Fishbein's model of behavioral intentions: artifact or reality?

Thomas Evert Tice
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Fishbein's model of behavioral intentions: Artifact or reality?

by

Thomas Evert Tice

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of The Requirements for the Degree of

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INTRODUCTION

The relationship between attitudes and behavior has been a central concern of social psychologists for many years. The often low relationship between attitudes and behavior has been thoroughly documented (Chein, 1948; Cook & Selltiz, 1964; Fishbein & Ajzen, 1972; Green, 1954; McGuire, 1969; Wicker, 1969). There has been a resurgence of interest during the last several years concerning theoretical formulations designed to explicate the attitude-behavior relationship, and several new theoretical models have been formulated (Fishbein, 1967a; Insco & Schopler, 1967; MacArthur, Kiesler, & Cook, 1969; Rokeach & Rothman, 1965; Triandis, 1971).

Fishbein's Model of Behavioral Intentions

The Prediction of Behavioral Intentions and Overt Behavior

Relying heavily on the theoretical formulations of Dulany (1961, 1962, 1968) concerning the cognitive processes responsible for verbal conditioning behavior, Fishbein (1967a) has designed a theory to predict a particular individual's intent to act (BI) within the constraints of a particular behavioral situation. Fishbein is interested primarily in predicting the specific behavioral intention which leads to overt behavior (OB).

A high correlation is assumed to exist between BI and
OB. The effects of cognitive antecedents of behavior affect OB indirectly by determining BI. Thus, the prediction of BI is a necessary condition for prediction of OB. The degree of OB-BI relationship is primarily a function of the specificity and temporal proximity of measurement of OB and BI. The more general the behavior to be predicted or the greater the opportunity for modification of BI after measurement, the less likely OB and BI will be highly related.

**Fishbein's Model**

In the latest version of his theory (Ajzen & Fishbein, 1972b), Fishbein stated that BI is determined by two variables: a personal or "attitudinal" factor and a social or "normative" factor. Symbolically, the basic theory may be expressed as,

\[ OB \approx BI = (A_{\text{act}})w_0 + (NB)(M_c)w_1 \]  

where \( OB \) = overt behavior, \( BI \) = behavioral intention, \( A_{\text{act}} \) = the attitude toward the specific behavioral act, \( NB \) = the individual's normative belief concerning other people's attitude towards the act, \( M_c \) = the individual's motivation to comply with the NB, and the \( w's \) = empirically determined weights.

The first component, the attitudinal component, is composed of (a) "[the individual's]...beliefs about the conse-
quences of performing a particular behavior (in a given situation) (Fishbein, 1967a, p. 488), and the individual's evaluation of those beliefs. Algebraically,

$$A_{\text{act}} = \sum_{i=1}^{n} (B_i a_i)$$

(2)

where, $A_{\text{act}}$ = the attitude toward some specific behavioral act, $B_i$ = belief $i$ about the act or the probability that the act is related to some other object, $a_i$ = the evaluative aspect of $B_i$ or the individual's evaluation of $x_i$, and $n$ = the number of beliefs.

$A_{\text{act}}$ has been operationalized in four ways: (a) the sum of a four-item, bipolar adjective scale (good-bad, wise-foolish, beneficial-harmful, rewarding-punishing; Ajzen & Fishbein, 1969); (b) the sum of a five-item, bipolar adjective scale (bright-dark, cowardly-brave, good-bad, dirty-clean, harmful-beneficial; DeVries & Ajzen, 1971); (c) the sum of the products of the subjective probabilities that an act will lead to an outcome and the utility of that outcome (Ajzen & Fishbein, 1969), and (d) a single-item, good-bad scale (Darroch, 1971).

The second component, the normative component, "...is the actor's belief about the likelihood that members of a given reference group expect him to perform the behavior in question (NB)...and the individual's motivation to comply
with the reference group's perceived expectations (Mc) (Ajzen & Fishbein, 1972b, p. 6)." This component has been conceptualized in different ways. In one formulation, each NB is associated with a particular Mc. Each NB(Mc) is weighted separately:

\[ OB = BI \times (A-act)w_0 + (NB_1Mc_1)w_1 + ... + (NB_nMc_n)w_n \]  

(3)

The normative component also has been conceptualized as a sum of the perceived expectations of most people who are important to the individual and level of motivation to comply with those expectations:

\[ OB = BI \times (A-act)w_0 + (Mo \sum_{i=1}^{n} NB_i)w_1 \]  

(4)

Equation 4 has proven the more popular in tests of Fishbein's model.

