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Donation of Organs for Transplantation: An Investigation of Attitudes and Behavior

Courtney Weldon Goodmonson
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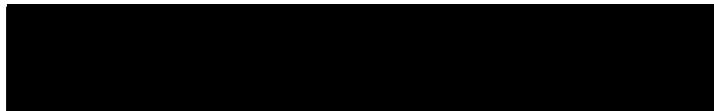
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AN ABSTRACT OF THE THESIS OF Courtney Weldon Goodmonson for the
Master of Science in Psychology presented May 12, 1970.

Title: Donation of Organs for Transplantation: An investigation
of Attitudes and Behavior.

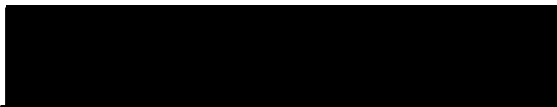
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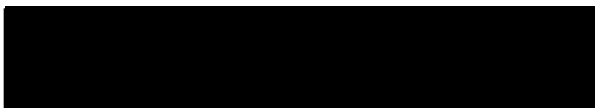
Vincent Glaudin, Chairman



David F. Wrench



Walter G. Klopfer



Robert E. Jones, Jr.

While technological advances in immunology and surgery have permitted rapid increases in the number of homotransplantations now performed, little is known about layman's attitudes toward donation of organs. Implicit in such progress has been the medical field's assumption that enough donor organs will be forthcoming to meet the increasing demand. In order to research this area a dual emphasis on practical and theoretical issues was employed. The purpose of the present study then, was to investigate this medical assumption by sampling the attitudes and behavior of college students toward donation of organs for transplant purposes, and at the same time,

to clarify some of the methodological issues resident in attitude research. The following experimental hypothesis was tested: individuals who express positive or negative attitudes toward organ donation, as measured on an attitude scale, behave in a manner consistent with their attitudes, behavior being measured by statements of intention and by behavioral commitment responses.

A Likert-type summated rating scale was developed and utilized as the attitude measuring instrument in the study. A split-half reliability coefficient of .95 and a test-retest reliability of .94 were obtained. A test battery containing the attitude scale, a demographic questionnaire, a social desirability scale and an information test was administered to 389 college students in their classrooms.

The validity study utilized two behavioral indices: 1) behavioral intent statements which were gathered following completion of the test battery, and 2) behavioral commitment responses as obtained in individual interviews. The second criterion involved 100 telephone interviews which took place from six to ten weeks after classroom testing. An additional 20 Ss followed up with personal interviews. Both criteria measures constituted Guttman scales.

Several secondary issues were investigated.

1. As attitude scales have routinely been validated by use of signed behavioral intent statements the effect of anonymity was examined. Of the total number of Ss participating in the test battery 86 were requested to sign the intent statements; all others were anonymously filled out.

2. In order to evaluate any sensitizing effect on behavioral commitment responses, one-half of those Ss participating in the individual interviews had not received any testing in the classroom situation.
3. The Marlowe-Crowne Social Desirability Scale was used to control for the effect of social norms on attitude and behavioral scale scores in approval dependent individuals.
4. An information test was incorporated into the test battery to ascertain the relationship between cognition, affect and behavior.

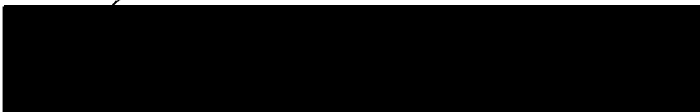
The major results lent strong support to the experimental hypothesis; Ss did tend to behave in a manner consistent with their measured attitudes. Validity coefficients of .38 (attitude and behavioral intent statements), .58 (attitude and behavioral commitment responses) and .64 (composite prediction) suggested that under certain conditions predictive salience can be obtained from attitude scale scores.

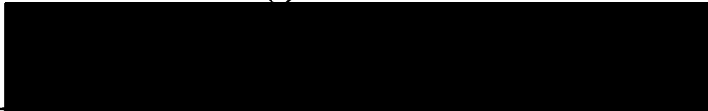
With regard to the secondary measures, no significant effects were found for anonymity, pretest sensitization, or social desirability. There was some evidence which suggested a relationship between level of information and attitude; however, the results were not conclusive.

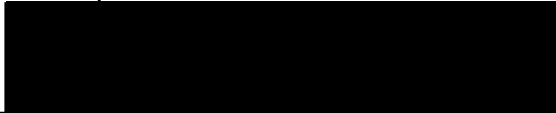
Empirical findings did support the medical supposition that some people at least (i.e., college students) will be favorably disposed toward posthumous organ donation. Twenty percent of those Ss contacted made a substantial commitment. Further research is planned in order to gain normative data on more representative samples of the total population.

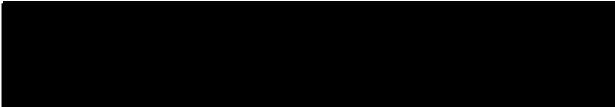
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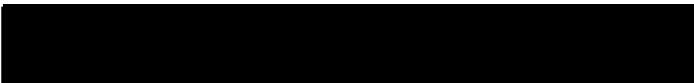

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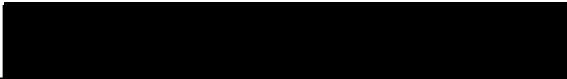

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May 12, 1970

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DONATION OF ORGANS FOR TRANSPLANTATION:
AN INVESTIGATION OF ATTITUDES AND BEHAVIOR

by

Courtney Weldon Goodmonson

A thesis submitted in partial fulfillment of
the requirements for the degree of

MASTER OF SCIENCE
in
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CHAPTER I

INTRODUCTION

The purpose of this study was to investigate the attitudes and behavior of a college population toward donation of organs for homo-transplantation. A dual focus aimed toward clarification of clinical and theoretical issues was attempted. First of all, a review of the historical foundations of organ transplants is presented in order to acquaint the reader with the current state of the art as viewed from its medical, psychological and legal standpoints. Secondly, a consideration of the methodology regarding attitude measurement and its relationship to behavior is discussed.

I. HISTORICAL FOUNDATIONS

Medical Status

In the past decade medical science has made tremendous strides toward the prolongation of life through transplantation of vital organs and tissues from one human to another. Prior to 1960 when immunosuppressive drugs first became available it was not possible to prevent rejection by the body of foreign tissue (Moore, Burth, Harken, Swan, Murray & Lillihei, 1968). Since then, kidney homo-

transplantations have dominated both the surgical transplant scene and research literature. Certainly the fact that people have two kidneys which allows for living donation has been a contributing factor. But more significant has been the availability of renal hemodialysis which is complementary to homotransplantation. That is, post operative patients require repeated dialysis until onset of diuresis when the transplanted kidney begins to function adequately (Rubini, Goldman, Agre, Koppel, Kopple, Gral, Shinaberger & Sokol, 1968). In addition to this adjunctive or transitional function, dialysis can be used to maintain life should rejection of the transplanted kidney occur.

While immunosuppressive therapy is required to prevent rejection of a transplanted organ there are deleterious side effects associated with its use. Chief among these is the organism's lowered capacity to defend itself against infection. As a result, infection has replaced rejection as the primary cause of death following transplantation (Rubini et al., 1968). Moore et al. (1968) have indicated that the amount of immunosuppression necessary to prevent rejection is a direct function of the goodness of donor-recipient match (accounting for the superior success rates of consanguineous donors). When these various facts are applied to non-paired vital organs, necessitating cadaver donors, it becomes imperative that tissue matching procedures be perfected. With organ storage currently limited to several hours at most the donor and recipient must be in the same city, preferably the same hospital. There is little time available for tissue typing the donor.

As kidney transplants have progressed well ahead of other organ transplants, statistics in this area will be used to indicate the changing status as well as a standard of what may be expected in associated transplant fields. Moore et al. (1968) found that of the more than 2000 kidney transplants which have been performed thus far at least 1100 are still functioning. The Seventh Report of the Human Kidney Transplant Registry (1969) reported impressive increases in success rate over the last two years. Their graphs suggest a 28% increase in survival rates for living consanguineous donor kidneys: 87% for January 1967 to January 1969 as against 59% prior to January 1967. Cadaver donor kidneys show a more modest improvement: 32% one year survival prior to January 1967 and 42% one year survival for the January 1967 to January 1969 period. (Siblings continue to be the best donors with a one year survival rate of 91%) In a recent newspaper article Auerbach (1969) cited other current statistics; he reported that sibling transplants now have 90% chance of survival for two years. It is important to note that survival rates designate functioning transplanted kidneys; many patients whose transplants were unsuccessful have been maintained on dialysis.

These advances certainly herald the beginning of a new era in which severe malfunction of a heart or kidney no longer mean imminent death. Yet there has been very little investigation of public opinion regarding such artificial intervention. It has not been established whether laymen's attitudes toward transplantation of living tissue are positive or negative, or if, in fact, people will accept composite man.

Psychological Status

Studies dealing with the psychological ramifications on the giver of organs for transplantation are not clearcut in their reported results. Kempf (1967; Kempf, Bermann & Coppolillo, 1969) found most donors experienced post-surgical depression; all donors in his sample required supportive psychotherapy. Several researchers reported an emotional reinvestment by the donor in the recipient (Cramond, 1967; Kempf et al., 1969) and a tendency toward overprotection leading to hostile-dependency between recipients and donors (Cramond, 1967; Cramond, Knight, Lawrence, Higgins, Court, MacNamara, Clarkson & Miller, 1968). Salutory effects have also been reported. Fellner & Marshall (1968) found that the altruistic act became an integrative personality experience for donors resulting in increased self esteem and positive changes in life style. He noted little post-operative depression. Kempf et al. (1969) concurred that in one instance donation became a vehicle for recasting one's image, e.g., black sheep to hero.

Blood donation, while patently not the same sacrifice as living organ donation, can be considered in somewhat the same light. It too involves a giving of a part of one's own body so that another might thrive. Similar kinds of psychological benefits seem to be derived from this type of donation as those reported by Fellner and Marshall (1968) for organ donors. Oeconomopoulos (1956) found his ss reported feelings of increased self worth and a sense of well being following blood donation. A number of other researchers (Boe & Timmens, 1966; Mai & Beal, 1967 and Phillips, 1961) have indicated the motivation for blood donation is most frequently altruistic.

