of a multiple regression analysis for female subjects and it shows a multiple correlation of .33 between the dependent variable blood donation and two predictor variables operating jointly. These two variables account for 11.5% of the variance of blood donation in females. The overall F -ratio of 6.38 is significant at the .005 level of confidence. The first predictor variable in the equation, significant at the .01 level, indicates that females who state that they are willing to share community blood supplies with those who need them in other communities are likely to give more blood than females who are less willing to share. The variable Intellectual Efficiency, a C.P.I. Class III scale, is significant at the .05 level of confidence, indicating

Table 20

Multiple Regression Equation to Predict Amount of Blood Donation in
Female Subjects

Multiple R		0.33964	Analysis of Variance	df	Sum of Squares	Mean Square	F
R square (R ²)		0.11535	Regression	2	52.63530	26.31765	
Standard error		0.09730	Residual	98	403.66173	4.11900	6.38933
Variable	B	Beta	Standard Error B	Partial F	P		
Willingness to share	-0.61342	-0.26182	0.22264	7.591	<.01		
Intellectual Efficiency	0.04034	0.21106	0.01816	4.933	<.05		
(Constant)	1.31882						

that blood donation is more likely to occur in females who are personally and intellectually efficient than in those who are less so.

CHAPTER IV

DISCUSSION AND INTERPRETATION OF RESULTS

The overall objective of this research was to study blood donation as a representative form of pro-social behavior, and more specifically, to investigate the effect of self-perceived competence, locus of control, social responsibility, and reciprocity on blood donation. Chapter IV begins with a summary of the results presented in Chapter III, followed by a discussion and interpretation of these results. The last sections consider the issue of generalization of results, a critique of the present study, suggestions for future blood donor research, and recommendations for improving blood donor recruitment systems.

Summary of Results

This resume of results does not directly address itself to the consistent sex differences which were found in the present study. Instead, it summarizes the results without major qualification. In Chapter III (cf. p. 88) this author suggested that males apparently account for most of the observed differences, and this recurrent finding will be discussed at greater length in a subsequent section of this chapter (cf. p. 142).

Self-perceived competence. Measures of the trait construct of competence obtained in this study were both general and specific, including: (a) measures of social competence; (b) competence based on the notion of potency, strength, and decisiveness; (c) competence in the realm of intelligence; and (d) a measure of competence based on differences between perceived self and ideal self. Results of statistical analyses of data indicate that donors scored and rated themselves significantly higher than non-donors on the four different measures of competence used in this study. Significant differences were found most frequently and to higher levels of statistical significance in comparisons between repeat donors and non-donors and between male donors and male non-donors. In only two instances were differences found in comparisons between exclusively female groups and only to marginal levels of statistical significance. These results signify that donors perceive themselves to be more socially competent than do non-donors, that donors possess a greater sense of well-being, self-sufficiency, and independence than non-donors, and that donors think of themselves as having more energy and skill to deal with day-to-day stresses than do non-donors. Donors achieved higher scores than non-donors on scales measuring competence in relation to intellectual pursuits. The results also show that repeat donors and male repeat

donors think of themselves as measuring up to some internalized standard of competence in the form of potency, strength and decisiveness, while non-donors and male non-donors sense a greater gap between who they are and who they would like to be.

Internal-external locus of control. On the basis of univariate analysis, donors and repeat donors tended to be more internally controlled than non-donors, $p < .10$. In a multiple regression analysis using only male subjects, locus of control was found to be a significant predictor variable of the criterion variable, blood donation, $p < .025$. Such was not the case for females.

Norm of social responsibility. According to the norm of social responsibility, helping behavior is influenced by an internalized ideal which decrees that people ought to help needy others. Five different sets of variables were used to compare donors and non-donors, and donors were shown to be significantly more socially responsible than non-donors. These results confirm that donors, especially repeat and male donors, are more conscientious, dependable, and mature, and have attained higher levels of socialization than non-donors. Male donors and male repeat donors in comparison to male non-donors were shown to be more in tune with the concerns of others as well as possessing a greater willingness to respond to these needs.

The perception of a fictional "non-donor" by actual donors and non-donors was very much the same. However, donors rated a fictional "donor" in significantly more positive terms than did non-donors (e.g., more responsible, altruistic, and honest). Since the only difference between the two fictional citizens was their "donor" status and, since significant differences were found between donor and non-donor groups only on their ratings of the fictional "donor," it is concluded that donors perceive other donors in terms that are significantly more positive than the way in which non-donors perceive donors.

In Canada, community blood supplies are not for the exclusive use by those who have donated the blood. Donors and non-donors alike have equal access and right to this precious commodity. But since it is donors who provide the blood gift, it would be understandable if they, more so than non-donors, were to express a desire that their blood be readily and quickly available to them, their families, and their own community. The fact is, however, that a group of male and female donors living in the Ottawa area expressed a significantly greater willingness than male and female non-donors to offer community blood supplies to people in Toronto who needed them.

As a group, those male and female subjects who expressed a desire for their offspring to enter a Social

Service career gave significantly more blood donations than those male and female subjects who wanted their children to enter the world of business. Significant differences were also found for the male subjects considered separately, but not for the females. On the assumption that an expressed preference for a Social Service career reflects a greater belief in social responsibility than does the choice of a career in business, it is concluded that frequency of blood donation is positively correlated with social responsibility. It could be argued that the motivational bases upon which vocational choices are made are not always readily apparent and that some people choose professions on the basis of social desirability (i.e., the degree of prestige ascribed to certain professions). A counter-argument with reference to subjects in this study rests on the fact that there were no significant differences in the scores obtained by donors and non-donors on the C.P.I. Good Impression scale. Donors and non-donors in this study are not measurably different in their desire and capability of creating favorable impressions.

In conclusion, results of separate analyses of five different sets of data indicate that donors are more socially responsible than are non-donors. Each of the analyses is consistent with one another and they all attribute higher levels of social responsibility to donors than to non-donors.

Reciprocal giving among donors and non-donors.

The theory of reciprocity asserts that the expectation of a return favor or repayment of past favors received motivates people to help. Results showed that there were no significant differences in the number of times donors and non-donors sold their blood for money. Only six subjects out of 221 had accepted money for their blood. There were no significant differences in the number of blood transfusions received by donors in comparison to non-donors, nor were there any significant differences between donors and non-donors for the number of blood transfusions received by their respective parents, spouses, children, relatives, and close friends. Hence, this study does not support reciprocity as a motivating factor in the giving of blood.

Summary of results in reference to the four experimental hypotheses. The present study has demonstrated that blood donors perceive themselves to be more competent than non-donors and more so in the case of male donors and male repeat donors. On the basis of univariate analysis, locus of control scores for donors tend to be more internal than for non-donors. In multiple regression analysis, using only male subjects, locus of control is a significant predictor variable of the criterion variable, blood donation. Measures of social responsibility are higher for

donors than for non-donors. When grouped according to sex, significant differences are most apparent in comparisons between male donors and male repeat donors and comparable non-donor groups; but not so in comparisons between exclusively female groups. Female donors and female repeat donors attribute traits of social responsibility to other donors to a greater extent than comparable female non-donor groups. Female donors also indicate a greater willingness than female non-donors to share community blood supplies with another community. Measures of reciprocal giving in relation to blood donation are not significantly different for donors and non-donors.

Subsequent statistical analyses. The literature is unequivocal in its support of modeling as a potent influencing factor in the acquisition and expression of pro-social behavior. Although modeling was not enunciated as one of the experimental hypotheses in this study, male donors and male repeat donors indicate significantly more often than non-donors that their parents, spouses, children, relatives, and close friends have given blood. On the strength of these results alone, one cannot support modeling as a significant determining factor in blood donation, but it is clear that the potential for such an effect is significantly greater among donors than among non-donors.

Donors explain their donor status by citing altruism and responsibility-bound motives most frequently. Group pressure, curiosity, and good feelings are also mentioned but to a much lesser extent. Donors say that unspecified and particular fears (fear of needles, pain, and/or fainting) were among the negative aspects they had to overcome when they first gave blood, and female donors say they were afraid of fainting to a significantly greater extent than do male donors. Male donors claim to have had no fears the first time they gave blood to a significantly greater degree than female donors.

Non-donors state that although they are not afraid to give blood, they assert that fear prevents others from doing so. Non-donors claim health concerns as valid reasons for their non-donor status, but do not offer similar motives nearly as frequently to explain why other people are not blood donors.