Normative beliefs have been operationalized in four ways: (a) a modified behavior differential scale: "My parents believe that I should:::should not marry a black (Ajzen, 1971)"; (b) a single-item, bipolar probability scale: "My parents would expect me to marry a black: highly probable :::: highly improbable (Ajzen & Fishbein, 1972a)"; (c) the individual's perception of a socially relevant other's perception of the subjective expected utility
(SEU) of the particular behavioral act (Ajzen & Fishbein, 1972a); and (d) a four-item, bipolar adjective scale: "Most of the people consulted would think that buying the plot of land is...good-bad, wise-foolish, beneficial-harmful, rewarding-punishing (Ajzen & Fishbein, 1972a)." Different measures of NB have been compared in only one study. Ajzen & Fishbein (1972a) reported some significant correlations between methods b, c, and d (r's = -.02 to .77; median = .62), but failed to report the equivalence of the measures as actually used in the model to predict BI.

Mc was originally conceptualized as a separate weight for each NB, a specific motivation to comply with the expectations of a specific referent. This specific Mc was measured by two methods. The first was a single-item, evaluative, bipolar adjective scale: "To do what my partner thinks I should do is good:::bad." The second was a modified behavioral differential item: "How much do you want to do what your partner expects you to do? I want very much ::::: I want very much not to do as my partner expects me to do." Ajzen reported the correlation between the two measures as .699 (p < .01), and, "the results obtained using the two measures were almost exactly the same (Ajzen, 1971, p. 271)."

Recently, however, Fishbein has come to consider Mc as a general motivation to comply with the demands of various
referents. "A person may be generally motivated to comply with, say his friends....he may not want to behave in accord with one of their specific expectations (Ajzen & Fishbein, 1972b, p. 9)." The presently preferred operationalization ofMc is a response to a single-item scale: "In general, how much do you want to do what most people who are important to you think you should do? I want very much not to do what most people who are important to me think I should do (Darroch, 1971)."

Other Models

Many theorists have conceived of attitude toward an object as a function of the object's utility for attaining valued goals (Cartwright, 1949; Fishbein, 1963, 1967c; Peak, 1955; Rosenberg, 1956, 1960; Rotter, 1954; Smith, 1949; Tucker, 1960; Zajonc, 1954). These attitude theories and each author's version of this general model have been reviewed elsewhere (Fishbein & Ajzen, 1972; Ryan, 1970; McGuire, 1969). The most general expectancy-value attitude model assumes that attitude toward any object is a function of the importance of each of a set of values and the "instrumentality" of the attitude object for achieving or blocking the obtainment of each value.

One set of variants of the expectancy-value attitude model has been the "instrumentality" models (Campbell,
Dunnette, Lawler, & Weick, 1970; Graen, 1969; Porter & 
Lawler, 1968; Vroom, 1964). Designed originally to explicate 
the relationship between job satisfaction and performance, 
these models include the hypothesis that there exist two dif­
ferent kinds of probabilities associated with acts and 
outcomes. The first type of probabilities are those 
associating first-level outcomes of an act (immediate 
outcomes) with second-level outcomes of an act (non-immediate 
outcomes). These probabilities have been termed, 
"instrumentalities (Vroom, 1964)." Instrumentalities vary 
from a high probability that a relationship does exist be­
tween two outcomes to a high probability that a relationship 
does not exist between two outcomes. The affect associated 
with the non-immediate outcome is termed, "valence," and when 
multiplied by the probability of an outcome-outcome relation­
ship, contributes to the affect associated with the more im­
mediate outcome of an action. The affect associated with the 
first-level outcome also is termed valence and is defined as 
the sum of the valences of all relevant non-immediate 
outcomes for an individual, each multiplied by the probabili­
ty that the immediate outcome will lead to that non-immediate 
outcome. Algebraically,
where \( v_j \) = the valence of the immediate outcome, \( j \); \( I_{jk} \) = the perceived instrumentality of the immediate outcome, \( j \), for the attainment of the non-immediate outcome, \( k \); \( v_k \) = the valence of the non-immediate outcome, \( k \); and \( n \) = the number of relevant outcomes.