Legal Status

The legal community too has taken steps to assure a favorable legal climate for those who wish to donate their organs posthumously. The Uniform Anatomical Gift Act was prepared by the National Conference of Commissioners on Uniform State Laws, July 30, 1968 and endorsed by the American Bar Association. A number of states have already passed the uniform act which allows any individual, 18 years of age or older, to give all or any part of his body; the gift to take effect upon death. In Oregon, the uniform act was signed by the governor on May 14, 1969 and became law August 22, 1969. Donation may be made by will, written instrument, card carried by the individual, etc. The right of living donation by adult and competent individuals has never been questioned (Sadler, Sadler & Stason, 1968).

Statement of the Clinical Problem

The House of Delegates of the American Medical Association (1969) suggests there will never be enough donors to meet potential demand. This statement, lacking sufficient attitudinal research, seems unnecessarily finite considering the lack of data. As Blachly (1969) has noted, organ transplantation is now at a stage of development similar to that of blood transfusions some thirty years ago. Perhaps organ donation will become as generally accepted as corneal transplants and blood donations are today.

A number of investigators (Blachly, 1969; Moore et al., 1968 and Terasaki, Mickey, Singal, Mittal & Patel, 1968) have suggested that a tenable solution for the anticipated scarcity of organs may

lie in the formation of organ banks similar to today's walking blood banks. Potential organ donors would be properly classified and immunological studies carried out prior to specific need or post-humous donation thus permitting the best antigen match of donor to recipient.

Long term preservation of organs seems not to be a too distant probability. Kidneys have been stored experimentally up to 72 hours with little functional impairment (Moore et al., 1968). As these methods are further developed, permitting much longer storage, actual organ banks will become feasible, organs being stored for long periods and shipped anywhere they are needed. The present situation would be reversed, as Moore et al. have said, "This will allow the choice of an organ for a recipient rather than the choice of a recipient for an available organ [p. 2495]."

In a highly original article Blachly (1969) proposed organ donation as an alternative to suicide, suggesting that such sacrifice may have expiatory qualities resulting in psychotherapeutic gains. Successful public solicitation of kidney donors at various transplant centers was also reported.

At present, however, the situation is less than satisfactory. Cadaver transplants are often hastily performed and inadequately matched due to chance availability of organs. The limited interval of time which can elapse between death of a donor and transplantation of the organ, and the difficulties involved in obtaining consent from relatives are added hurdles to be dealt with by the transplant team. In the past few months, computers have been programmed to "search"

recipient pools for the best tissue match when a possible donor (e.g., a critical accident victim) is located (Davenport, 1969). Living transplants fair slightly better, although there are seldom more than a few willing donors (usually close relatives) from which selection of the best immunological match can be made (Demph et al., 1969).

The proffered solutions for assuring availability of organs assume, a priori, a favorable public attitude toward both donation and receipt of vascularized tissue. While there are indications that this assumption may be accurate, it is an area of social change that has not been sufficiently researched. The only study located by this investigator was a Gallup Survey (1968) carried out late in 1967 following Dr. Christiaan Barnard's sensational heart transplant. The individuals sampled were asked one question: "As you may have heard, a doctor in South Africa recently transplanted a heart from a dead person to a live person. Would you be willing to have your heart or other vital organs donated to medical science upon your death [p. 28]?" Results suggested that approximately two-thirds of the sample responded affirmatively. Level of income and years of education seemed to have high positive correlations with verbal expression of willingness to donate.

Certainly opinion polling can offer valuable information on current issues yet, as Green (1954) has noted, the single question technique is extremely sensitive to changes in wording and may lead to unwarranted conclusions. Further, more detailed information is desirable on this critical issue and can be obtained by employing attitude scales and behavioral sampling techniques.

II. THEORETICAL FOUNDATIONS

The relationship between verbally expressed attitudes and behavioral acts is unclear and continues to stimulate controversy. Some investigators (e.g. Fairweather, 1964 and MacDonald, 1964) believe there is no predictive relationship from attitudes to behavior. Fishbein (1967) and others have suggested that attitudes are changed in order to be consistent with behavior rather than behavior necessarily following from one's attitudes, and Merton (1940) has said that neither is more real or truthful than the other, overt behavior may even serve to conceal or disguise attitudes. A number of experimenters have concentrated their efforts on refining existing scaling techniques or developing new methods of measuring attitude along some psychological continuum (DeFleur & Westie, 1963). Their assumption is that both verbal and overt behavior are manifestations of the same hypothetical latent variable. Fishbein's (1967) hypothesis that "behavior toward a given object is a function of many variables, of which attitude toward the object is only one [p. 491]" appears more realistic and defensible. While he does not propose a perfect relationship can ever be anticipated, neither does he suggest that they are unrelated, or that no prediction can be made from one to the other.

Research studies specifically designed to investigate the relation between measured attitude and behavior report conflicting results which range from very low to high correspondence. Tittle & Hill (1967) reviewed 15 of these studies and charted the results: six showed low relationships (below .35), one reported low to moderate,

two found moderate correspondence (between .35 and .60) and six showed high associations (.60 or above).

A number of tenable explanations have been offered to account for the inconsistent findings. In the Tittle & Hill article mentioned above, moderate support was found for their hypothesis that the degree of association is a function of the measuring instrument used, the behavioral criterion (patterned behavior better than a single act) and the criterion situation (normal better than contrived). Katz (1967) has suggested that some attitudes carry more action component than others. So that those attitudes with a lower action component would be expected to show less relationship to behavior than attitudes carrying high action components.

By viewing attitude in terms of a continuum from situations with low threshold values to those with high threshold values Campbell (1963) believes the inconsistency of individual behavior disappears. He likens his threshold paradigm to a series of hurdles gradually increasing in height. It becomes perfectly consistent for an individual to pass over the low hurdles and not the higher ones, a case of "consistent mediocrity". For example, a young man who holds pacifistic attitudes of moderate threshold values may verbalize anti-war slogans and participate in peace marches, but choose not to burn his draft card or go to jail rather than submit to the draft. In this model verbal and overt behaviors also have different thresholds.

Two possible reasons why an attitude scale may fail to predict behavior have been offered by Fishbein (1967): a) the attitude measured may have tested an inappropriate stimulus object (e.g.,

attitude toward a group or class rather than an individual member of that class) and b) the behavioral criterion selected may be totally or partially unrelated to the attitude of interest. Further, he has suggested that individual differences and situational factors may be the most important determinants of behavior, rather than any variable associated with the stimulus.

Certainly a large majority of attitude studies have dealt with three major topics: racial prejudice, political preference and religious conviction. We propose that these attitudes may be subsumed within a different category than the attitude under consideration in this study. That is, in the areas of racial, political and religious attitudes the parent model teaches the affective component to the child, either directly or indirectly and provides him with a value system upon which the child may then build. While verbal expressions of attitude may undergo change as the organism matures, this early training seems in some instances to prevent the appropriate behavior from occurring, behavior which would be consistent with the revised attitude. For example, DeFleur & Westle (1958) found that one-third of their Ss who expressed readiness for action in a racial situation were unable to carry through when the occasion was presented to them. A similar study by Linn (1965) also dealing with racial prejudice supported the DeFleur & Westle findings. Linn interviewed his Ss following data collection and reported that those Ss whose behavior had been discrepant explained their overt action (refusal) as "what I could or had to do" and their questionnaire response as "what I should or would like to do [p. 362] ."

Also, organ transplantation is not yet ten years old. Therefore, in contrast to racial, political and religious opinions, attitudes toward the giving of one's organs cannot be of long standing. With the advent of this surgical technique, the individual was faced with four alternatives:

1. He could create a new attitude structure toward the psychological object.
2. He could incorporate the attitude object into his existing superstructure of value systems.
3. He could adopt the attitudes, ready made, from some reference group.
4. He could refuse to recognize or deal with the new attitude object.

In any case his attitudes are of recent origin and, as such, have been found to be more modifiable, more open to change (Lambert & Lambert, 1964). Their newness would also seem to suggest that these attitudes would not carry with them the same historical constraints upon behavior as those imbued in childhood. For these reasons, then, it was anticipated that the best prediction of behavior would result when a) the measuring instrument uses items which are relevant to behavior, b) the criterion situation is not contrived, c) the criterion measures patterned behavior, and d) the attitude is recently developed and not dependent on childhood socialization.

Attitude Measure

As the concept of attitude has a number of differing connotations a precise definition is necessary. The unidimensional view-

point proposed by Thurstone (1931) and adopted by a number of investigators has been used in this study. It refers to "the amount of affect for or against a psychological object [p. 261]." Following Fishbein (1967), beliefs and behavioral intentions will be treated as indicants of attitude. He has stated that an estimate of attitude may be obtained "through a consideration of affect per se, through a consideration of beliefs and their evaluative aspects, or through a consideration of behavioral intentions and their evaluative aspects p.[483]."

Of the many scaling methods available a Likert-type summated rating scale was deemed appropriate for the present study. While it does have some weaknesses (as do they all), they were kept in mind during interpretation and presented no difficulty; and, there were several distinct advantages to be gained by employing this scale. Likert scales appear to consistently yield higher reliability coefficients, while coefficients of validity seem as high or higher than those produced by other methods. Tittle & Hill (1967) compared four commonly used scales (Likert, Thurstone, Guttman, and the Semantic Differential) and reported the summated rating scale provided the highest reliability ($r=.95$) and the most accurate behavioral prediction ($r=.543$). Their Thurstone scale (a successive interval scale) was least satisfactory on both measures. They suggested that the number of self-referent items contained in the scales might account for some of the differences, their Likert scale having had approximately four times as many self-referent items as their Thurstone scale. Another comparison of Thurstone and Likert scales

was carried out by Edwards & Kenney (1946). Their results support the previous study in so far as the Likert scale was found to be more reliable (validity was not investigated). In addition, it was reported less time consuming and laborious to construct, and the scores obtained from the two scales appeared comparable to the investigators.

Edwards (1957) has discussed an important consideration in interpretation of Likert scale scores: they cannot be interpreted independently from the distribution of the group as the neutral point is unknown. In other words, any score can only be said to be more or less favorable than the group average. Lacking a known neutral point, Edwards suggests, is a handicap only if one wishes to assign individuals to subsets (favorable, neutral or unfavorable) within the attitude universe. However, correlations between Likert scale scores and other measures are still possible. One further disadvantage of summated rating scales mentioned by Kerlinger (1964) is that, with five or seven response categories, response set may confound the variance.

Hypothesis

This study has focused on two major issues:

1. It investigated the attitudes of a defined population toward donation of organs for transplantation; and
2. It examined the relations existing between these newly formulated attitudes, behavior intent and behavior commitment. That is, an attitude scale was developed and validated against two criteria: behavior intent statements and specific commitment behaviors.