Discussion and Interpretation

The present study has demonstrated significant differences between donors and non-donors and will now interpret these findings and report on the relationship between them and previous other research. The discussion begins with a sequential consideration of each of the four experimental hypotheses, followed by a section dealing with the significant sex differences which repeatedly arose in

the analyses of data collected in this research. Results of the present study will then be interpreted in relation to the theoretical formulations of Schwartz (1977), who proposes that pro-social behavior is a function of a Personal Norm X Situation paradigm.

Overall, this study supports the contention that blood donors, in contrast to non-donors, perceive themselves to be more competent, more socially responsible, and may be more internally controlled. In reference only to blood donation, donors do not operate on the norm of reciprocity. Statistically significant differences were found in comparisons between donor and non-donor groups and hence the findings would seem to be applicable to male and female donors and non-donors. But significant differences were found much more frequently and to greater degrees of statistical significance in comparisons made between exclusively male donor and male non-donor groups. Moreover, with the exception of only three variables, there were no significant differences between female donors and female non-donors. The outcome of results, when controlling for sex, strongly suggests that males account for much of the observed variance in comparisons between groups comprised of subjects of both sexes. Thus, although interpretations in this section refer to and are based on statistically significant differences between male and female donor and non-donor groups,

they must be and are qualified by the observed sex differences. A fuller discussion and interpretation of the sex differences found in this study will be presented in a later section of this chapter. First, some brief comments in reference to repeat donors.

Krebs (1970) states that:

Before conclusions can be drawn about the acquisition of behavioral dispositions, two criteria should be met: (a) the behavior in question should be general to situations other than that in which it was elicited and, (b) it should be relatively enduring (p. 268).

The repeat donors who participated in this study have demonstrated pro-social behavior in at least two ways: (a) they have donated blood and they also agreed to and actually did give of their time and effort to assist in the conducting of this research, thereby satisfying, in part, Krebs' first criterion, and (b) repeat donors have given blood on at least two occasions and have thus satisfied Krebs' second criterion as well, namely, the relatively enduring quality of their behavior. Hence, it is not surprising that significant differences between repeat donors and non-donors occurred with greater frequency and to higher degrees of statistical significance than for other group comparisons, and this fact is interpreted to mean that repeat donors have internalized this form of pro-social disposition to a greater extent than one-time donors or non-donors.

Self-perceived Competence

The present study affirms that donors score and rate themselves significantly higher than non-donors on measures of self-perceived competence. Attention is drawn to the fact that even in those instances where statistical significance did not satisfy the pre-established level (i.e., $p < .05$), donors consistently outscored non-donors.

In addition to the time and effort involved in the giving of blood, donors are exposed to a moderate amount of discomfort. The blood of potential donors is pre-screened for purposes of blood typing and assessment of iron content. Blood samples are obtained by a rather noxious pin prick on the palmar surface of a finger. Many donors report this procedure to be more aversive than the actual blood-drawing process itself. Donors who meet the specific age and health requirements set down by the Red Cross and whose blood is of acceptable quality are then subjected to having their arm pinched by a heavy rubber band and their skin punctured by a hypodermic needle. For hygienic purposes, blood collecting equipment is sterilized with an antiseptic solution which, when in contact with a skin surface, produces a stinging, slightly irritating sensation. Although the physical after-effects of giving blood are quite minimal, especially in view of the time and precautions taken, some donors do feel faint and

experience slight dizziness after having donated blood. Furthermore, many fallacies sustain the popularly held belief that giving blood is very painful. In view of the actual and fantasied pain factor in giving blood, it is not surprising to find that people who donate blood perceive themselves to be more competent, especially in regard to potency and strength.

Midlarsky and Midlarsky (1973) and Midlarsky (1971), using a laboratory manipulation to create high and low competence groups, found that subjects led to believe that they adapted well to shock (high competence) were more helpful than subjects who were told they adapted poorly to shock (low competence). Subjects in the high competence group were significantly more willing than subjects in the low competence group to receive a shock themselves which otherwise would have been administered to a confederate. Donor subjects in the present study perceive themselves as measuring up to some internalized standard of competence in the form of potency and strength to a significantly greater extent than do non-donors. It is asserted that, just as in the case of the studies by Midlarsky and Midlarsky (1973) and Midlarsky (1971), perceiving oneself to be potent and strong and thus able to tolerate moderate pain and/or discomfort is sufficient cause for some people to help others by becoming and remaining blood donors. A

similar interpretation is suggested by Janis (1962) who contends that self-perceived competence leads to an increase in help because of an anticipation of less stress. Dichter (1972) adds that giving blood makes a person feel like a hero, superior and more virile.

Kazdin and Bryan (1971) found that subjects who were led to believe that they were physically fit, volunteered significantly more often to give blood than those subjects who were told that they were less physically fit. One similarity between the study by Kazdin and Bryan (1971) and the present one flows from the connotation of potency and strength inherent in the concept of physical fitness. Adding to and consistent with the interpretations above, it is suggested that donor subjects in the present study manifest this form of helping behavior because they perceive themselves to be potent and significantly more so than non-donors.

Those subjects in the study by Berkowitz and Connor (1966) who were allowed to succeed on a seemingly irrelevant task were later more willing to offer help than those subjects who experienced failure. On the assumption that a successful experience enhances one's sense of personal competence, donors--as a result of having successfully given blood--conceivably reinforce their own blood donating behavior. This self-perpetuating cycle would be initiated with a success experience (i.e., giving blood) which

contributes to one's sense of competence and, hence, reinforces the pattern (i.e., giving blood again).

Blood supplies collected in Canada serve the needs of the community at large and the individual who donates blood contributes to the welfare of others. By so doing, the donor associates himself with and becomes a member of his social environment. In fulfilling his social pledge through blood donation, through this positive pro-social action on behalf of the community, the volunteer donor may affirm or reaffirm his sense of social competence.

Isen and Levin (1972) found that subjects who had a pleasant interpersonal experience were more likely to help a third individual than those subjects who did not have the pleasurable encounter. Although donors do not usually meet, nor interact with the eventual recipient of their blood gift, the collecting of blood does involve interpersonal, face-to-face transactions. Receptionists, registered nurses, and volunteer aides have direct, personal contact with volunteer donors and all parties concerned have tacitly agreed to join forces in a combined enterprise devoted to the welfare of the community at large. An ambience of good will, appreciation, and group cohesiveness through apparent common and shared values enhances the likelihood of donors perceiving this interpersonal experience to be satisfying. Time and discomfort

costs to the donor may be outweighed by the attractive social and interpersonal features of blood collecting procedures. The offering and acceptance of a blood gift constitute a successful physical and social transaction which, as has already been suggested, very likely contribute to self-perceptions of competence.

In Canada, blood supplies for medical and research purposes are provided without cost to the recipient. It is generally known that the patronage of volunteer blood donors sustains this circumstance. Some individuals may reason that even if they never donate, others will provide adequate amounts. The volunteer donor may recognize the potential danger of too many people thinking in a likewise fashion. It does make good common sense to do whatever one can to ensure that sufficient quantities remain readily accessible. Finding significantly higher measures of intellectual competence in blood donors as opposed to non-donors may be understood in terms of a cognitive factor underlying the comprehension of the blood-donation-community-need relationship. Undoubtedly, additional research is required to test the tenability of this interpretation.

Locus of Control

Results of the present study allow for partial confirmation of Rotter's (1966) theory of locus of control as it relates to blood donating behavior. A univariate

analysis showed that donors and repeat donors tend to be more internally controlled than non-donors, and in a multiple regression analysis, an internal locus of control for male subjects was found to be a significant predictor variable of the criterion variable, blood donation. One possible explanation for the marginal significance of the univariate analyses may be due to the selection and use in the present study of Rotter's (1966) original scale, which has received recent critical attention and has been replaced by a revised edition.