The strength of the intention to perform a particular act is a function of the sum of the valence of these immediate outcomes of action, each multiplied by the perceived probability of the intended action leading to the immediate outcome. Thus,

\[
OB \propto BI_i = \sum_{j=1}^{n} (E_{ij} v_j)
\]

where \( OB \) = overt behavior; \( BI_i \) = the intention of the person to perform act \( i \); \( E_{ij} \) = the strength of the expectancy that act \( i \) will be followed by the immediate outcome, \( j \); \( v_j \) = the valence of the immediate outcome, \( j \); and \( n \) = the number of relevant outcomes. Thus, behavioral intentions are conceived to be what Vroom has termed the "force on a person to perform an act (1964, p. 18)."

The Fishbein BI prediction model is similar to Equation 6 of the instrumentality model. Whereas the
instrumentality model emphasizes the value of considering each immediate outcome in terms of its relationship with relevant non-immediate outcomes, the Fishbein variant emphasizes the value of considering only the action-outcome relationship (A-act) and the perceived attitudes of others toward the act (NBMc).

Evaluation of Fishbein's Model

The adequacy of Fishbein's BI model rests on three assumptions: (a) A-act is a superior measure of value and expectancy because it measures attitude towards specific acts instead of attitude towards less specific objects (e.g., "going to church with Mexican-Americans" versus "Mexican-Americans"); (b) a "direct" measure of attitude towards an act is equivalent to other more "indirect" measures of attitude towards an act; and (c) the set of non-immediate outcomes, "pleasing or displeasing relevant others," is a highly valued set of outcomes, deserving independent status in the model.

The first empirically testable aspect of Fishbein's model is whether attitude towards an act (e.g., living with Negroes) is a better predictor of BI and OB than attitude towards a less specific object (e.g., Negroes). There is considerable evidence that BI and OB are more highly correlated with attitude towards an act than with attitudes toward
an object (Ajzen, 1971; Ajzen & Fishbein, 1969, 1970, 1972a; Carlson, 1968; Darroch, 1971; DeVries & Ajzen, 1971; Fishbein, 1966; Fishbein, Ajzen, Landy, & Anderson, 1970; Hornik, 1970). Since Fishbein's model and the instrumentality model are both models which predict actions, not attitude towards objects, these results indicate that both models should be superior to expectancy-value models which do not predict specific action (e.g., Rosenberg, 1956; Zajonc, 1954).

The second assumption of the Fishbein model is that a seven-point bipolar adjective scale constitutes a direct measure both of the probability of act-outcome relationships and of the value of those outcomes. Typically, the bipolar adjectives used have been pairs loading heavily on the evaluative dimension of the Semantic Differential (Osgood, Suci, & Tannenbaum, 1957). In a personal communication to Mitchell & Biqlan, Fishbein explained the rationale behind use of this method:

The subject's check on the 7-point scale indicates whether he thinks the attitude object is associated with a positive or negative state (\(a_i\)) and his belief about the strength of association (\(b_i\)). Thus, when the subject checks +2 on the good-bad scale, he is indicating that the attitude object is associated with a positive state and that the strength of the association is 2. The subject's total score on this instrument is conceptualized as the sum of (a) his beliefs about the relationship between the attitude object and certain positive or negative states (\(a_i = +1\) or \(-1\)) multiplied by (b) his perception of the strength of those rela-
tionships ($B_1 = 0$ to $3$) (Mitchell & Biglan, 1971, p. 438).

Evaluations of general attitude models (Fishbein, 1965a, 1965b; Fishbein & Feldman, 1963; Fishbein & Raven, 1962; Hackman & Anderson, 1968; Kaplan & Fishbein, 1969) have noted high correlations between "direct" evaluative judgments of attitude objects and an "indirect" index based on the product of object evaluations and object-outcome probabilities. However, in each of these studies attitude towards an object was measured. Since Fishbein emphasizes the importance of using attitude towards an act in predicting intentions, the equivalence of the direct measure of A-act to indirect measures should be tested in situations involving attitude towards an act, rather than attitude towards an object. Two tests have recently been made. Neither have demonstrated conclusively that different operationalizations of A-act are equivalent.