The following experimental hypothesis was tested. Individuals who express positive or negative attitudes toward organ donation, as measured on an attitude scale, behave in a manner consistent with their attitudes, behavior being measured by statements of intention and by behavioral commitment responses. This implies that behavioral intent statements may be treated as either a criterion for attitudes or as predictors of behavioral commitment.

CHAPTER II

PROCEDURE

I. METHODS - PART I

Scale Construction

A summated rating scale was constructed by obtaining a relatively large pool of statements about the attitude object from 92 college students enrolled in a general psychology class. These students were asked to write a short paper discussing their feelings about donation of organs for transplantation. While this was an assigned task, it was clearly not to be graded and any student who objected was excused without punitive consequences (one requested this option). Ninety statements were then extracted from these papers using the students' own wording, each statement being classified as either favorable or unfavorable with regard to organ transplants.

The same group of Ss was then administered the preliminary set of statements and asked to respond to each item according to the intensity of their own agreement or disagreement on a five point scale. In order to control for positional response set, half of the tests had reversed answering categories, i.e., instead of "a" signifying "strongly agree", on half the scales it represented a response of

"strongly disagree"; "b" represented "agree" on half the scales, "disagree" on the other half, and so on for each of the five lettered response categories. Appendix A contains the preliminary set of attitude statements. An item analysis (Murphy & Likert, 1937) was used to evaluate the statements and reject those which did not differentiate between the most favorable and most unfavorable groups (highest 20% vs. lowest 20%).

This new scale, containing 24 items, was administered to a different group of students ($N=52$). It was found that two statements were confounding in that one was ambiguous, i.e., not clearly favorable or unfavorable toward the attitude object, and the other, dealing with Karmic order, was not meaningful to the majority of the respondents. Item analysis showed them to be the least differentiating of the remaining 24 items. For these reasons the two items were dropped from the final scale (Appendix C). A split half reliability coefficient based on the Spearman-Brown correction formula was computed at .95. The test-retest r was .94 with a five day testing interval.

Presentation of Test Battery

One hazard involved when gathering attitudinal information is the relative ease with which a S can falsify his responses on the scale. There seem to be four circumstances which foster response patterns that yield unreliable estimates of individuals' attitudes: a) situational bias, b) social desirability, c) individual defenses against the attitude object, and d) examiner bias. The first, situational bias, caused no difficulty in this study as these Ss were used

to testing and the classroom atmosphere. And, more cogently, the testing material was presented in such a way that Ss readily perceived that the privacy of their responses was assured. Secondly, the social desirability variable was controlled by inclusion of the Marlowe-Crowne Social Desirability Scale in the test battery (Crowne & Marlowe, 1964). This scale was specifically developed to control for response patterns typically displayed by approval dependent persons in a normal population and is free of items with psychopathological content. The third circumstance, individual defenses, could not be controlled and was assumed random. Finally, three assistants administered the test battery. The study was introduced to Ss as research in attitude measurement and as an attempt to develop a reliable attitude scale. Organ transplantation was presented as a current and socially important topic for consideration. Appendix B contains the verbatim introduction and instructions read to the Ss.

Some measures not directly related to the experimental problem were taken as potentially useful in clarifying the results. No predictions regarding their impact were made.

Testing Materials

Demographic Questionnaire. A brief questionnaire was included in the test battery in order to gain a description of the Ss (Appendix C).

Attitude Scale. A Likert summated rating scale was used (Appendix C). An evaluation of this scale appears in the methods section above.

Social Desirability Scale. The Marlowe-Crowne Social Desirability Scale was administered as discussed above. (See Appendix C) Its impact on attitude scale scores was examined.

Information Test. In order to ascertain accuracy of information regarding various aspects of organ transplantation a short true-false and multiple choice examination was incorporated in the test battery (Appendix C). In this way the cognitive factors bearing upon affect and behavior were assessed.

Behavioral Intent Statements. The behavioral criteria were two-fold. The first, behavioral intent, consisted of eight optional responses; Ss were instructed to check every statement which applied to them. The statements were in written form as were the response choices (Appendix C). The behavioral intent statements constituted a Guttman scale (Edwards, 1957; Guttman, 1944), items having been examined for scalability using the Cornell technique (Edwards, 1957). Items numbered one and seven were not expected to scale as they appeared to be non-monotonic; however, they were included as answering categories in order to permit at least one response from each S. The range of scale scores possible was therefore zero to six; six representing total endorsement of the intent statements. The six scale items were found to have a coefficient of reproducibility of .96 and a minimal marginal reproducibility of .77. Menzel's (1953) coefficient of scalability was computed at .83. The second criterion comprised commitment response choices available to those Ss who were individually contacted. This criterion is discussed in detail below.

A number of investigators (e.g., Linn, 1965 and DeFleur & Westie, 1958) have used signed statements of behavioral intent as their only criterion for overt behavior. DeFleur & Westie have rationalized their criterion in terms of the binding quality ascribed to a signature in this country. The present study is seen as an improvement in that the second behavioral criterion goes a step beyond written expression of intention to actual commitment behavior. This provided an opportunity to establish the validity of the attitude scale and to examine the interrelations among attitudes, behavioral intentions and behavioral commitment responses. However, in this presentation, Ss were not asked to sign the behavioral intent statements (see exception below). This modification of design was desirable in that it served two important and related purposes: it insured complete anonymity for those Ss who did not wish to be identified, and it avoided any unintentioned implication that Ss should respond to the commitment situation in a manner consistent with their previously obtained measures of attitude and behavioral intent.

In order to evaluate the relative importance of affixing one's signature to statements of intention a sample of 86 Ss was administered the same test battery but received different instructions than those given to the anonymous groups. The initial introduction of testing to this signature group made no mention of anonymity; they were not requested to code their test materials, thereby leaving the issue of their identity ambiguous while they completed Folder I (containing the demographic questionnaire, attitude scale, social desirability scale and information test). However before taking the

intent measure (Folder II) the instructions changed; the issue was clarified. Ss were instructed to check those statements which applied to them and sign their names below. Thus they were made aware that their identity would be divulged before filling out the intent scale.

Technique

The step by step procedure of data collection for the first part of the study was as follows:

1. E₁s briefly introduced the study (Appendix B).
2. Two folders were given to each S. On the cover pages of each folder were printed, "Do not open until instructed". Printed on the back covers were identical identifying numerals for each pair of folders so that after testing each individual's set could be reassembled. (Folder I is contained in Appendix C, Folder II in Appendix D.)
3. Anonymous groups only: Ss were asked to record their own code number on the cover page of Folder I, and told that some of them would be contacted in a later part of the study. The code numbers were to be some personally significant group of four numerals (e.g., the last four digits of their driver's license) which could be used as a means of identification for those who were willing to reveal their identity following Part II of the study.
4. Ss were instructed to proceed to Folder I which contained the test battery in the following order: demographic questionnaire, attitude scale, social desirability scale, and information test.
5. Folder I was collected.
6. Anonymous groups: Ss were asked to complete Folder II (behavioral

intent scale).

Signature group: Ss were instructed to proceed to Folder II and check those items which they endorsed signing their names below the list of statements after completing the scale.

7. Folder II was collected.

II. METHOD - PART II

In order to validate the attitude scale and to determine the relationship between behavioral commitment responses and the other variables of interest it was necessary to obtain a measure of criterion behavior which was temporally separate and distinct from the testing situation. In addition, individual contact was necessary at this stage to avoid contamination of the criterion by group effects. Zimbardo, Weisenberg, Firestone & Levy (1967) have shown that group pressures do greatly influence individual behavior. Therefore, a sub-sample of 50 Ss, randomly selected from those who had completed the test battery, were interviewed privately. The interviews took place from six to ten weeks after the initial testing situation.

A letter, covering four main points, was sent to each of these Ss (Appendix E). It introduced the topic of organ transplantation and donation of organs as the second part of the research project in which they had participated in class; it encouraged their further participation, assured them their time investment would be minimal, and informed them that there would be a follow-up telephone call within several weeks. An informational leaflet dealing with Oregon law with respect to posthumous donation of organs was included in

the mailed correspondence. (See Appendix E.)

Several days to two weeks later, each S received a standardized telephone interview (Appendix F). Any S who could not be reached after five attempts was eliminated from the sub-sample; new names were randomly drawn to yield a total of 50 individual contacts with Ss who had participated in Part I of the study. (A total of 81 letters were sent out to students enrolled in the classes in which the data had been collected; of these 21 could not be reached and ten had not been present in the classroom when the test battery was presented.) In the course of the interview E made a number of graded inquiries. Positive responses to these inquiries were felt to represent hierarchical stages of increasing specificity of behavioral commitment or support toward the psychological object (posthumous donation of organs for transplantation). The various commitment responses formed a Guttman scale similar to that obtained from the behavior intent statements. All seven response categories scaled with a coefficient of reproducibility of .95, a minimal marginal reproducibility of .81 and a coefficient of scalability of .75. (See Appendix G for the response categories and scaling order).

A review of recent literature on organ transplantation was prepared by the investigator and was made available to those Ss who requested further information. They were given the option of receiving it by mail or picking it up at the departmental office on campus. This paper, a modified version of Chapter I, appears in Appendix H.

A legal document, in the form of a wallet sized card, which authorizes donation of one's organs after death was drawn up and

printed with assistance from the Oregon Medical Association and the Veterans' Administration Hospital, Portland, Oregon (Appendix I).

Only those Ss who desired an appointment in order to discuss the possibility of their signing such a card were interviewed personally by E. During each appointment the S was asked if he would like to see a card authorizing posthumous donation. Those who assented were provided with an opportunity to fill out and sign the card form in the presense of E who signed as witness. (Another person was always available to sign as second witness, thus making the document legal and binding.) No persuasion or pressure was exerted at any time to coerce a S to sign the card.

Finally, a naive group of 50 Ss who had not been pretested in the classroom, were contacted in a similar manner to that outlined above (with only slight changes in the telephone interview procedure which were appropriate to this group). In this way any sensitizing effects due to attitude testing could be determined. (Forty-eight letters were sent out; eight of these students could not be contacted by phone. The ten Ss who were enrolled in the tested classes but not present at the time of testing were placed in the naive group). A pilot study on the interview procedure had served to differentiate the important commitment response categories.

III. SUBJECTS

The college classroom situation was ideal for the first part of this investigation as the testing and research format are generally non-threatening to students, most of whom have had some exposure to

one or both. Furthermore, ample numbers of students were available so that a large N was feasible. No attempt to pre-screen Ss was made; all students present in the classroom when the study was introduced were asked to participate. It was felt that large introductory classes were more suitable than advanced courses; these students, as yet unspecialized, provided a more representative sample of the university population.