The significant positive relationship between blood donation and internal locus of control for the male donors in the present study is interpreted to mean that they have sufficient confidence in their own physical and psychological attributes to be able to control and keep within manageable levels whatever consequences (pain, discomfort and/or negative after-effects) they may experience in giving blood. Conceptually, this rationale is quite similar to the interpretations relating to the theory of self-perceived competence in the previous section of this report, and it concurs with Midlarsky and Midlarsky (1976) who found internals to be significantly more helpful than externals. It is also in accord with several other theorists who contend that internals are more competent than externals (Brown & Strickland, 1972; Hersch & Scheibe, 1967; Phares, 1965; Tseng, 1970). Withey (1962) concludes that people



are best able to endure stressful situations over which they feel capable of exercising control. Strickland (1965), Ryckman et al. (1972), and Gore and Rotter (1963) found that internals honor their verbal commitments to social action and are significantly more likely than externals to be active participants in civil rights movements. The positive correlation between frequency of blood donation and internal locus of control for male subjects in this study represents a relationship between an overt behavior and a cognitive self-conceptualization--which is consistent with the findings of Strickland, Ryckman et al., and Gore and Rotter. That is to say, for the males in this study, frequency of blood donation--an observable, quantifiable response (not merely an intention)--is related to internal locus of control.

Social Responsibility

In this study, blood donors in contrast to non-donors obtained significantly higher scores and self-ratings on several different measures of social responsibility. Five different sets of empirical data were used in the confirmation of the positive relationship between social responsibility and helping behavior in the form of blood donation. Not all the measures of social responsibility tapped reached the level of statistical significance established for this research (i.e., $p < .05$), but even in

the instances where such was the case, donor groups consistently outscored the non-donor groups. Hence, there are no contradictions in the results obtained in this study, nor is there lack of correspondence between these results and the ones obtained in previous other research.

The norm of social responsibility, as initially proposed by Berkowitz (1966), has attracted considerable attention, both in support and critical of it. It has been argued, for example, that a societal norm, whatever that norm may be, is incapable of predicting or explaining individual differences in response to or in rejection of the norm. Schwartz (1973, 1977), however, has convincingly argued in favor of normative postulations by proposing that social norms become personal norms if and when they are internalized within the belief system of an individual.

The donor subjects in this study, by ascribing significantly greater degrees of social responsibility to themselves than did non-donors, demonstrate to an equal extent that they have incorporated the norm of social responsibility within their personal belief systems. Responding to requests for blood (regardless of whether the request is a specific appeal or stems from an awareness of the ongoing need for more blood) is seen as a function of the interaction between the social-personal norm of responsibility and the situational characteristics of blood appeals. Results of studies by Schwartz (1970, 1973) are

congruent with this interpretation in that he found significantly greater commitments to volunteer to be a bone marrow donor under high salience of personal responsibility than under low salience of personal responsibility. Upton (1974) found that subjects who were willing to donate blood at any time were less likely to do so when offered a monetary reward. Upton concludes that the mention of money reduced the willingness to donate because it would have prevented the actualization of a personal norm of freely providing for others in need. Also, the negative reaction to the offer of a financial incentive may have occurred because it was an affront to self-perceived altruistic motives.

The Canadian Red Cross offers donors meager material reinforcement for their efforts. Volunteer donors give of themselves, their time, and money, and willingly accept physical discomfort. Donors know that even if they were not to give, they would have equal access to the blood supplies available at any given moment. Such being the case, it is not surprising to find that donors measure out with greater degrees of self-ascribed social responsibility than non-donors.

The interpretations just presented are not intended to suggest that social responsibility is the prime or sole determining factor in helping behavior, but in this study at least, social responsibility was found to relate

significantly to pro-social behavior in the form of blood donation and to account for significant variance in the dependent variable. An inference, based on the theories of Schwartz, linking social norms to personal ones, adds a further measure of plausibility to the results.

Reciprocity

The application of economic principles to human behavior has led to the evolution of three related theories, namely, exchange, equity, and reciprocity. The literature contains substantial support for the basic proposition which asserts that pro-social behavior is founded on reciprocal giving. But reciprocity, as it relates to blood donation, has not achieved similar acceptance. Out of nine motivational categories cited in the study by London and Hemphill (1965), the two which imply a reciprocity factor were ranked fifth and sixth, respectively. Phillips (1961) reports that only 8% of the donors in her study were repaying debts to the blood bank and only 6% were investing for their own future need.

In this study, no support was found for a relationship between reciprocal giving and blood donation. In reference only to blood donation, the donors studied do not operate on a norm of reciprocity. It is quite possible that in other interpersonal activities donors are influenced

by reciprocity, but the fact that anyone in Canada, donor or non-donor, can obtain cost-free blood supplies in time of need likely obviates reciprocity in this context.

Discussion and Interpretation of Sex Differences

Results of statistical analyses, presented in Chapter III, and partially discussed in earlier sections of this chapter, indicate that donor and repeat donor groups, comprised of male and female subjects, obtained scores and ratings on the independent variables which were significantly higher than comparable non-donor groups of male and female subjects. When donor groups were classified and then analyzed according to sex, male donors and male repeat donors in comparison to male non-donors were shown to have achieved significantly higher scores and ratings. Moreover, the frequency and degree of statistical significance in comparisons between exclusively male groups were greater than those found for comparisons between combined groups of males and females. Further, with the exception of only three variables (to be discussed in this section), there were no significant differences between female donor and female repeat donor groups in comparison to female non-donors.

Blood donation, it seems, has different connotations for males than it does for females. In reference only to the variables examined in this study, female donors, female

repeat donors and female non-donors ascribe psychological attributes to themselves which, for the most part, are not significantly different. Female donors and female non-donors were found to be significantly different only on: (a) ratings of the fictional "donor," (b) willingness to share blood supplies, and (c) scores on the Intellectual Efficiency scale of the C.P.I.

When female donors and female repeat donors rated the fictional "donor," ergo a donor other than themselves, they evaluated him to a significantly higher degree of responsibility and altruism than did female non-donors. Recall that female donors and female repeat donors did not evaluate themselves more positively than female non-donors, but, as mentioned above, they did rate a blood donor (in this instance, a fictional one) to significantly higher levels of responsibility and altruism than did female non-donors. Thus, blood donation, it seems, is endorsed by females as a responsible and altruistic act, but not as a signification of personal attributes.

By contrast, there were no significant differences in the ratings of the fictional "donor" by actual male donors and male repeat donors in comparison to male non-donors. But when these male groups rated themselves, the male donors and male repeat donors perceived themselves to be significantly more potent than did the male non-donors. It may be that the male donors and male repeat

donors underestimated the potency of the fictional "donor," overestimated their own potency, or both.

Briefly, it appears as if females endorse blood donation but do not perceive it as a demonstration of personal attributes, whereas, for males, the giving of blood provides significant feedback in relation to self-image.

The willingness to share blood supplies with those in need was significantly greater for female donors than for female non-donors, but not significantly different in similar comparisons between male groups. If female donors perceive blood donation primarily as a pro-social act, then it is congruent that they generously offer their blood gift on the basis of need. If males perceive blood donation as a manifestation of personal attributes, then perhaps the ultimate disposition of the blood gift is of lesser importance to them.

Interpretations of sex differences are continued in the next four sections, each pertaining to somewhat different concepts, but all relating to the dependent variable, blood donation, and the observed sex differences in this and other studies.

Source of self-esteem. The concepts of self and self-esteem, which develop through extremely complex life-long experiences, are widely accepted principles in the

literature on human behavior. Wilson and Wilson (1976) found support for the hypothesis that self-esteem for males stems from success experiences in vocations, positions of power and status, and competition, whereas, for females, self-esteem is related to achievement of personal goals, existential concerns, family relationships, self, and body image. Berger (1968) obtained results which indicate that females but not males evaluate themselves on the basis of social certainty--the more assured females are that other people like them, the less negative they feel about themselves. Berkowitz (1970) contends that females are less likely to offer help if aspersions are cast upon that part of their self-concept which defines their humanness or social mindedness. Contrarily, males are less likely to help if their status is threatened. According Guertin and Jourard (1962), self-esteem for females but not for males is enhanced if they perceive a sense of warmth in their interpersonal relationships. Earlier, Schopler (1967) stated that females are less status conscious than males and are more in tune with traditional sex roles such as those which prescribe nurturant helpful behavior.

Undoubtedly, some of the above contentions will be reconsidered in light of the many recent changes in social attitudes vis à vis male-female stereotypes. It is conceivable that the entire issue of sex differences will

be re-examined because of rapidly changing sex role socialization patterns. For the moment, it is assumed that women's and men's movements are still in their early stages and that some of the more traditional attitudes still prevail.