Ajzen and Fishbein (1970) obtained measures of the likelihood that cooperative choices in the Prisoner's Dilemma would lead to payoffs for the players. These probabilities were multiplied by a measure of the individual's evaluation of the payoff and the products were summed (indirect measure). Judgements of the cooperative behavior in the specific situation were also obtained by means of a four-item evaluative semantic differential scale (direct measure). Correla-
tions between the direct and indirect measures of A-act in the two Prisoner's Dilemma games played were .632 and .672. No test of the differential effects of the two measures in prediction of either BI or OB were reported.

Ajzen and Fishbein (1972a) used four hypothetical decisions involving risk to obtain estimates of the probability that the risky option would lead to success or failure. Evaluations of success or failure in each situation were multiplied by probabilities and a sum of the products obtained. The correlations between a four-item, evaluative semantic differential scale judgment of success in each situation and the direct measures ranged from .299 to .814 (median $r = .60$). As in Ajzen and Fishbein (1970) no test of the differential effects of the two measures in prediction of BI or OB was reported.

Finally, the assumption is made by Fishbein that the set of non-immediate outcomes, "pleasing or displeasing relevant others," is a highly valued set of outcomes, so important in determining intentions to perform behavioral acts that this set of outcomes deserves separate status in the model.

Fishbein makes it clear that the normative component will not always have a significant weight in predicting BI, but the assumption is made that no variable--cognitive or environmental--will be significantly related to BI unless that variable is highly correlated with A-act, with NBMc, or
with both. Tests of this latter assumption have been of the form of covariance analyses with BI regressed on the "external variables" and the A-act and NBMc components included as simultaneous covariates. Such tests have shown that the relationship between BI and "external variables" is severely attenuated by the removal of variance due to A-act and NBMc from the dependent variable (Ajzen & Fishbein, 1972b, pp. 32-37). Such analyses could have also been employed to determine the independent contribution of the normative component in mediating the effects of external variables. If only A-act had been used as a covariate, would a severely attenuated BI-external variable relationship have been obtained? There exists only limited evidence that the two-component model contributes substantially more to explaining variance in BI than A-act alone.

The Problem of Knowledge of Later Overt Behavior Measurement

The relationship between attitudes and behavior has been described in terms of an "action sequence (Jones & Gerard, 1967)." The action sequence involves three phases: a predecision phase, involved primarily with evaluating alternatives; the decision or action, itself; and postdecisional cognitive processes accommodating the act (Jones & Gerard, 1967, p. 188). The relative importance of the cognitive processes in the pre- and post-decisional phases has been a

Both the Fishbein and instrumentality formulations are models of cognitive operations occurring in the pre-action phase. In Jones and Gerard's view, the purpose of this phase of cognitive activity is to reduce pre-decisional conflict by actively seeking information and resolving choice conflict. According to Jones and Gerard, characterizing the pre-decisional phase as only an expectancy-value relationship fails to emphasize the importance of the cognitive process aimed at reducing uncertainty.

This...[the expectancy-value model]...cannot be an accurate characterization because, at any given moment, the person's particular vantage point from which he views action possibilities is characteristically one of incomplete knowledge. Often he has only a vague sense of what will follow particular actions (Jones & Gerard, 1967, p. 189).

What variables are important in reducing this incomplete knowledge of the pre-action phase?

It is proposed that one of the key variables involved in the cognitive process during the pre-action phase is the individual's knowledge at that time of whether action will actually be required. A significant variable in the cognitive process is perception that the pre-action phase will lead to some action.
In all previous tests of Fishbein's model where the attitudinal component, the normative component, and BI were collected either the subjects were told that OB would be measured later (Ajzen, 1971; Ajzen & Fishbein, 1970; Fishbein, 1966; Fishbein, et al., 1970; Hornik, 1970), or subjects were told nothing and no OB measures were collected (Ajzen & Fishbein, 1969, 1972a; Carlson, 1968).