A total of 439 Ss participated in the research; 188 were males, 249 were females (two Ss did not specify sex). All Ss were students enrolled in general psychology classes except the two groups used to evaluate the significance of signing the intent criterion. These two groups (N=138) were more advanced students registered in counseling classes.

There were 100 Ss in the validation study, half of whom were randomly selected from the students who had completed the test battery. These Ss comprise the pretest commitment group. The 50 Ss in the naive commitment group were randomly selected from those students enrolled in general psychology classes but had not participated in prior testing. A breakdown of the treatment groups appears in Table I.

TABLE I
TREATMENT GROUPS

<u>N</u>	Treatment
251 50*	test battery test battery and individual contact
52 10*	test battery (pilot study) test battery and individual contact (pilot study)
86	test battery - identified condition - intent scale
50	individual contact

*subsample

IV. EXPERIMENTERS

As discussed earlier, contamination of the attitude measure could result if the administrator of the test battery were perceived as highly biased toward organ donation. In order to avoid this type of contamination, and to preserve the Ss control of their anonymity, three assistants, E₁s, administered the test battery. E interviewed all Ss in the second part of the study unassisted.

CHAPTER III

RESULTS

I. PRIMARY MEASURES

The attitude scale appeared to be a valid predictor of behavior by either of the criterion measures, as Table II shows.

TABLE II
INTERCORRELATION MATRIX OF ATTITUDE,
INTENT AND COMMITMENT MEASURES

Scales	Attitude	Intent	Commitment
Attitude	.95 ^a	.38 * ^a .46 * ^b	.58 * ^b
Intent			.54 * ^b

* $P < .001$

a $N = 251$

b $N = 50$ (subsample)

The product-moment coefficient of correlation between attitude scale scores and behavioral intent statements was .38, significant beyond the .999 level of confidence. The association between elicited

verbal attitude and behavioral commitment appeared somewhat higher: $\underline{r} = .58$; however, due to the unequal sample sizes there was no appropriate statistical test available to evaluate this difference. When the subsample \underline{r} value for attitude and intent statements was tested against the \underline{r} value for attitude and commitment responses the \underline{t} ratio for the difference between correlated coefficients was not significant i.e., the two validity coefficients could have been drawn from the same population ($\underline{t}_{dr} = 1.08$). Intent statements predicted commitment behavior at very nearly the same level as did the attitude scale scores.

Utilizing both the attitude measure and intent statements as determinants of behavioral commitment improved the correspondence level as shown in Table III: $\underline{R} = .64$ (corrected for small sample bias). With a coefficient of multiple determination of .43 approxi-

TABLE III

MULTIPLE CORRELATION AND REGRESSION EQUATION

Multiple R: $\underline{R} = .64$

Standard Error of Estimate = 1.133

Multiple Regression Equation*

$$X_1 = -.15 + .0436 X_2 + .3902 X_3$$

* where: X_1 = commitment responses

X_2 = attitude scale scores

X_3 = intent statements

mately 24.5 % of the criterion variance was accounted for by variance in the attitude scores and an additional 17.5 % by the intent statements. It may be noted that the subsample correlation of attitude scores and intent statements used in the calculation of Multiple R produced a higher value. This difference is meaningful and anticipated as with smaller samples the estimates of the population correlation tend to be biased (inflated).

Tables IV and V, listing the scaled items for the behavioral intent statements and the behavioral commitment responses along with the percentages of Ss who supported each response category, indicate the extent to which the Ss were willing to endorse the various behaviors aimed toward posthumous donation of organs for transplantation.

TABLE IV
BEHAVIORAL INTENT SCALE WITH
PERCENTAGES OF SUPPORT

Behavioral Intent Scale (<u>N</u> = 252)	% Support
1. I did not mind participating in this research project.	94 %
2. I am at least interested enough in this area to be willing to look at pertinent literature.	70 %
3. I would be willing to have a personal appointment to discuss this issue further.	36 %
4. At a personal appointment I would like to look at a document which authorizes posthumous donation and will consider signing it.	23 %
5. When I look at the document authorizing posthumous donation I feel quite sure I will sign it.	11 %
6. After authorizing posthumous donation of my own organs I would like to assist in an effort to encourage others to become donors.	5 %

TABLE V
BEHAVIORAL COMMITMENT SCALE WITH
PERCENTAGES OF SUPPORT

Behavior Commitment Scale Items (<u>N</u> = 100)	% Support
1. Introduction to telephone interview completed.	98 %
2. <u>S</u> is willing to be interviewed.	95 %
3. <u>S</u> desires pertinent literature.	77 %
4. <u>S</u> is willing to assist in an effort to inform others.	43 %
5. <u>S</u> intends to make provision to donate his organs posthumously.	28 %
6. <u>S</u> desires and keeps a personal appointment to discuss the possibility of his signing a card authorizing posthumous donation of his organs.	20 %
7. At a personal appointment <u>S</u> signs and has witnessed a card which authorizes donation of his organs after death.	14 %

II. SECONDARY MEASURES

Correlations between the primary and secondary measures are presented in Table VI. It can be seen that social desirability of responses was found to have no significant impact on either attitude or intent measures. Of more consequence however was the lack of association between intent statements and social desirability under the signature condition. (In this group Ss were instructed to mark those statements to which they subscribed, affixing their signatures,

thereby openly acknowledging and owning their intentions.) In view of the non-significant results, it may be that there was no directional response toward organ transplants that was generally perceived by these S as being socially preferred.

TABLE VI
CORRELATIONS BETWEEN PRIMARY AND SECONDARY MEASURES

Scales	Soc. Des.	Information	Sex
Attitude	.12 <u>N</u> = 244	.33* <u>N</u> = 242	.09 ^a <u>N</u> = 249
Intent	.03 ^b <u>N</u> = 83 .07 ^c <u>N</u> = 52	.06 <u>N</u> = 48	
Commitment		.04 <u>N</u> = 48	.09 ^a <u>N</u> = 100

* $P < .001$

a Point biserial r

b Identified (signed statements)

c Protected anonymity

Original level of sophistication as measured by the information test showed significant correspondence with attitude; however, this relationship did not hold up for the criterion measures (Table VI). Considerable caution should be used in interpreting these results as the pilot study (N = 52) did not yield a significant

r with respect to attitude and information; and furthermore, the reliability of the information test has not been established.

Finally, sex was evaluated along with the two secondary measures. While there were more females than males who participated in the study, this reflected the overall enrollments of the classes where 55 % were females and 45 % were males. No sex difference was found for either attitude or commitment responses.

III. ANONYMOUS AND SIGNATURE GROUPS

Before reporting the results regarding the significance of anonymity a clarification of the conditions is expedient. There were two comparison groups: the anonymous group and the signature group. However the signature group changed conditions after Folder I such that the issue of anonymity was ambiguous for these Ss in the first part and clarified for the second part. That is, between the two parts of classroom data collection the signature group was instructed to identify themselves after completing part 2 by affixing their signatures. (Of the 86 Ss, 3 % refused to sign.) Table VII presents the conditions in tabular form.

TABLE VII
THREE CONDITIONS USED IN ASSESSING ANONYMITY

Phase of Data Collection	Condition	
	Anonymous Group ^a	Signature Group ^b
Folder I: Demographic Questionnaire Attitude Scale Social Desirability Scale Information Test	Protected Anon. Protected Anon. Protected Anon. Protected Anon.	Ambiguous Anon. Ambiguous Anon. Ambiguous Anon. Ambiguous Anon.
Folder II: Behavioral Intent Scale	Protected Anon.	Identified

a $\bar{N} = 52$

b $\bar{N} = 83$

Tables VIII and IX summarize the means, standard deviations and t tests for the two groups. It can be seen that whether or not the condition specified anonymity did not seem to influence responses to the attitude scale scores or behavioral intent statements, i.e., there were no significant differences between the two groups.

TABLE VIII
MEAN ATTITUDE SCALE SCORES FOR PROTECTED ANONYMITY
AND AMBIGUOUS ANONYMITY CONDITIONS AND THE
T TEST VALUES OF MEAN DIFFERENCES
BETWEEN GROUPS

Attitude	Protected Anonymity	Ambiguous Anonymity	<u>t</u>	<u>df</u>	<u>P</u>
Mean	67.87	67.22			
S.D.	14.63	13.83	0.25	133	ns
N	52	83			

TABLE IX

MEAN INTENT SCALE SCORES FOR PROTECTED ANONYMITY AND IDENTIFIED CONDITIONS AND THE T TEST VALUES OF MEAN DIFFERENCES BETWEEN GROUPS

Intent	Protected Anonymity	Identified	<u>t</u>	<u>df</u>	<u>P</u>
Mean	3.12	2.77			
S.D.	1.46	1.33	1.41	133	ns
N	52	83			

IV. PRETEST SENSITIZATION

An important aspect of the research design was to control for sensitizing effects of the test battery on later measures of Ss' behavior. Whenever repeated measures are collected this becomes a distinct possibility. While the present design did not call for repeated measures per se, the introduction of the attitude object through testing was seen as potentially sensitizing on the Ss' commitment responses measured several months later.

Table X presents the means, standard deviations and t value for the two behavioral commitment conditions. The naive group, i.e., those who had not participated in the test battery, showed a slightly higher mean commitment response than the pretest group. However, the difference was non-significant at the .05 level for a two-tailed test. It appeared that for these Ss the prior introduction of the attitude object did not appreciably alter their scaled behavioral commitment responses.

TABLE X
 MEANS, STANDARD DEVIATIONS AND T VALUE FOR
 BEHAVIORAL COMMITMENT CONDITIONS

Condition	\bar{X}	S.D.	<u>N</u>	<u>t</u>	<u>df</u>	<u>P</u>
Pretest Group	3.46	1.50	50	-1.79	49	ns*
Naive Group	4.04	1.73	50			

* two-tailed test

CHAPTER IV

DISCUSSIONS AND IMPLICATIONS

I. METHODOLOGICAL IMPLICATIONS

Perhaps the most notable finding of the present study was the substantial support provided for the major hypothesis in this sample. That is, Ss did tend to behave in a manner consistent with their measured attitudes. Either attitude scale scores or behavioral intent statements provided moderate predictive efficiency for subsequent behavioral commitment responses; and, taken together they produced an even more powerful coefficient of prediction. It appears therefore that under certain circumstances at least, attitudes may indeed be related to behavior in such a way as to permit fairly accurate prediction.

Conditions for Predictive Efficiency

The circumstances which may have increased predictive salience in this research are worth noting more closely.