As has been reported, the male donors and male repeat donors in the present study perceive themselves to be significantly more potent than male non-donors. Such was not the case for females. Further, the male donors in the present study claim to have been significantly less fearless than the female donors the first time they gave blood. Also, the female donors report having been afraid of fainting to a significantly greater extent than did the male donors. Moreover, in reference to the pain factor in giving blood, Bartel et al. (1975) found greater defensiveness in male donors than in female donors.

If, as the literature seems to suggest, males are more concerned about their status than females, and if self-esteem for males more so than females is affected by self-attributions of power and successful competitiveness, then the results of the present study can be interpreted to mean that the giving of blood by males is a manifestation or protestation of masculine strength and potency. By contrast, if the enhancement of self-esteem for females is, as the literature suggests it is, related to nurturing

sex roles, social acceptance, and concern for others, then the giving of blood by females, based on motives such as these, is quite dissimilar from that of males. Recall that the female donors in this study professed a significantly greater willingness than female non-donors to share their own community's blood supplies with another community in need. Such was not the case for the males.

Characteristics of giving blood. Two prominent features in the process of giving blood are the time-inconvenience factor and the fear of needles-pain-discomfort-negative after-effect syndrome. Although unconfirmed in the literature, it seems unlikely that males donate more frequently and in greater quantities than females because they are less pressed for time and find it less inconvenient to do so. However, it may be that mobile clinics set up in specific locales such as universities, government buildings, or industrial plants for the specific purpose of making it more convenient to give, obtain more donations from males than females because of higher ratios of males to females. But the Red Cross in Ottawa finds that more male than female volunteer donors come to the permanent clinic, which suggests that sex differences in rates of blood donation are not related to a convenience factor nor perhaps to the accessibility of greater numbers of males than females at mobile clinic locations. Attention is drawn to the fact that there were no significant

differences in the number of male and female subjects who participated in the present study, but there were significantly more male donor subjects than female donor subjects.

Society traditionally attributes greater potency and strength to males than to females and, as a consequence, males are "supposed to be" stronger, more potent, and hence better able to tolerate pain. If such is the case, and if as the present study suggests, blood donation for males is a manifestation-protestation of masculine virility, then males, more so than females, would suffer greater decrements in self-esteem if they were to avoid giving blood. If blood donation for males represents heroism of sorts, then not to do so would be cowardly. Since strength and potency are not usually thought of as vital feminine characteristics, females can express other forms of helping without being as troubled as males by their non-donor status. These interpretations seem consistent with those of Wilson and Kahn (1975) and Deaux (1972): who contend that sex differences in helping behavior can be understood in terms of the sex characteristics of the helping task. If the pain-discomfort aspect of blood donation imposes a masculinizing effect, it could explain greater rates of blood donation among males than among females.

Context within which blood is collected. Mobile clinics and permanent ones at Red Cross Headquarters are similar in that blood is collected in a public rather than

in a private setting. Females in the study by Moss and Page (1972), who had been publicly embarrassed while attempting to help one person, and then faced with a situation in which a second individual dropped a small bag without noticing it, helped less often than the males who had been exposed to the same experimental manipulation. Male and female control subjects were not significantly different on helping behavior. If embarrassment has a greater impact on females than on males, and if females are more afraid of fainting when they give blood than are males (as they so stated in the present study), then perhaps less females give blood because they fear the embarrassment of fainting in public.

The non-private procedures in collecting blood may have a different effect on males, especially since the receptionists, technicians, registered nurses, and volunteer aides who are responsible for the collection process most often are female. Rotton (1977), Pomazal and Clore (1973), and Simon (1971) found that, in general, females are helped more than males. Even though there is no direct contact between the benefactor and recipient of the blood gift, it is possible that those who collect the gift are perceived by those who offer it, not as intermediaries, but as the actual beneficiaries. If such were the case, then perhaps males more so than females seize the double opportunity of demonstrating their masculinity

and at the same time offering up a blood gift to members of the opposite sex. This interpretation seems to concur with the one suggested by Gruder and Cook (1971) who contend that sex differences are probably due to the sex of the person receiving help less so than to the person giving it. Psychoanalytically oriented interpretations might propose erotic symbolisms in the after care given male donors as they recline on cots and receive praise, care, and attention from and physical contact with females hovering above them.

Physiological sex differences. Observed sex differences in rates of blood donation may be linked to fewer absolute opportunities for females to give because of pregnancies and menstruation. Undoubtedly, at times these are valid circumstances, but the possibility also exists for females to rationalize their non-donor status on gynaecological bases. The present study did not address itself to this matter but suggests that it be given serious consideration in future research. For example, one might investigate whether rates of donating by females increase after menopause.

The Effect of Personal Norms and Situational Factors
on Blood Donation

Schwartz (1973) postulates that:

the activation of personal norms relevant to helping (and to other morally evaluated behavior) requires that the individual: (1) become aware of consequences for the welfare of people in a situation; (2) hold personal norms enjoining action pertinent to these consequences; and (3) feel some capability to control the action enjoined and its outcomes--some personal responsibility. It follows that the activation of personal norms varies with the salience of consequences in the situation (i.e., how obvious and fully spelled out they are), and with the salience of personal responsibility (i.e., how strongly the individual's freedom, capacity and unique qualifications to act are highlighted). Differences among individuals in tendencies spontaneously to become aware of consequences or to see the self as responsible will similarly affect the activation of norms (p. 353).

Schwartz (1973) tested the hypothesis that the impact of personal norms on behavior is a function of the tendency to deny or ascribe responsibility to the self (AR), and found that volunteering to be a bone marrow donor was a function of the AR X Personal Norm interaction. Personal norms had no impact on those low on AR (deniers). Schwartz describes personal norms as the expectations people hold for themselves but acknowledges that these expectations derive from socially shared norms.

What distinguishes a norm as personal is that sanctions attached to it are tied to the self-concept: anticipation or actual violation of the norm result in guilt, self-deprecation, loss of self-esteem; conformity or its anticipation result in pride, enhanced self-esteem, security (p. 353).

More recently, Schwartz (1977) states that:

self-expectations are experienced as feelings of moral obligation generated when perception of another's need activates the internalized structure of values and norms (p. 223).

The activation of self-expectations

views pro-social behavior as the outcome of decision-making in which cognitive processes play an important role.... information about another's need may lead to the activation of internalized values or norms advocating help regardless of external reinforcements ... these self-expectations are experienced as feelings of moral obligation, and they are not necessarily considered consciously. Behavior is motivated by the desire to act in ways consistent with one's values so as to enhance or preserve one's sense of self-worth and avoid self-concept distress (p. 225).

An interpretation of the results of the present study within the theoretical model of Schwartz is indeed tempting, and it is hypothesized that helping behavior in the form of blood donation requires that the individual:

- (1) become aware and accept the legitimacy of the need for community blood supplies as well as the consequences for a shortage of same;
- (2) possess a belief system which endorses personal responsibility for meeting community needs for blood; and
- (3) feel competent about personal attributes which would be required in the giving of blood.

Rates of blood donation may vary with the salience of consequences--an increase, for example, would be expected if it were known that the lack of blood for transfusion jeopardized the life of a critically ill patient. Similarly, rates of giving blood may increase or decrease on the basis of salience of personal responsibility. A decrease in rate of blood donation would be predicted in the instance of an individual who rationalizes that others are equally if not more qualified to act.

Discussion of Results of Multiple Regression Analyses
in Relation to Univariate Analyses

One-way analysis of variance was one of the primary statistical procedures used to analyze data in the present study. Separate multiple regression equations were also derived for: (1) all subjects; (2) male subjects; and (3) female subjects. This section addresses itself to a comparison and discussion of results obtained via univariate analyses and those found in the multiple regressions.

Comparison of results for all subjects. Five of the seven significant predictor variables in the regression equation for all subjects pertain to the hypothesis which asserts blood donation to be positively related to social responsibility. In univariate analyses, repeat donors scored significantly higher than respective non-donor groups on Communality and Psychological Mindedness, and these same two scales of the C.P.I. are significant predictor variables in the regression equation. The congruence of results via the different analyses provides a greater degree of confidence in the observed relationship between blood donation and social responsibility. The variable measuring a subject's stated willingness to share blood supplies with other communities was found to be significant in both univariate and multivariate analyses, adding further support for the hypothesis linking blood donation and social responsibility (note: the negative coefficient

in the regression is due to a coding procedure which assigned the lowest score possible to the statement reflecting the highest willingness to share).