In those studies where subjects were told that their OB would be measured later, the importance to the subject of maintaining a consistent set of cognitive elements was maximized. The relationship between the cognitive elements represented by Fishbein's intention model and BI may have been influenced systematically by knowledge of later OB measurement.

In those studies where subjects were told nothing about later OB measurement and no OB measure was obtained, the importance to the subject of maintaining a consistent set of cognitive elements was minimized. Since the subject did not anticipate OB measurement, the validity of Fishbein's model as an accurate representation of an action sequence may be questioned.

No previous investigator has tested Fishbein's model of behavioral intentions under conditions where knowledge of later criterion measurement was systematically varied. The present study evaluated the relationship between OB, BI, and
Fishbein's model under conditions of no knowledge of later OB measurement and knowledge of later OB measurement.

The Photograph Release-Signing Paradigm

One paradigm frequently used to test attitudinal prediction of behavior has been the photograph release-signing situation. Originally used by DeFleur and Westie (1958), the basic design consists of assessing the prejudice of white students toward blacks and later asking the white students to indicate what uses they would allow of pictures of themselves and blacks. Descriptions of the exact procedures that have been followed are contained in Darroch (1971), DeFleur and Westie (1958), Ewens and Ehrlich (1972), Green (1968), Linn (1965) and Wicker (1969). Also available are recent critiques of the paradigm's methodology (Ajzen, Darroch, Fishbein, & Hornik, 1970; Deutscher, 1969).

In the paradigm, measures of determinants of BI towards specific release-signing behavior are obtained at Time 1. At Time 2 subjects are actually photographed with blacks and given the opportunity to sign several different photograph releases, each release differing in the amount of public exposure the photograph will receive. The OB to be predicted is type of public use the subject will allow of his photograph.
Statement of Purpose

The present study employed the photograph release-signing paradigm (a) to test the moderating effects of knowledge of later OB measurement on Fishbein's model, (b) to compare different operationalizations of the attitudinal component of Fishbein's model, and (c) to contrast the Fishbein and instrumentality models, both through correlational techniques and by experimentally manipulating subjects' normative beliefs about release signing.

Hypotheses

The first set of hypotheses concerned the effects of subjects' knowledge of later OB measurement on prediction of BI and OB. These hypotheses were based on the assumption that the strong relationship generally obtained between Fishbein's model and BI as well as the weaker relationship obtained between the model and OB has been a function of knowledge of later OB measurement.

Hypothesis IA. The relationship between Fishbein's model and BI will be stronger when subjects have knowledge of later OB measurement than when they have no such knowledge.

When a subject knows before he states a particular attitude or a particular intention that a behavioral criterion will be obtained, this knowledge will increase the
irrevocability of stating attitude and intention. Thus, for a person with knowledge of later OB measurement the pre-action situation forces the person to confront the consequences of expressing his attitude and intention. What should occur is cognitive work which tends to maintain consistency between cognitive elements.

When a subject does not know that a behavioral criterion will be obtained, the predecisional situation provides relatively little information concerning the consequences of expressing his attitudes or intentions. At this point the tendency to maintain consistency between the two cognitive elements, attitudes and intentions, would be a function of factors other than knowledge of later measurement.

**Hypothesis IB.** The relationship between Fishbein's model and OB will be stronger when subjects have knowledge of later OB measurement than when they have no such knowledge.

The rationale for this hypothesis is similar to the rationale for Hypothesis IA. Because of the irrevocability of stating attitudes when collection of a behavioral criterion is anticipated, the elements in the action sequence of the individual in this situation will tend to be more consistent than the elements in the action sequence of the individual with no such anticipation.

**Hypothesis IC.** The relationship between BI and OB will
be stronger when subjects know that their OB will be assessed later than when subjects do not know that their OB will be assessed later.

The tendency to establish substantial consistency between intentions and behavior will occur when subjects know at the time they indicate their intentions that their behavior will be measured later. This consistency will be greater than the consistency of BI and OB for subjects with no such knowledge.

Hypothesis II predicts the effects of the different operationalizations of the attitudinal component of Fishbein's model in predicting intentions and behavior.

**Hypothesis II.** The different operationalizations of A-act will be highly related and will be equally satisfactory measures of the attitudinal component in Fishbein's model.