Attitude Measurement. In the first place, the attitude measuring instrument contained a high proportion of self-referent items (77%). And the attitude scale itself represented a Likert-type sum-

mated rating scale. Both of these conditions have been shown to provide coefficients of reliability and validity somewhat higher than those obtained from other methods, (see, for example, Edwards & Kenney, 1946 and Tittle & Hill, 1967). Secondly, the attitude measuring instrument may have increased predictive power because the content of the scale was so relevant to the behavior patterns subsequently measured. A third condition which may be pertinent is that the attitude of interest was of relatively recent origin. This last factor must have avoided the implications of specific childhood conditioning toward the attitude object, the establishment of clear-cut social desirability norms, and the guidelines of a well-defined social role which might constrain more individualized attitude-behavior relationships.

It may be that investigators such as Fairweather (1964) and MacDonald (1964) need to be more cautious about any generalizations from their data that attitudes in general do not predict behavior. Taking a second look at their measuring instruments, it appears that these investigators have measured an attitude which was not appropriate to their criterion situation. For example, attitude with respect to a patient's treatment group may not be an appropriate stimulus object for the criterion of post hospital adjustment. Of course, it was useful to determine that attitude toward the treatment group is irrelevant to post hospital adjustment since this had previously been assumed to be important. Such a finding, however, should not serve as the basis for completely discounting any relationship between attitudes and behavior.

Criterion. Another condition which may be vital to the production of adequate prediction is resident in the circumstances under which the criterion is measured. In this study the criterion situation was a natural situation (i.e., not contrived), and further, the criterion measured pattern behavior rather than a single act.

The results of this study strongly support those reported by Linn (1965) and others, in that the best possible prediction can be made for those Ss who hold the least favorable attitudes. No S who scored below the median on the attitude scale either requested a personal appointment or signed a document authorizing posthumous donation. For this below median group then, the predictive value of their attitude scale scores was unity for the highest levels of commitment responses (items 6 and 7 on the behavioral commitment scale).

Reinforcement Schedule. The last circumstance which is thought to have increased predictive efficiency revolves around the payoff schedule or incentive value attached to the behavioral responses. It will be recalled that the telephone interview procedure permitted little if any positive encouragement to the Ss. It was anticipated that the less powerful the extrinsic reinforcement schedule was the more likelihood there would be that the attitude would express itself in behavior. That is, one would expect a decrease in the correspondence between attitude and behavior if the reward system were very strong. In this study however, no powerful extrinsic reinforcement was proffered and, in addition there appeared to be no clearcut social expectancies. Therefore, any reward for the behav-

ioral response must have been intrinsically reinforcing (e.g., self-reinforcement for consistency between verbal attitude and behavioral expression).

Discussion of Primary Results

The intercorrelations amongst attitude, intent and commitment are open to alternative interpretations and hence, differing implications for further research.

Methodological Interpretation. Logically, if one wishes to predict subsequent behavior the only permissible validity criterion for an attitude scale must be the behavior itself and not some sort of approximation to that behavior. In the past, a number of studies have used statements of behavioral intentions as a means of validating attitude scales. While practically this is a much more expedient criterion, to the purist, these statements can hardly be considered an adequate measure of behavior. Statements of intent are still paper and pencil responses (as are those of the attitude scale) and represent what the S thinks he will do at some future point in time. A methodological point might be that this procedure implies that behavior is rational and conscious, that people know how they will behave, and will follow through with their intentions to behave in a given manner barring unforeseen interference. If one is unwilling to assume that behavior is primarily rational and conscious then one would expect an attitude scale, which is more subtle or disguised, to get at some of the underlying, nonrational motives for behavior.

Furthermore, when there is no greater correspondence between attitude scores and behavioral commitment responses than exists

between intent statements and behavioral responses, as in this investigation, it seems a groundless presumption to use statements of intentions as validity criteria for attitude scales. It may well be that the level of association obtained between attitude and intent scale scores can be accounted for in that they are both written instruments. That is, the index number which relates attitude to intent statements represents a select portion of variance which is not necessarily the same variance as that which is represented by the index number of correspondence between attitude and commitment responses. Under this interpretation then, the usual method of validating attitude scales against statements of behavioral intent is invalid.

Pragmatic Interpretation. The alternative interpretation lends support to those studies which have employed intent statements as their validity criterion. It rests its case more on the value of practical expediency in obtaining intent statements as criterion measures, rather than the more cumbersome behavioral measures. In many circumstances it is well nigh impossible to gather reliable information on behavior in a situation that is both natural and conducive to measurement. The efficiency with which the intent criterion can be used makes it possible, moreover, to work with large N's, thus reducing possible bias stemming from small sampling N's necessary in the more costly follow-up behavioral criterion. Furthermore, when the association between attitude and intent scores is essentially the same as that existing between attitude and behavior, as in the current study, then one may be no better a

criterion variable than the other. Thus, for pragmatic reasons, it may be efficacious to employ intent statements as a means of validating attitude scales without any apparent loss in predictive efficiency. It is only fair to note that in those studies where statements of intent were used as the criterion there was some time lapse between the measurement of attitude and the measurement of intentions. Such was not the case in this investigation; so that at present, a genuine comparison is not possible. Just what effect a time lapse would have had on this data (i.e., the relationship of attitude to intent) is unknown. Either of these alternative interpretations support the proposal that intent statements or attitude scores can be used as equally efficient forecasters of behavioral responses.

Discussion of Secondary Results

Information. The findings with respect to accuracy of information and its relationship to attitude and behavior are not clear cut. While a significant correspondence was found between attitude scores and information, it is difficult to assess its importance, particularly in light of the non-significant relation obtained in the pilot study. It may be that cognition and affect are indeed associated, however in view of these results it is distinctly possible that the correspondence obtained was an artifact. Certainly further investigation is necessary and no conclusions will be suggested at this time. Reliability of the information test needs also to be established. No correspondence was obtained between intent statements or behavioral commitment responses and level of accurate information.

Intent Statements. Those investigators who have used statements of intent (Linn, 1965; DeFleur & Westie, 1958 and many others) have contended that the act of affixing a signature to the statements in some way conveys a binding quality to those who sign. In this research, there was no significant difference between the mean number of intent statements that were endorsed by Ss whether or not they were required to sign. It appeared that when a S supported an item on the intent scale that it was a choice with implications of a social communication. Whether he signed or not proved to be superfluous under these conditions.

Critique of Design

There appear to be two areas for self-criticism in the research design which were not adequately controlled and which could have introduced sources of error. Both have to do with the telephone interview procedure carried out in the second part of the study. In the first place, early in the telephone interview each S was classified according to the group (naive or pretest) to which he was a member. In this way any biases held by E as to expectation of responses for the two groups could have generated certain differences in her interviewing behavior. This then could effect the between group differences as well as the direction of those differences. However, the statistical test seemed to reject this phenomena as a source of error variance as there was not a significant difference between groups at the .05 level; and further, the trend seemed to be in the opposite direction of that which was anticipated, i.e., a negative sensitization for the pretest group.

The second possible source of error in the design is that of a single individual carrying out all the telephone interviews. It was necessary to weigh the consequences of either 1) employing a number of interviewers which could lower the reliability of the interview procedure itself, or 2) using only one interviewer which could effect the total results due to some idiosyncratic effect resident in that interviewer. The second alternative was seen as less hazardous, but does deserve some caution in discussion. That is, it is unknown if another interviewer, using the same interview schedule, would obtain similar results, or if in some way the commitment responses elicited were idiosyncratic of these particular E - S relationships. Therefore, it would be desirable to train a number of interviewers in order to establish inter-interviewer reliability.

II. PRACTICAL IMPLICATIONS

Discussion of Clinical Results

Level of Donation. Of the results the most clinically promising was the general support which these Ss offered toward confirming the medical assumption that some people (i.e., college students) will make provision for posthumous donation of their organs. In the group of 100 Ss who were given the opportunity to sign a card form authorizing posthumous donation, 14% did so. An additional 6% were interested enough to make and keep a personal appointment which was clearly aimed toward this end. Therefore approximately one-fifth of the S's contacted made an important commitment concerning donation under circumstances which were probably inconvenient and lacking in

motivating persuasion.

(All those who appeared for their appointments but did not sign requested permission to take the card form with them. Each of these six Ss voiced again his desire to make donation but each was hesitant to do so without first checking with some significant other. In one case a woman wished to check with her identical twin in New Jersey before signing. A note was received some three to four weeks later stating that she had signed the document with her sister's approval. Of those who kept their appointments, one-half, ten Ss, requested extra cards in order to proselytize!)

As mentioned in Chapter II, in the discussion of attitude measures, a Likert scale does not provide a known neutral point; therefore, no inferences about the general level of favorability toward organ donations were possible. Certainly no inferences can be made with regard to the general population. It was anticipated on the basis of a Gallup Survey (1968) that the college students sampled would reflect the more positive attitudes found among those of higher socio-economic level and education. Use of the Likert-type scale and sampling of a college population did not permit a test of this assumption. However it is promising to note that among this group a substantial number of Ss did make provision for donation.

Social Expectancies. Another important finding was the apparent lack of established social norms which usually dictate acceptable behavior. Recall that the Marlowe-Crowne Social Desirability Scale was administered in order to be able to evaluate the responses

generated by those Ss whose answering patterns were typical of approval dependent persons. It appeared that there were no clear norms extant on which a S could judge those response patterns which would be favorably regarded. Essentially no relationship was found between either attitude scale scores or intent scale scores and social desirability. Attitudes toward donation of organs seem to be free from any direct, systematic social influence. (Many Ss indicated they had never even thought about organ donation before their participation in this investigation.)

Sensitization. While the t ratio obtained between the naive and pretest groups on behavior commitment responses did not meet the .95 level of confidence established, there seemed to be a trend evidenced which is worth some discussion. The t value of -1.79 was significant at the .10 level for a two-tailed test. It was in the opposite direction than that expected and while these results are most likely in the realm of chance they are mildly suggestive of a negative sensitization effect where those Ss who had participated in the classroom testing were less favorably inclined toward donation of organs. More evidence is certainly needed in order to determine if pretesting in some way has a negative effect upon subsequent commitment behavior. Should this prove to be the case, then among untested groups one would anticipate an even greater donation response than these results showed.

Conclusions

When these various findings are taken together they lead this investigator to judge that many younger, educated Americans will

cooperate as posthumous donors for organ transplantation. Under naturalistic conditions with no clear social norms to constrain action and no measurement to sensitize individuals, it seems likely that donation of organs after death will become fairly commonplace. If, in addition, some persuasion, public appeal and information regarding need were disseminated the probability is increased that sufficient donations would be forthcoming.