A univariate analysis did not find significant differences between donor and non-donor groups on the Good Impression scale of the C.P.I., but this scale, significant at the .025 level of confidence, is contained in the regression equation. On the basis of this finding, there would seem to be a relationship between blood donation and a desire by blood donors to create favorable impressions. If, as the present study suggests, male donors give blood partly to assert their masculinity, then it is not unusual to find the Good Impression scale to be a significant predictor variable.

When examined by one-way analysis of variance, the Socialization scale of the C.P.I. was not found to be significantly different for donor and non-donor groups. However, this same scale, which measures the extent to which values are internalized and the degree of social maturity attained, was found to be a significant predictor variable in the multiple regression. But its negative coefficient reflects a reversal from the expected pattern. The Socialization scale orders individuals along a continuum from asocial to social behavior and forecasts the likelihood that they will transgress the mores established by their particular cultures. Thus, the regression equation

predicts that, as socialization scores decrease, with a concomitant greater likelihood of cultural transgression, frequency of blood donation will increase. This finding at first glance does not appear to be congruent with other results in the present study. There is, however, some similarity between the notion that blood donors may transgress cultural mores and the results which indicate that donors perceive themselves to be competent and, hence, qualified to "take matters into their own hands," and also tend to be internally controlled. The common element may consist of a factor characterized by independent thought and action, sometimes at odds with accepted social standards, but not to any extreme anti-social degree.

All studies reviewed have consistently found significantly greater numbers of male donors than female donors. There were no significant differences in the number of male and female subjects who participated in the present study, but there were significantly greater numbers of male donors than female donors. The multiple regression for all subjects in the present study also indicates that a significantly greater frequency of blood donation can be expected from males than from females.

Comparison of results for male subjects. As in the regression equation for all subjects, the Psychological Mindedness, Communality, and Socialization scales of the C.P.I. were found to be significant predictor variables

for male subjects exclusively. In addition to these C.P.I. variables, the regression equation indicates greater frequency of blood donation can be expected from male subjects whose locus of control scores are more internal than external. This finding is congruent with the literature on helping behavior and consistent with the trend suggested in the testing of this variable by one-way analysis of variance. The regression equation also includes a modeling factor for males, wherein greater frequency of blood donation is predicted for males who have greater numbers of potential blood donor models.

Comparison of results for females. Only two significant predictor variables were found in the regression equation for females. First, an increase in frequency of blood donation is predicted with an increase in expressed willingness to share blood supplies with others in need. This finding is consistent with the observed relationship between social responsibility and blood donation indicated via univariate analyses. Second, more blood donations are expected from females who obtain higher ratings of intellectual efficiency than from females who obtain lower ratings. This latter finding concurs with the competence hypothesis tested and supported by one-way analysis of variance.

General Discussion

Generalization. The method of sampling in the present study imposes strict limitations as to the generalization of results: The subject sample was comprised of university students with a decided preference for and use of the English language and currently residing in a city popularly believed to possess a bureaucratic, civil service mentality. It is not known if similar results would have been obtained for subjects whose linguistic and cultural background is somewhat different (e.g., francophones). Similarly, a study of non-university students and, hence, somewhat older on the average than the subjects in this study, in a more cosmopolitan urban area, might not concur with the results of the present study. Moreover, it could be argued that since university students donate blood in greater frequencies than do members of the general population, it would be more advantageous to concentrate on those portions of the community whose blood donating habits are less well established.

Critique of the present study. In addition to the limited scope of generalization of results, this study is open to criticism on at least several counts. Donor status was based on a self-report technique which raises the possibility of dissimulation. On speculation alone, there would appear to be less likelihood of an individual

claiming to be a donor when such is not the case, than is the plausibility of inflation of frequency of donation on the basis of either conscious or unconscious dissimulation. Whereas most of the statistical analyses were based only on the donor-non-donor dichotomy, multiple regression equations used frequency of donation as the criterion variable.

A frequent research dilemma is that of informed consent by participants. Subjects in the present study were not informed of its purpose on the assumption that such knowledge would have invited respondent bias. Academic information taken from university records was obtained without students' authorization. Justification for these actions is based on the personal conviction that the objective of this enterprise was clearly for the enhancement of pro-social behavior. Sincere acknowledgment is accorded to the possible dangers inherent in reasoning that ends justify means, although a priori evaluation of ends may sometimes qualify the morality of specific means.

Suggestions for Future Blood Donor Research and for
Improvement of Recruitment and Retention
of Donors

First of all, it seems imperative that future research on the nature of blood donation verify donor status and frequency of donation in a reliable fashion. During

the last four years or so, the Canadian Red Cross has computerized its records, creating an invaluable source for future blood donor research.

In this and every other study reviewed, male donors consistently outnumber female donors and the present study claims that blood donation has connotations which are significantly different for males than for females. It is highly recommended that future research on blood donation focus on sex differences.

If blood donation for males does represent a manifestation or protestation of masculine virility, then it is hypothesized that an appeal for male donors which stresses a potency factor would recruit significantly greater numbers of male donors than an appeal which did not stress a potency factor. If females regard blood donation more as a humanitarian act and less as a demonstration of personal attributes, then it is hypothesized that an appeal for female donors based on the concept of altruism would recruit significantly greater numbers of female donors than an appeal which did not allude to altruism.

If personal face-to-face interactions between female Red Cross personnel and male donors does influence rates of male donation, then it is hypothesized that a decrease in female Red Cross personnel (with appropriate information to make this fact known) would result in a decrease in male volunteer donations.

According to the present study, females supposedly donate less frequently than males because they fear the possibility of fainting in public with its inherent embarrassment. If such were the case, then it is predicted that female rates of donating would be greater under conditions of privacy than in a group setting. Contrarily, it is suggested that the presence of an "audience," especially one comprised primarily of females, is a potent influence on male donors. Therefore, it is hypothesized that blood donations by males would be lower under private blood collecting conditions than in the presence of observers.

Another interpretation in reference to sex differences claims that males donate more frequently than females because there are more eligible male donors. If there is truth in this line of reasoning, then it is hypothesized that the number of blood donations by males and females would not be significantly different under conditions which would control the male-female ratio of eligible donors.

An unconfirmed contention claims that male donors significantly outnumber female donors because giving blood is less of an inconvenience for males. If this were true, then it is predicted that there would be no significant differences in rates of male and female donations when controlling for a convenience factor.

It is also possible that fewer females than males are blood donors because females are periodically

ineligible to give blood due to menstruation or pregnancy. This possibility could be tested experimentally and it is hypothesized that rates of blood donation would be significantly greater for males in comparison to females who are not pregnant and/or who are using oral contraceptives.

Previous research and the present study propose that fear of pain and negative after-effects have a significant impact on blood donation. For males, the giving of blood is asserted to represent, in part, an exercise in confronting and overcoming fear, and in the process, confirming one's masculinity. Females have been found to be less defensive about their fear of giving blood and they do not seem to perceive blood donation as a means of substantiating personal attributes. On the assumption that sex differences are related to a pain factor, fewer males would be expected to donate under conditions which presumably have eliminated the pain of giving blood than under conditions which would still be characterized by a pain factor. The opposite would be expected for females.

This study supports the contention that blood donors in contrast to non-donors perceive themselves to be more competent, more socially responsible, and may be more internally controlled. Significantly greater rates of blood donation are predicted from males who are internally controlled. It is unclear whether the act of

giving blood precedes and gives rise to these self attributions or whether blood donations are obtained from individuals who--prior to having become a blood donor--perceive themselves to be potent and socially responsible. This issue could be studied experimentally by assessing and recording personality traits of people before they become blood donors and comparing these with their personality characteristics measured at later stages of their blood donor histories.

Some people habitually travel to the permanent Red Cross depot, while others wait for the annual or semi-annual mobile clinics to be set up in their neighborhood, or at their place of work or study. Those in the latter group conceivably donate because of the social coercion of their peers. It is hypothesized that there is a greater tendency for depot donors than mobile clinic donors to attribute causes for their donor status to themselves as opposed to some external compulsion.

On the basis of the results of this study, the most effective immediate action that the Red Cross can take is to acknowledge and respond to the fact that males and females do not perceive blood donation in the same way. Until now, blood donor appeals have not differentiated between the two sexes but rather requests have been directed at the population in general. If males give blood as a means of expressing or reassuring

themselves about their potency, publicity campaigns might make subtle reference to this factor and the opportunity that blood donation provides males for manifesting their masculinity. Greater rates of blood donation among females might be achieved if appeals aimed at them emphasized the caring, nurturing dimension. After having donated blood, words of appreciation offered to male donors by Red Cross personnel might allude to their manly pain tolerance. Expressions of gratitude extended to female donors could emphasize their humanitarianism.

SUMMARY AND CONCLUSIONS

Donor and non-donor groups in this study were found to be measurably different on a number of variables. Donors perceived themselves to be significantly more competent and more socially responsible than non-donors, and tended to be more internally controlled than non-donors. There were no significant differences in reference to reciprocal giving as it relates to blood donation. Differences occurred most frequently and to greater degrees of statistical significance in comparisons between male donor and male non-donor groups, and between male repeat donors and male non-donors. Aside from three exceptions, comparisons between exclusively female groups were not significant.

Blood donation appears to have different connotations for males than it does for females. Results suggest that the giving of blood by males is a manifestation of masculine strength and potency. Females, it seems, perceive blood donation primarily as a pro-social act and less as a demonstration of personal attributes.

It is recommended that blood donor studies in the future devote considerable attention to sex differences as they relate to and influence blood donation. For the present, Red Cross Societies are urged to alter their

publicity by using separate appeals for male donors and for female donors. Expressions of thanks given to male donors ought to stress their ability to tolerate pain, while females should be praised for their altruistic gesture.

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APPENDIX 1

SEMANTIC DIFFERENTIAL SCALES

INSTRUCTIONS

AT THE TOP of each page of this booklet is a different concept to be judged and beneath it a set of scales.

If you feel that the concept at the top of the page is VERY CLOSELY RELATED to one end of the scale, you should place your X as follows:

fair X : ___ : ___ : ___ : ___ : ___ : ___ unfair

OR

fair ___ : ___ : ___ : ___ : ___ : ___ : X unfair

If you feel that the concept is QUITE CLOSELY RELATED to one or the other end of the scale (but not extremely) you should place your X as follows:

strong ___ : X : ___ : ___ : ___ : ___ : ___ weak

OR

strong ___ : ___ : ___ : ___ : ___ : X : ___ weak

If the concept seems ONLY SLIGHTLY RELATED to one side as opposed to the other side (but is not really neutral) then you put your X as follows:

active ___ : ___ : X : ___ : ___ : ___ : ___ passive

OR

active ___ : ___ : ___ : ___ : X : ___ : ___ passive

If you consider the concept to be NEUTRAL on the scale, place your X in the middle space

safe ___ : ___ : ___ : X : ___ : ___ : ___ dangerous

IMPORTANT

1. Place your X in the middle of the spaces, not on the boundaries.

___ : ___ : X : ___ : ___ X ___ : ___
This Not this

2. Do not omit scales.
3. Never put more than one X on a single scale.
4. Work at a fairly high speed, but avoid carelessness.
5. Do not worry or puzzle over individual items.
6. Do not let previous answers influence the ones following.

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good _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ bad

hard _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ soft

passive _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ active

co-operative _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ unco-operative

dishonest _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ honest

submissive _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ dominant

impulsive _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ inhibited

trustworthy _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ untrustworthy

unfair _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ fair

decided _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ undecided

slow _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ fast

irresponsible _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ responsible

pleasant _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ unpleasant

weak _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ strong

altruistic _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ egotistical

valuable _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ worthless

small _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ large

dull _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ sharp

moral _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ immoral

sick _____ : _____ : _____ : _____ : _____ : _____ : _____ : _____ healthy

good		:		:		:		:		: bad
hard		:		:		:		:		: soft
passive		:		:		:		:		: active
co-operative		:		:		:		:		: unco-operative
dishonest		:		:		:		:		: honest
submissive		:		:		:		:		: dominant
impulsive		:		:		:		:		: inhibited
trustworthy		:		:		:		:		: untrustworthy
unfair		:		:		:		:		: fair
decided		:		:		:		:		: undecided
slow		:		:		:		:		: fast
irresponsible		:		:		:		:		: responsible
pleasant		:		:		:		:		: unpleasant
weak		:		:		:		:		: strong
altruistic		:		:		:		:		: egotistical
valuable		:		:		:		:		: worthless
small		:		:		:		:		: large
dull		:		:		:		:		: sharp
moral		:		:		:		:		: immoral
sick		:		:		:		:		: healthy

good	_ : _ : _ : _ : _ : _ : _	bad
hard	_ : _ : _ : _ : _ : _ : _	soft
passive	_ : _ : _ : _ : _ : _ : _	active
co-operative	_ : _ : _ : _ : _ : _ : _	unco-operative
dishonest	_ : _ : _ : _ : _ : _ : _	honest
submissive	_ : _ : _ : _ : _ : _ : _	dominant
impulsive	_ : _ : _ : _ : _ : _ : _	inhibited
trustworthy	_ : _ : _ : _ : _ : _ : _	untrustworthy
unfair	_ : _ : _ : _ : _ : _ : _	fair
decided	_ : _ : _ : _ : _ : _ : _	undecided
slow	_ : _ : _ : _ : _ : _ : _	fast
irresponsible	_ : _ : _ : _ : _ : _ : _	responsible
pleasant	_ : _ : _ : _ : _ : _ : _	unpleasant
weak	_ : _ : _ : _ : _ : _ : _	strong
altruistic	_ : _ : _ : _ : _ : _ : _	egotistical
valuable	_ : _ : _ : _ : _ : _ : _	worthless
small	_ : _ : _ : _ : _ : _ : _	large
dull	_ : _ : _ : _ : _ : _ : _	sharp
moral	_ : _ : _ : _ : _ : _ : _	immoral
sick	_ : _ : _ : _ : _ : _ : _	healthy

good ____ : ____ : ____ : ____ : ____ : ____ : ____ bad

hard ____ : ____ : ____ : ____ : ____ : ____ : ____ soft

passive ____ : ____ : ____ : ____ : ____ : ____ : ____ active

co-operative ____ : ____ : ____ : ____ : ____ : ____ : ____ unco-operative

dishonest ____ : ____ : ____ : ____ : ____ : ____ : ____ honest

submissive ____ : ____ : ____ : ____ : ____ : ____ : ____ dominant

impulsive ____ : ____ : ____ : ____ : ____ : ____ : ____ inhibited

trustworthy ____ : ____ : ____ : ____ : ____ : ____ : ____ untrustworthy

unfair ____ : ____ : ____ : ____ : ____ : ____ : ____ fair

decided ____ : ____ : ____ : ____ : ____ : ____ : ____ undecided

slow ____ : ____ : ____ : ____ : ____ : ____ : ____ fast

irresponsible ____ : ____ : ____ : ____ : ____ : ____ : ____ responsible

pleasant ____ : ____ : ____ : ____ : ____ : ____ : ____ unpleasant

weak ____ : ____ : ____ : ____ : ____ : ____ : ____ strong

altruistic : ____ : ____ : ____ : ____ : ____ : ____ egotistical

valuable ____ : ____ : ____ : ____ : ____ : ____ : ____ worthless

small ____ : ____ : ____ : ____ : ____ : ____ : ____ large

dull ____ : ____ : ____ : ____ : ____ : ____ : ____ sharp

moral ____ : ____ : ____ : ____ : ____ : ____ : ____ immoral

sick ____ : ____ : ____ : ____ : ____ : ____ : ____ healthy

good ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ bad

hard ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ soft

passive ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ active

co-operative ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ unco-operative

dishonest ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ honest

submissive ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ dominant

impulsive ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ inhibited

trustworthy ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ untrustworthy

unfair ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ fair

decided ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ undecided

slow ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ fast

irresponsible ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ responsible

pleasant ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ unpleasant

weak ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ strong

altruistic ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ egotistical

valuable ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ worthless

small ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ large

dull ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ sharp

moral ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ immoral

sick ____ : ____ : ____ : ____ : ____ : ____ : ____ : ____ healthy

John Doe is a 26 year old government worker who is married, has two children and lives in a middle class neighborhood. He graduated from university with a Bachelors degree, earns \$11,500 per year, drives a 1972 mid-size automobile, dresses conservatively and reads the Ottawa Citizen. He has a medical check-up at least once a year, a dental check-up twice a year and donates blood to the Red Cross. He is a member of the YMCA and enjoys T.V., small social gatherings, cross-country skiing, and Molson's beer. He considers himself to be fairly involved in his religious beliefs and observances.