III. AREAS FOR FURTHER RESEARCH

The fairly broad scope of this investigation has uncovered a number of areas which need to be further researched in order to obtain more definitive information. Several of the more important areas in which research is planned are discussed briefly below.

1. So that a more complete understanding of the significance underlying anonymity versus exposure with regard to intent statements may be gained a methodological study is needed. This would require a time lapse between the measurement of attitude and intent statements (signed and anonymous) as well as a time lapse between these same intent statements and commitment responses. In this way a truly comparative analysis of the importance of signing the intent statements would be possible, both as they relate to attitude scores and to commitment behavior.
2. More normative data on the attitude scale is certainly required. As has already been discussed, a college population is expected to be biased on this issue. Lacking further normative studies it is impossible to make inferences about the level of acceptance of the

psychological object. Such inferences are desirable so that some baseline rate for accurate prediction of donation can be established. As normative data are established, interesting sub-groups such as blood donors can be examined. In the same vein, individual differences might well be explored to determine the relationship between positive attitudes toward donation and the nature of the self-concept or personal values.

3. An investigation is needed which is aimed at uncovering the most effective means by which attitudes with regard to organ donation may be influenced. Certainly if what appears to be the generally positive orientation of college students (with little or no encouragement) can be used as an indicator then these attitudes may prove to be highly susceptible to motivating behavior through methods of information giving, persuasion and public appeal. Furthermore, with the lack of social norms found in this study it could even be possible to establish a pro-donation cultural bias.

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APPENDIX A

PRELIMINARY ATTITUDE SCALE

Use the answer sheet according to the following code:

- a. strongly agree
- b. agree
- c. undecided
- d. disagree
- e. strongly disagree

1. The use of transplants is a realistic step in the direction of maintaining mankind rather than destroying it.
2. It should be considered a duty of a reasonably healthy person to automatically donate useful parts of his body at his death.
3. I would probably be willing to give my body for transplant purposes when I die.
4. I can't refuse another even an hour's life because in that hour he may see the rainbow that I have missed.
5. If one of my organs continued to live in some body other than my own, my astral body would be delayed in its mission of karma.
6. Once dead, the body is worthless to its owner.
7. I don't want a part in it and nobody can take me apart after I'm gone.
8. I'm afraid they might start cutting before I'm dead, in their hurry to get at my organs.
9. Because the soul lives eternally, it is not important if the body isn't complete when the person has passed on.
10. Transplantation is like playing God.
11. The heart is directly connected to the type of person one is.
12. Organ transplants seem to be an efficient and practical method of prolonging life.
13. If I donated a vital organ to be transplanted into some other living body, I would jeopardize the fulfillment of my Karmic debt.
14. I believe in doing all that is possible to sustain life.

15. The value of transplants are more in relief of pain and suffering than just added life.
16. When I die I want to go in one piece.
17. When people are given longer life, through transplantation, they may procreate and increase the population, thus causing people to be born who were not meant to be.
18. I believe there may be a physical afterlife and I think one should be whole just in case.
19. A person can't be sure that a doctor might let him die when he could be kept alive, just to get at his organs.
20. To be a donor of an organ would not affect my personal concept of soul, as soul separates from the body on death.
21. I feel that when it is your time to die you will die and a transplanted part is not what was really meant to be.
22. I believe as long as the medical profession remains ethical concerning transplants there should be a continuation of transplants when nothing else can be done.
23. I will no longer need my body after death and I think it may as well be used to help someone whose organs are diseased or failing.
24. Life is much too valuable to be cut short by a bad heart or kidneys when transplantation is possible.
25. I think man should use his technology whenever all involved agree.
26. The interchangeability of parts would bring about notions of immorality and is my basis for objection.
27. I don't want to be shuffled around to other people's bodies after I'm dead.
28. It just seems to me that a person with someone else's heart, eyes, kidneys, etc., is not the same person.
29. I believe that efforts should be turned toward enriching life rather than lengthening it by transplantation.
30. Although the world is concerned with the problem of over population, I don't believe the use of transplants would significantly raise the population.
31. I would prefer to remain with the ones I love as long as possible, even through transplantation if necessary.

32. I would consent to giving my organs after I'm dead to another to prolong his life.
33. Human parts are considered sacred to the individual even after death.
34. Physicians who need their "god-like" image reinforced will attempt transplants without proper skill and knowledge.
35. Most of my reasons against transplants are selfish, but its the way I feel about it; they aren't for me.
36. If an individual has no goals he should not be allowed more years of stagnation.
37. To have a part of myself helping the life function of another human being after my death would be creation in a sense.
38. I question the moral value of donations of organs for transplant.
39. The bodies of individuals are completely unique making interchangeable parts impossible.
40. To me, donating a part is much more moral than letting it rot with my other remains.
41. It would be a pathetic waste to deny a person the organs he needs to keep his body functioning.
42. I feel transplants are a natural sequence of events leading to even greater benefits for the whole of humanity.
43. We need to learn the real purpose of our bodies and to learn to cast them off when the time comes.
44. One is still the unique person they were before the transplant; the soul seems to exist in the whole.
45. Legal physical death is too hard to define to allow donation of organs.
46. I don't see how the transplanting of organs can be morally wrong while our society still uses the practice of cremation after death.
47. I have always felt that I could be a donor.
48. I feel that organ transplants are essential for the advancement of medicine.
49. I can't conceive of a society where man's life consists of all types of "artificial" replacements for prolonging life.

50. I don't think God would mind if I donated parts of my body for transplants.
51. Just because transplantation of organs is technically possible doesn't mean it should be done.
52. I think there is a specific time that man is determined to die.
53. One may be disturbing Karmic order by attempting to regulate death.
54. I'd feel uneasy about being used or exploited in this way.
55. I do not care what happens to my body after it has died.
56. To me, there is absolutely nothing wrong with using a dead person's organs to save another who still has hopes of survival.
57. Any part of one's dead body that can help a living human being to have a chance to continue life should be given to humanity for transplants.
58. Transplant of organs from a deceased person seems to be a profitable use of resources and there should be no limitations placed upon the practice.
59. By allowing a part of my tissue to continue living in another after the death of my own body I will, in a sense, prolong my own life.
60. My body is going to disintegrate in the grave anyhow so what difference if it, or a part of it, could be used to keep another person living.
61. If a loved one needed an organ, such as a kidney, I think I would consider donating them during my life.
62. I don't think doctors should have the choice of who lives and who dies.
63. I feel it is one of the most godly things a mortal could do for his fellow man.
64. I have a strong belief that this idea of transplanting has been cooked up by persons other than Americans.
65. I wouldn't want someone else's organ; when it's time to die, I don't want to put it off.
66. My body will be used up by the time I die.

67. Anything that will make a body work better is a good thing, in my opinion.
68. I question the moral value of transplants because of the overwhelming and growing population of the world.
69. It would please me that my heart would continue its passionate nature for someone else.
70. I know if I needed an organ transplantation to live that I would consent to it.
71. I believe in transplantation of life-giving body organs, even if life can be sustained only for a short period longer.
72. Organ transplants are a great tool to increase the length as well as the enjoyment of man's life.
73. I will not give any part of my body when I cease to exist; when I die my whole body will die with me.
74. Man does not know enough about physical death and what happens to the essence of life at death to state when the body is actually dead.
75. Not until we have solved the problems of the aged should we concentrate on lengthening life through transplantation.
76. The only advantages of transplant are the large doctor's fee, the hospitals cut and the "advance of medical science".
77. I believe in being buried whole and with all the original parts.
78. Death preparation is more important than life extension.
79. Organ transplants represent an approaching end to an everlasting search - - prolonged life.
80. I'm convinced that it isn't natural to prolong life with replacements.
81. When my physical body dies my spiritual body cannot return to the astral plane until every organ has ceased to live.
82. I believe in transplants for the sake of learning.
83. Even the idea of having a part of someone else's body functioning inside me is quite frightening.
84. Organ transplant may be thought to help the patient, but instead his short life is made even less livable.

85. I can't accept the idea of having my body dismembered or mutilated after death.
86. I see transplants on the same basis as correcting an abscessed tooth, healing or replacing for a better functioning body.
87. It seems incredible that we should question something so miraculous as organ transplants.
88. I view organ transplants as a good and realistic procedure.
89. Transplantation of organs seems very primitive and messy.
90. If I was dying, even a minute longer of life would be a beautiful happening.

APPENDIX B

INTRODUCTION AND INSTRUCTIONS TO SUBJECTS

"I'm sure you are all familiar with opinion polling such as those conducted by Gallup; perhaps some of you have even participated in one of these. The purpose of our research today is to find out more about attitude measurement. We hope to develop a reliable attitude scaling device which shows how people feel about some issue of interest.

"In the past, most studies of this kind have been interested in either political opinion or racial prejudice. We wanted something a little different and have decided on the topic of organ transplantation since it is a current and socially important issue.

"You are being asked to participate in the development of this attitude scale. In order to assure accuracy of the final scale we ask you to cooperate by following all the directions carefully. I will pass out the necessary materials and be on hand to answer any questions you may have."

(Pass out the folders; be sure the folders are in correct pairs.)

"Please don't start until you are instructed.

Anonymous group only: "There will be another part to this study in which some of you will be randomly selected for a follow-up telephone call. In order to preserve your anonymity, but still be able to tie together the two phases of research for data analysis, please write on the cover page of Folder I one of the following code

numbers which is significant only to you: The last four numerals of your social security card, or driver's license or student I.D. card. Write the last four digits of only one of these numbers, not all of them. If you have a social security card with you, or know your number, write in the last four digits, lacking that use your driver's license, and finally, if you have neither a social security card or a driver's license with you, use the last four numerals from your student I. D. card. All of these numbers, being incomplete, are not traceable and assure your anonymity. In this way we will not know which folders are yours, only you will know that."

(Be sure everyone clearly understands the coding procedure and has recorded a number.)

"Please be sure to read each item carefully and consider your response before marking your answer. Work at your own rate. When you are finished with the first folder, signal for it to be collected; do not open the second folder until you are asked to do so. You can start on Folder I now."

(Collect the first folder.)

Signature group only: "Proceed to Folder II, read all the items before checking any of them. Then after completing the checking, please sign your name below."

Anonymous group only: "Proceed to Folder II, read all the items before checking any of them."

(As each S is done, collect Folder II.)

APPENDIX C

TEST BATTERY - FOLDER I

FOLDER I

DO NOT OPEN UNTIL INSTRUCTED

I Demographic Questionnaire

Age: _____

Sex: _____

Blood donor: Yes _____, No _____

if yes, do you donate at least once a year? _____

Any history of kidney disease in your family? _____

if yes, relationship: _____

Income level: (With which you identify yourself. That is, if you are totally independent of a larger family unit enter your own income level, otherwise enter your family's income level.)

Under \$2,500 annually _____

\$2,501 to \$5,000 _____

\$5,001 to \$7,500 _____

\$7,500 to \$10,000 _____

\$10,001 to \$12,500 _____

Over \$12,501 annually _____

While it is realized that many people are sensitive to inquiry about their religion, this might, for some people, have an important bearing on their views toward transplantation and is therefore an important part of this study. However, answering the following questions is completely voluntary, as is all your participation in this study.

Preferred faith: _____

Attend church at least once a month: Yes _____, No _____

Do you feel your identification with this faith has any bearing on your views?

Yes _____, No _____

Continue to Next Page

II Organ Transplant Attitude Scale

Mark an X through your answers according to the following code:

a = strongly agree
 b = agree
 c = undecided
 d = disagree
 e = strongly disagree

- a b c d e 1. I view human organ transplants as a good and realistic procedure.
- a b c d e 2. I don't want to be shuffled around to other people's bodies after I'm dead.
- a b c d e 3. I can't accept the idea of having my body dismembered or mutilated after death.
- a b c d e 4. I see transplants on the same basis as correcting an abscessed tooth, healing or replacing for a better functioning body.
- a b c d e 5. I don't want a part in it and nobody can take me apart after I'm gone.
- a b c d e 6. I'm convinced that it isn't natural to prolong life with replacements.
- a b c d e 7. To me, there is absolutely nothing wrong with using a dead person's organs to save another who still has hopes of survival.
- a b c d e 8. I feel transplants are a natural sequence of events leading to even greater benefits for the whole of humanity.
- a b c d e 9. I would probably be willing to give my body for transplant purposes when I die.
- a b c d e 10. It would be a pathetic waste to deny a person the organs he needs to keep his body functioning.
- a b c d e 11. I will not give any part of my body when I cease to exist; when I die, my whole body will die with me.
- a b c d e 12. I feel that when it is your time to die you will die and a transplanted part is not what was really meant to be.

Continue to Next Page

- a b c d e 13. I have always felt that I could be a donor.
- a b c d e 14. Human parts are considered sacred to the individual even after death.
- a b c d e 15. My body is going to disintegrate in the grave anyhow, so what difference if it, or a part of it, could be used to keep another person living.
- a b c d e 16. Any part of one's dead body that can help a living human being to have a chance to continue life should be given to humanity for transplants.
- a b c d e 17. I know if I needed an organ transplant to live that I would consent to it.
- a b c d e 18. I wouldn't want someone else's organ; when it's time to die, I don't want to put it off.
- a b c d e 19. Life is much too valuable to be cut short by a bad heart or kidneys when transplantation is possible.
- a b c d e 20. I believe in being buried whole and with all the original parts.
- a b c d e 21. It just seems to me that a person with someone else's heart, eyes, kidneys, etc., is not the same person.
- a b c d e 22. I'd feel uneasy about being used or exploited in this way.

Continue To Next Page

III Marlowe-Crowne Scale

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally. Mark an X through your answers.

- T F 1. Before voting I thoroughly investigate the qualifications of all the candidates.
- T F 2. I never hesitate to go out of my way to help someone in trouble.
- T F 3. It is sometimes hard for me to go on with my work if I am not encouraged.
- T F 4. I have never intensely disliked anyone.
- T F 5. On occasion I have had doubts about my abilities to succeed in life.
- T F 6. I sometimes feel resentful when I don't get my way.
- T F 7. I am always careful about my manner of dress.
- T F 8. My table manners at home are as good as when I eat out in a restaurant.
- T F 9. If I could get into a movie without paying and be sure I was not seen, I would probably do it.
- T F 10. On a few occasions, I have given up doing something because I thought too little of my ability.
- T F 11. I like to gossip at times.
- T F 12. There have been times when I felt like rebelling against people in authority even though I knew they were right.
- T F 13. No matter who I'm talking to, I'm always a good listener.
- T F 14. I can remember "playing sick" to get out of something.
- T F 15. There have been occasions when I took advantage of someone.
- T F 16. I'm always willing to admit it when I make a mistake.

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- T F 17. I always try to practice what I preach.
- T F 18. I don't find it particularly difficult to get along with loud-mouthed, obnoxious people.
- T F 19. I sometimes try to get even, rather than forgive and forget.
- T F 20. When I don't know something I don't at all mind admitting it.
- T F 21. I am always courteous, even to people who are disagreeable.
- T F 22. At times I have really insisted on having things my own way.
- T F 23. There have been occasions when I felt like smashing things.
- T F 24. I would never think of letting someone else be punished for my wrong doings.
- T F 25. I never resent being asked to return a favor.
- T F 26. I have never been irked when people expressed ideas very different from my own.
- T F 27. I never make a long trip without checking on the safety of my car.
- T F 28. There have been times when I was quite jealous of the good fortune of others.
- T F 29. I have almost never felt the urge to tell someone off.
- T F 30. I am sometimes irritated by people who ask favors of me.
- T F 31. I have never felt that I was punished without cause.
- T F 32. I sometimes think when people have a misfortune they only got what they deserved.
- T F 33. I have never deliberately said something that hurt someone's feelings.

Continue To Next Page

IV Information Test

Mark an X through your answers

- T F 1. With the death of Dr. Philip Blaiberg, heart transplantation has stopped.
- T F 2. Cadaver donor transplants are as successful as living donor kidney transplants.
- T F 3. Other organs, such as liver, lungs and gall bladders, are now being transplanted with some mild success.
- T F 4. Rejection of the transplanted organ is the primary cause of death following kidney transplant surgery.
- T F 5. Kidney machines provide a more nearly normal quality of life than kidney transplants.
- T F 6. Corneal transplants are not very effective and are not performed much anymore.
- T F 7. Kidney transplants have a better five-year survival rate than most kinds of cancer.
- T F 8. The discovery of immunosuppressive drugs made organ transplantation feasible.
- T F 9. Computerized matching of recipients and donors has recently been instigated.
- T F 10. No heart recipient has lived longer than fifteen months after transplantation surgery.
11. The most important factor in successful transplantation is:
a. same sex donor
b. age of recipient
c. related donor
d. tissue matching
12. People on chronic hemodialysis (kidney machine) usually live _____ after onset of the treatment program.
a. up to one year
b. two to four years
c. five to ten years
d. a normal life span

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13. Present statistics indicate that kidney transplants from living donors are now _____ successful.
 - a. less than 20%
 - b. 20 - 45%
 - c. 45 - 70%
 - d. 70 - 95%

14. Approximately _____ of the recipients of transplanted hearts are still living.
 - a. 5 - 20%
 - b. 20 - 35%
 - c. 35 - 50%
 - d. 50 - 65%

15. The possibility of a living kidney donor developing severe kidney disease is:
 - a. very small
 - b. moderate
 - c. high
 - d. inevitable

16. Oregon law:
 - a. forbids posthumous organ donations.
 - b. requires survivors permission to donate organs after death.
 - c. allows those 18 or over to make posthumous organ donations.
 - d. allows a cash settlement for organ donations.

17. Further success in transplant surgery seems to depend upon advances in the field of:
 - a. cardiology
 - b. immunology
 - c. pathology
 - d. surgery

18. The first heart transplant was performed in:
 - a. South Africa
 - b. U.S.A
 - c. Japan
 - D. France

END

Signal For Folder To Be Collected

APPENDIX D

TEST BATTERY - FOLDER II

FOLDER II

DO NOT OPEN UNTIL INSTRUCTED

Read all of the following items before answering any of them. Then mark an X beside every item which applies to you.

- _____ 1. I regard this whole study as a waste of my time.
I am totally uninterested in this issue.
- _____ 2. I did not mind participating in this research
project.
- _____ 3. I am at least interested enough in this area to
be willing to look at pertinent literature.
- _____ 4. I would be willing to have a personal appointment
to discuss this issue further.
- _____ 5. At a personal appointment, I would like to look
at a document which authorizes posthumous donation
and will consider signing it.
- _____ 6. When I look at the document authorizing posthumous
donation I feel quite sure I will sign it.
- _____ 7. I have already made arrangements for posthumous
donation of my organs.
- _____ 8. After authorizing posthumous donation of my own
organs I would like to assist in an effort to
encourage others to become donors.

APPENDIX E

MAILED CORRESPONDENCE TO SUBJECTS

A NEW OREGON LAW

The legal community has recently taken steps to assure a favorable legal climate for those people who wish to donate their organs following death. The Uniform Anatomical Gift Act was signed by the governor of Oregon on May 14, 1969 and became law August 22, 1969. This act allows any individual who is of sound mind and 18 years of age or older to give parts of his body for transplant purposes, after his death. Donation may be made by will, written instrument or a wallet sized card carried by the individual (the card being the preferred method).

Portland State University

P.O. Box 751



Portland, Ore. 97207

Division of Social Science
Department of Psychology

503/226-7271

Miss Jane Ansbro
2000 Water Street
Portland, Oregon

Dear Student:

In the past few years there has been a good deal of medical investment in the newly developing field of organ transplantations. The news media have made most of us keenly aware of the tremendous progress in this area. However, the mounting need for donors of organs is seldom brought to the attention of the public. Obviously, as transplants become even more successful and commonplace, the disparity between the number of donors and the number of people in need of organs is apt to become acute.

For this reason, major research efforts are now aimed at investigating public attitude toward donation. One reasonable solution resides in the efficient utilization of organs from the deceased donor. Here is a vast, relatively untapped source, capable of providing ample numbers of donor organs to meet the needs of potential recipients. The final choice is, of course, up to the individual whose wishes will be respected following his death.

The present research project, under the auspices of Portland State University, seeks to investigate a variety of attitudes regarding donation of organs. A number of students have already participated in a classroom study. Others will be contacted individually, and still others will participate in both phases of the research. You have been selected from a list of names from the PSU student body to be one of these groups.

You are being requested to cooperate in this phase of the research which will entail at least one telephone interview. As it is realized that most people have many demands on their time, every effort has been made to assure that your time investment will be minimal. Any and all participation in this study is completely confidential; the identity of participants will not be divulged to anyone who is not directly involved in the research effort. You will be contacted by telephone within the next few weeks.

Sincerely yours,

(MRS.) COURTNEY GOODMONSON
Researcher

APPENDIX F

TELEPHONE INTERVIEW

INTRODUCTION

1. (Identify self and study briefly.)
2. Have you had a chance to read the letter I sent you?