[illegible]

APPENDIX 2

BLOOD DONOR QUESTIONNAIRE

STUDY OF VOLUNTEER BLOOD DONORS

DONOR QUESTIONNAIRE

Family Name _____

Given Name _____

STUDENT NUMBER _____

RETA

1. Check ONE description below which most accurately applies to you.
 - During the last 4 years I have given at least 12 (twelve) blood donations. ☐ (1)
 - During the last 4 years I have given between 9 and 11 blood donations. ☐ (2)
 - During the last 4 years I have given between 6 and 8 blood donations. ☐ (3)
 - During the last 4 years I have given between 3 and 5 blood donations. ☐ (4)
 - During the last 4 years I have given 2 blood donations. ☐ (5)
 - During the last 4 years I have given 1 blood donation. ☐ (6)
 - I have never given a blood donation (if you have never given, proceed to question number 6 and answer questions 6 to 23). ☐ (7)
2. What is the total number of blood donations you have given? _____ (3-9)
3. Have all your donations been given through the Red Cross here in Ottawa? Yes ☐ (1) No ☐ (2)
4. If you have given blood in other Red Cross Centres what is the location and the number of donations given?

Location (City) _____	No. of donations _____
Location (City) _____	No. of donations _____
Location (City) _____	No. of donations _____
5. How old were you the first time you gave blood? _____ Years
6. Have you ever sold your blood for money? Yes ☐ (1) No ☐ (2)
7. If you have sold your blood for money, how many times have you done so? _____
8. What is your Blood type? _____
ANSWER HERE
9. Have you ever received a blood transfusion? Yes ☐ (1) No ☐ (2)
10. If you have received a blood transfusion, on how many different occasions did you receive blood? _____
11. Have any of the following persons ever RECEIVED blood?

	Yes (1)	No (2)	Uncertain (3)
Parent	☐	☐	☐
Husband/Wife	☐	☐	☐
Children	☐	☐	☐
Other Relative	☐	☐	☐
Close Friend	☐	☐	☐

12. Have any of the following persons ever GIVEN blood?

	(1)	(2)	(3)
Parent	☐	☐	☐
Husband/Wife	☐	☐	☐
Children	☐	☐	☐
Other Relative	☐	☐	☐
Close Friend	☐	☐	☐

Note: Donors answer Questions 13(a), 13(b), 13(c), 13(d).

Non Donors answer Questions 14(a) and 14(b).

13. (a) Give the most important reason(s) you first became a blood donor (give the most important reason first, the next most important second, etc.)

_____	EE
_____	EE
_____	EE

13. (b) If you have given blood more than once, can you say why you came back to give again? (give the most important reason first, the next most important second, etc.)

_____	EE
_____	EE
_____	EE

13. (c) What negative aspects did you have to overcome the first time you donated blood?

_____	EE
_____	EE
_____	EE

13. (d) What negative aspects do you still consider when you give blood?

_____	EE
_____	EE
_____	EE

14. (a) Give the most important reasons why you have never become a blood donor.

_____	EE
_____	EE
_____	EE

14. (b) Blood donor programs find it difficult to recruit blood donors. Why do you think people hesitate to give blood?

_____	EE
_____	EE
_____	EE

15. What do you think the Red Cross can do to persuade more people to be blood donors?
(give the most important reason first, the next most important second, etc.)

----- ☐ (1)

----- ☐ (2)

----- ☐ (3)

16. Suppose there was an emergency in Toronto and the local Red Cross decided to ship blood supplies to help the people in Toronto who needed them. However, by sending blood to Toronto a dangerously low shortage was created here in Ottawa. What are your feelings about this decision?

I very strongly agree ☐ (1)

I strongly agree ☐ (2)

I partially agree ☐ (3)

I partially disagree ☐ (4)

I strongly disagree ☐ (5)

I very strongly disagree ☐ (6)

17. All financial considerations aside, and assuming they were interested, in which of the following would you encourage your child to seek a career. (choose only one)

Politics ----- ☐ (1)

Literature ----- ☐ (2)

Business ----- ☐ (3)

Theology ----- ☐ (4)

Social Service ----- ☐ (5)

Philosophy ----- ☐ (6)

18. What is your religion?

Anglican ☐ (01) Mennonite ☐ (05) Ukrainian Catholic ☐ (09)

Baptist ☐ (02) Pentecostal ☐ (06) United Church ☐ (10)

Greek Orthodox ☐ (03) Presbyterian ☐ (07) Unitarian ☐ (11)

Jewish ☐ (04) Roman Catholic ☐ (08) Salvation Army ☐ (12)

Other

19. How frequently do you attend religious services and/or participate in other religious activities?

Very often ----- ☐ (1)

Often ----- ☐ (2)

Sometimes ----- ☐ (3)

Seldom ----- ☐ (4)

Never ----- ☐ (5)

20. List the non-professional (Social) organizations to which you belong. e.g. big brother organization, boy scout or girl guide leader, Y.M.C.A.

21. How long have you lived in the Ottawa area? ----- ☐ Mos. ☐ Yrs.

22. How many brothers and sisters do you have? ----- ☐

23. How many of your brothers and sisters are older than you? ----- ☐

• APPENDIX 3

STANDARDIZED TELEPHONE APPEAL PROCEDURE

APPENDIX 3

STANDARDIZED TELEPHONE APPEAL PROCEDURE

Hello, may I speak to _____?

Hi. I'm calling about an important research project that is taking place here at the University. You have been chosen as one of the students we would like to have participate.

Let me take a minute to tell you a bit about the study.

1. First of all, it won't take very much of your TIME.
2. We are doing the study THIS THURSDAY, MARCH 20TH, right here on campus, in room 119, on the Main Floor of Taberet Hall.
3. It will only take about an hour or so to complete everything and we can set up a morning, afternoon, or evening appointment--whichever is most convenient for you.
4. You only have to come in once--you won't be asked to come back again.
5. When the study is complete, the results will be made available to all those who took part.

-- -- --

We are really counting on your participation and because scheduling has to be arranged for in advance, we need to know NOW if you can help us out. And, remember, we could receive you at practically any time on Thursday.

APPENDIX 4

TABULAR SUMMARY OF RESULTS VIA UNIVARIATE ANALYSES OF
VARIANCE AND MULTIPLE REGRESSIONS

Data source	Univariate Analysis of Variance				Multiple Regression	Hypothesis tested	
	Male		Female				
	Donors	Repeat donors	Male repeat donors	Female repeat donors	All subj.	Male subj.	Female subj.
C.P.I. Class I (measuring poise, ascendancy, self-assurance, interpersonal adequacy)							
1. Dominance	-	-	-	-	-	-	-
2. Capacity for Status	.05*	.05*	-	-	-	-	-
3. Sociability	-	.05*	-	-	-	-	-
4. Social Presence	.10	.10	.05*	-	-	-	-
5. Self Acceptance	-	-	-	-	-	-	-
6. Sense of Well Being	.05*	.01*	.05*	.005*	-	-	-
Semantic differential Potency factor scores							
1. The Way I See Myself	-	.10*	-	-	-	-	-
2. The Way Others See Me	.10*	.05*	.10*	.05*	-	-	-
C.P.I. Class III (measures of intellectual efficiency and achievement potential)							
1. Achievement via Conformance	-	.05*	-	-	-	-	-
2. Achievement via Independence	.10*	.10*	.10*	.10*	-	-	-
3. Intellectual Efficiency	.01*	.01*	.10*	.10*	-	-	.05**

*Donors outscore non-donors

**Positive coefficient

Data source	Univariate Analysis of Variance				Multiple Regression		Hypothesis tested
	Male		Female		All subj.	Male Female subj. subj.	
	Repeat donors	Male donors	repeat donors	Female repeat donors			
Locus of control	.10 ^a	.10 ^a	-	-	-	.05***	Hyp. 2 (Locus of control)
C.P.I. Class II (measures of socialization, maturity, and responsibility)							Hyp. 3 (Social responsibility)
1. Responsibility	-	.05*	-	.10*	-	-	
2. Socialization	-	-	-	-	.001***	.01***	
3. Self Control	-	-	-	-	-	-	
4. Tolerance	.05*	.05*	.01*	.01*	-	-	
5. Good Impression	-	-	-	-	.025**	-	
6. Communality	.10*	.05*	.10*	.05*	.001**	.001**	
C.P.I. Class IV (measures of interest modes)							Hyp. 3 (Social responsibility)
1. Psychological Mindedness	-	.05*	.05*	.05*	.005**	.01**	
2. Flexibility	-	.05*	.05*	.10*	-	-	
3. Femininity	-	-	-	-	-	-	

^aDonors more internally controlled.