NO

I'd like to read it to you now then, since it explains the research we're doing. (Read.) (Pretest group: proceed to 3.) (Naive group: proceed to 4.)

YES

Good. (Pretest group: proceed to 3.) (Naive group: proceed to 4.)

3. I believe you participated in the first part of this study in Dr. _____'s general psychology class at PSU, is that right?

NO

That's all right, I'd still like to talk to you about it. Since it was anonymous, I have no way of knowing which of those registered for the class were there the day the study was presented. (Proceed to 4.)

YES

O.K. Then I know you've completed some tests, but I have no way of knowing which of them are yours. (Proceed to 4.)

INTERVIEW

4. May I have just a few minutes of your time to talk with you about the research now?

NO

(Proceed to 5.)

YES

As the letter points out, there is a rising need for donors with the increasing success of transplants.

There is a new law in Oregon to try to meet this need; the Uniform Anatomical Gift Act which stipulates...
(Proceed to 5.)

5. I wonder if you are interested enough in the area of organ transplants and donation to want to read some literature which covers it more thoroughly.

NO

YES

(Proceed to 6.)

I can mail it to you or you can pick it up at the departmental office, whichever is more convenient for you.
(Proceed to 6.)

6. Would you be willing to meet with me, at your convenience, to discuss the possibility of your signing such a gift card?

NO

YES

(Proceed to 7.)

(Set up appointment.)
(Proceed to 7.)

7. Do you intend to make this kind of donation at some time?

NO

YES

(Proceed to 8.)

(Proceed to 8.)

8. Would you be willing to assist in an effort to inform others of the opportunity to sign such a card?

NO

YES

(Pretest group: proceed to 9.)
(Naive group: exit.)

(Pretest group: proceed to 9.)
(Naive group: exit.)

9. In the classroom part of this study you wrote an identifying number on the test folder. It should have been four numerals from your social security card, driver's license or student I.D. card. I'd like you to give me that number now so that the two pieces of information can be tied together for data analysis. You should be assured that all names are held in strictest confidence.
(Record identifying number.)
(Pretest group: exit.)

APPENDIX G

BEHAVIORAL COMMITMENT SCALE

1. Introduction to telephone interview completed.
2. S is willing to be interviewed.
3. S desires pertinent literature.
4. S is willing to assist in an effort to inform others.
5. S intends to make provision to donate his organs posthumously.
6. S desires and keeps a personal appointment to discuss the possibility of his signing a card authorizing posthumous donation of organs.
7. At a personal appointment S signs and has witnessed a card which authorizes donation of his organs after death.

ORGAN TRANSPLANTATION: THE STATE OF THE ART

Courtney Goodmonson
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In the past decade medical science has made tremendous strides toward the prolongation of life through transplantation of vital organs and tissues from one human to another. Prior to 1960 when immunosuppressive drugs first became available, it was not possible to prevent rejection by the body of foreign tissue (Moore, Burth, Harken, Swan, Murray & Lillihei, 1968). Since then, kidney homotransplantations have dominated both the surgical transplant scene and research literature. Certainly the pairing of this organ, permitting living donation, has been a contributing factor. But, no doubt, more significant has been the availability of renal hemodialysis which is **complementary** to homotransplantation. That is, post operative patients require repeated dialysis until onset of diuresis when the transplanted kidney begins to function adequately (Rubini, Goldman, Agre, Koppel, Kopple, Gral, Shinaberger & Sokol, 1968). In addition to this adjunctive or transitional function, dialysis can be used to maintain life should rejection of the transplanted kidney occur.

As kidney transplants have progressed well ahead of other organ transplants, statistics in this area will be used to indicate the changing status as well as a standard of what may be expected in associated transplant fields. Moore et al. (1968) found that of the more than 2000 kidney transplants which have thus far been performed at least 1100 are still functioning. The Sixth Report of the Human Kidney Transplant Registry (1968) reported impressive increases in success rate over the last two years. Their graphs suggest an 18% increase in one year survival rates for living consanguineous donor kidneys: 75% for January 1966 to January 1968 as against 57% prior to January 1966. Cadaver donor kidneys show a comparable improvement: 27% survival prior to January 1966 and 45% survival for the January 1966 to January 1968 period. (Siblings continue to be the best donors with a one year survival rate of 78%.) In a recent newspaper article by Auerbach (1969) more current statistics were cited. He reported that sibling transplants now have 90% chance of survival for two years. It is important to note that survival rates designate functioning transplanted kidneys; many patients whose transplants were unsuccessful have been maintained on dialysis.

While these advances herald the beginning of a new era in which severe malfunction of a heart or kidney no longer inevitably means death, there has been very little investigation of public opinion regarding such artificial intervention. It has not been established whether laymen's attitudes toward transplantation of living tissue are positive or negative, or if, in fact, people will accept composite man.

Studies dealing with the psychological ramifications on the giver of organs for transplantation are not clear cut in their reported results. Kempf (1967; Kempf, Bermann & Coppolillo, 1969) found most donors experienced post-surgical depression; all donors in his sample required supportive psychotherapy. Several researchers reported an emotional reinvestment by the donor in the recipient (Cramond, 1967; Kempf et al., 1969) and a tendency toward overprotection leading to hostile-dependency between recipients and donors (Cramond, Knight, Lawrence, Higgins, Court, MacNamara, Clarkson & Miller, 1968). Salutary effects have also been reported: Fellner & Marshall (1968) found that the altruistic act became an integrative personality experience for donors resulting in increased self esteem and positive changes in life style. He noted little post-operative depression. Kempf et al. (1969) concurred that in one instance donation became a vehicle for recasting one's image, e.g., black sheep to hero.

Blood donation, while patently not the same sacrifice as living organ donation, can be considered in somewhat the same light. It too involves a giving of a part of one's own body so that another might thrive. Similar kinds of psychological benefits seem to be derived from this type of donation as those reported by Fellner and Marshall (1968) for organ donors. Oeconomopoulos (1956) found his Ss reported feelings of increased self worth and a sense of well being following blood donation. A number of other researchers (Boe & Timmens, 1966; Mai & Beal, 1967 and Phillips, 1961) have indicated the motivation for blood donation is most frequently altruistic.

The House of Delegates of the American Medical Association (1969) suggests there will never be enough to meet potential demand. This statement, lacking sufficient attitudinal research, seems overly pessimistic. As Blachly (in press) has noted, organ transplantation is now at a stage of development similar to that of blood transfusions some thirty years ago. Perhaps organ donation will become as generally accepted as corneal transplants and blood donations are today.

While immunosuppressive therapy is required to prevent rejection of a transplanted organ there are deleterious side effects associated with its use. Chief among these is the organism's lowered capacity to defend itself against infection. As a result, infection has replaced rejection as the primary cause of death following transplantation (Rubini et al., 1968). Moore et al. (1968) have indicated that the amount of immunosuppression necessary to prevent rejection is a direct function of the goodness of donor-recipient match (accounting for the superior success rates of consanguineous donors). When these various facts are applied to non-paired vital organs, necessitating cadaver donors, it becomes imperative that tissue matching procedures be perfected. With organ storage currently limited to several hours at most the donor and recipient must be in the same city, preferably the same hospital. There is little time available for tissue typing the donor.

A number of investigators (Blachly, in press; Moore et al., 1968 and Terasaki, Mickey, Singal, Mittal & Patel, 1968) have suggested that a tenable solution for the anticipated scarcity of organs may lie in the formation of organ banks similar to today's walking blood banks. Potential organ donors would be properly classified and immunological studies carried out prior to specific need or posthumous donation thus permitting the best antigen match of donor to recipient.

Long-term preservation of organs seems not to be a too distant probability. Kidneys have been stored experimentally up to 72 hours with little functional impairment (Moore et al., 1968). As these methods are further developed, permitting much longer storage, actual organ banks will become feasible, organs being stored for long periods and shipped anywhere they are needed. The present situation would be reversed, as Moore et al. have said, "This will allow the choice of an organ for a recipient rather than the choice of a recipient for an available organ. [p. 2495] ."

The legal community too has taken steps to assure a favorable legal climate for those who wish to donate their organs posthumously. The Uniform Anatomical Gift Act was prepared by the National Conference of Commissioners on Uniform State Laws, July 30, 1968 and endorsed by the American Bar Association. A number of states have already passed the uniform act which allows any individual, 18 years of age or older, to give all or any part of his body; the gift to take effect upon death. In Oregon, the uniform act was signed by the governor on May 14, 1969 and became law August 22, 1969. Donation may be made by will, written instrument, card carried by the individual, etc. The right of living donation by adult and competent individuals has never been questioned (Sadler, Sadler & Stason, 1969).

At present, however, the situation is less than satisfactory. Cadaver transplants are often hastily performed and inadequately matched due to chance availability of organs. The limited interval of time which can elapse between death of a donor and transplantation of the organ, and the difficulties involved in obtaining consent from relatives are added hurdles to be dealt with by the transplant team. In the past few months, computers have been programmed to "search" recipient pools for the best tissue match when a possible donor (e.g., a critical accident victim) is located (Davenport, 1969). Living transplants fair slightly better, although there are seldom more than a few willing donors (usually close relatives) from which selection of the best immunological match can be made (Kemp et al., 1969).

The proffered solutions for assuring availability of organs assume, a priori, a favorable public attitude toward both donation and receipt of vascularized tissue. While there are indications that this assumption may be accurate, it is an area of social change that has been insufficiently researched. The only study located by this investigator was Gallup Survey (1968) carried out late in 1967

following Dr. Christiaan Barnard's sensational heart transplant. The individuals sampled were asked one question: "As you may have heard, a doctor in South Africa recently transplanted a heart from a dead person to a live person. Would you be willing to have your heart or other vital organs donated to medical science upon your death [p. 28]?" Results suggested that approximately two-thirds of the sample responded affirmatively. Level of income and years of education seemed to have high positive correlations with verbal expression of willingness to donate.

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APPENDIX I

Being of sound mind and 18 years or more of age, I hereby make this anatomical gift to take effect upon my death, with the specifications designated below:

I give:

- my body;
- any needed organs or parts;
- the following organs or parts:

_____ ;
To the following person or institution:

- the hospital in which I die;
- the following physician, hospital, storage bank or other medical institution:

_____ ;
 the following individual for treatment:

_____ ;
For the following purposes:

- any purpose authorized by law;
- transplantation; research;
- medical education; therapy.

City & State _____ Dated _____

Signature _____

Address _____

Signed by the donor in the presence of the following, who sign as witnesses:

Witness _____

Witness _____

APPENDIX I

CARD FORM FOR POSTHUMOUS ORGAN DONATION

ANATOMICAL GIFT FROM