*Donors outscore non-donors

**Positive coefficient

***Negative coefficient

Data source	Univariate Analysis of Variance				Multiple Regression	Hypothesis tested
	Male		Female			
	Repeat donors	Male repeat donors	Female repeat donors	Female repeat donors	All subj. subj. subj.	
Semantic differential Evaluation factor scores						
1. Fictional "donor"	.05*	.05*	.01*	.01*	-	Hyp. 3 (Social responsibility)
2. Fictional "non-donor"	-	-	-	-	-	
"Willingness to Share Blood" scores						
	.10*	-	.05*	.10*	.01***	Hyp. 3 (Social responsibility)
Modeling	-	.10*	.05*	.01*	.05**	
Sex of subject					.05***	
Semantic differential Activity factor scores						
1. The Way Others See Me					.05***	
2. The Way I'd Like To Be					- .05***	

*Donors outscore non-donors

**Positive coefficient

***Negative coefficient

APPENDIX 5

ADMINISTRATIVE REPORT TO THE
CANADIAN RED CROSS

APPENDIX 5

ADMINISTRATIVE REPORT TO THE
CANADIAN RED CROSS

There is a constant and urgent need for more blood donations. If new donors and increased rates of donating from current donors are not procured in sufficient quantities, a critical circumstance will result because of dangerously low blood supplies. The Canadian Red Cross, through the patronage of its volunteer blood donors, collects and distributes blood supplies on a non-profit basis. It is one of the few remaining organizations of its kind. Many other countries have been forced to develop donor recruitment systems, both public and private, whereby suppliers are given money or otherwise rewarded for their blood which is then sold to the recipient.

The existence and availability of a group of individuals, who have freely given and continue to give blood, often at a personal cost in terms of time, money, and/or physical discomfort, has provided an ideal opportunity to gain a fuller understanding of volunteer donors and non-donors, and enhance the effectiveness of recruiting new and retaining current volunteer blood donors.

Most previous research intended specifically for the purpose of procuring more blood donations has been based primarily on self-report and, hence, susceptible to

respondent biases. As far as is known, blood donation in Canada has not been researched. In the present study, blood donation was conceptualized as a form of pro-social behavior. Consistent with previous research on other forms of pro-social behavior, it was hypothesized that blood donors, in comparison to non-donors, perceive themselves to be more competent, internally controlled, socially responsible, and that reciprocity does not influence blood donors.

Subjects were 120 male and 101 female university students solicited by telephone, of whom 142 were donors and 79 were non-donors; male donors significantly outnumbered female donors. Mean age was 21.9 and 90.5% were full-time undergraduates. Hypotheses were tested with data derived from the California Psychological Inventory, the Internal-External locus of control scale, semantic differential scales, and a devised blood donor questionnaire.

As hypothesized, blood donors perceive themselves to be more competent than non-donors, and internal locus of control for males is predictive of more blood donations than is external locus of control. Donors ascribe significantly higher levels of social responsibility to themselves than do non-donors. Female donors, in comparison to female non-donors, attribute traits of social responsibility to other donors to a significantly greater extent and indicate a

significantly greater willingness to share community blood supplies. In relation to blood donation, donors do not operate on the basis of reciprocity.

When controlling for sex, results strongly suggest that males account for much of the observed variance. Apparently, blood donation is endorsed and enacted by females as a responsible and altruistic act but not to manifest personal attributes. For males, it provides significant self-image feedback in relation to masculine strength and potency.

The method of sampling in the present study imposes strict limitations on the generalization of results. The subject sample was comprised of university students with a decided preference for and use of the English language. A study of non-university students whose age, linguistic and cultural background is somewhat different might not concur with the results of this study.

Suggestions for Future Blood Donor Research and for Improvement of Recruitment and Retention of Donors

First of all, it seems imperative that future research on the nature of blood donation verify donor status and frequency of donation in a reliable fashion. During the last four years or so the Canadian Red Cross computerized its records creating an invaluable source for future blood donor research.

In this and every other study reviewed, male donors consistently outnumber female donors and the present study claims that blood donation has connotations which are significantly different for males than for females. It is highly recommended that future research on blood donation focus on sex differences.

If blood donation for males does represent a manifestation or protestation of masculine virility, then it is hypothesized that an appeal for male donors which stresses a potency factor would recruit significantly greater numbers of male donors than an appeal which did not stress a potency factor. If females regard blood donation more as a humanitarian act and less as a demonstration of personal attributes, then it is hypothesized that an appeal for female donors based on the concept of altruism would recruit significantly greater numbers of female donors than an appeal which did not allude to altruism.

If personal face-to-face interactions between female Red Cross personnel and male donors does influence rates of male donation, then it is hypothesized that a decrease in female Red Cross personnel (with appropriate information to make this fact known) would result in a decrease in male volunteer donations.

According to the present study, females supposedly donate less frequently than males because they fear the

possibility of fainting in public with its inherent embarrassment. If such were the case, then it is predicted that female rates of donating would be greater under conditions of privacy than in a group setting. Contrarily, it is suggested that the presence of an "audience," especially one comprised primarily of females, is a potent influence on male donors. Therefore, it is hypothesized that blood donations by males would be lower under private blood collecting conditions than in the presence of observers.

Another interpretation in reference to sex differences, claims that males donate ~~more~~ frequently than females because there are more eligible male donors. If there is truth in this line of reasoning, then it is hypothesized that the number of blood donations by male and females would not be significantly different under conditions which would control the male-female ratio of eligible donors.

An unconfirmed contention claims male donors significantly outnumber female donors because giving blood is less of an inconvenience for males. If this were true, then it is predicted that there would be no significant differences in rates of male and female donations when controlling for a convenience factor.

It is also possible that fewer females than males are blood donors because females are periodically ineligible to give blood due to menstruation or pregnancy. This possibility could be tested experimentally, and it is hypothesized

that rates of blood donation would be significantly greater for males in comparison to females who are not pregnant and/or who are using oral contraceptives.

Previous research and the present study propose that fear of pain and negative after-effects have a significant impact on blood donation. For males, the giving of blood is asserted to represent, in part, an exercise in confronting and overcoming fear, and in the process confirming one's masculinity. Females have been found to be less defensive about their fear of giving blood and they do not seem to perceive blood donation as a means of substantiating personal attributes. On the assumption that sex differences are related to a pain factor, fewer males would be expected to donate under conditions which presumably have eliminated the pain of giving blood than under conditions which would still be characterized by a pain factor. The opposite would be expected for females.

This study supports the contention that blood donors in contrast to non-donors perceive themselves to be more competent, more socially responsible, and may be more internally controlled. Significantly greater rates of blood donation are predicted from males who are internally controlled. It is unclear whether the act of giving blood precedes and gives rise to these self attributions or whether blood donations are obtained from individuals who--prior to

having become a blood donor--perceive themselves to be potent and socially responsible. This issue could be studied experimentally by assessing and recording personality traits of people before they become blood donors and comparing these with their personality characteristics measured at later stages of their donor histories.

Some people habitually travel to the permanent Red Cross depot, while others wait for the annual or semi-annual mobile clinics to be set up in their neighborhood, or at their place of work or study. Those in the latter group conceivably donate because of the social coercion of their peers. It is hypothesized that there is a greater tendency for depot donors than mobile clinic donors to attribute causes for their donor status to themselves as opposed to some external compulsion.

On the basis of the results of this study, the most effective immediate action that the Red Cross can take is to acknowledge and respond to the fact that males and females do not perceive blood donation in the same way. Until now, blood donor appeals have not differentiated between the two sexes but rather requests have been directed at the population in general. If males give blood as a means of expressing or reassuring themselves about their potency, publicity campaigns might make subtle reference to this factor and the opportunity that blood donation provides males for

manifesting their masculinity. Greater rates of blood donation among females might be achieved if appeals aimed at them emphasized the caring, nurturing dimension. After having donated blood, words of appreciation offered to male donors by Red Cross personnel might allude to their manly pain tolerance. Expressions of gratitude extended to female donors could emphasize their humanitarianism.