Confirmation of this hypothesis would substantiate the claims made by Fishbein (In Mitchell & Biglan, 1971, p. 478) when he advocated using a direct A-act measure as a substitute for indirect A-act measures.

**Hypothesis III.** The instrumentality model will be more highly related to BI and OB than any of the operationalizations of A-act and more highly related to BI and OB than Fishbein's two-component model.

Because the instrumentality model includes an outcome-outcome probability estimate as well as an action-outcome probability estimate, this model should be more highly relat-
ed to BI and OB than either of the two components of Fishbein's model or the full two-component model.
METHOD

Overview

The procedure followed in the experiment approximated that of the photograph release signing paradigm. The exact temporal sequence of data collection for each subject was as follows.

During the first evening session the subject's knowledge (K) and normative beliefs (NB) were manipulated, measures of the various behavioral intention variables collected, and checks on both manipulations obtained. The following evening subjects completed a bogus attitude questionnaire, were videotaped, evaluated their videotapes, signed photograph release statements, completed a second set of checks on the manipulations, and were debriefed.

The description of the procedure follows the temporal sequence of the experiment. However, at several points a digression is made from relating the procedure followed to specifying the exact questionnaire measures collected at each particular stage in the experiment.

Subjects and Design

One-hundred twenty subjects (59 males and 61 females) were recruited from undergraduate psychology courses during June and July, 1972. The mean age of the subjects was 21.69
The mean number of quarters of college completed by the subjects was 7.04 (S. D. = 5.17).

Subjects were told that the experiment would investigate factors affecting career choice of government occupations and would require two consecutive evenings of participation. Credit towards his course grade was promised a subject only if he participated in both evening sessions.

During the initial evening session of the experiment all subjects recruited since the last session met as a group. The median size of these groups was 16 (Range = 7 to 27). The following evening subjects returned at preassigned times in smaller groups to complete the experiment. The median size of the Session II groups was 8 (Range = 2 to 11). Whenever possible, all subjects participating in a two-evening sequence were assigned the same treatment cell in a 2 X 2 factorial design.

The independent variables were the subject's perception of other I.S.U. students' attitudes toward allowing their photograph to be displayed publically (highly favorable normative belief versus highly unfavorable normative belief) and the extent of the subject's knowledge of what he would do during the second evening session (knowledge present concerning later overt behavior measurement versus knowledge absent). The treatment combination administered during the first evening of the experiment was selected non-
systematically.

Procedure: Session I

Experimental Manipulations

Both K and NB were manipulated by means of information imbedded in a 13-page attitude questionnaire booklet given each subject as he entered a large lecture room. Instructions for completing each step of the procedure were included in the questionnaire. The first page of the questionnaire booklet contained a brief description of the background of the study, an overview of the contents of the questionnaire, and a brief description of what the next evening's session would require (See Appendixes A and B).

Subjects in the knowledge-absent conditions (KA) and subjects in the knowledge-present condition (KP) read the following paragraph:

When you return for the second session tomorrow night, you will complete another group of attitude measures tapping your perception of various aspects of actual military life. The measures will determine the correspondence between your expectations of what it is like to be in the military and what psychologists have actually determined it to be like.

In addition to the above paragraph subjects in the KP condition read:

You will also have the opportunity to interact with an Army R.O.T.C. cadet. You will be photographed
with the cadet and given the opportunity to sign release forms allowing us to use the photograph of you and the cadet in various public situations.

The knowledge manipulations were repeated immediately before the subject left the session. Subjects in the KA condition read, "When you report for the second session tomorrow night, you will fill out several attitude questionnaires." Subjects in the KP condition read, "When you report for the second session tomorrow night, you will fill out several attitude questionnaires and actually be photographed with an Army R.O.T.C. cadet. You will be given the opportunity to allow your photograph to be used in a variety of public situations."

After receiving the knowledge manipulation, subjects completed a 10-item biographical information questionnaire (Appendix C). The purposes of this series of items were to lend face validity to Session I and to obtain information which could be tested to reveal systematic differences between groups in the experimental design.

Immediately following this biographical information questionnaire were the instructions for the next section of the questionnaire (Appendixes D and E). Imbedded in these instructions was one of the NB manipulations.

Subjects in the highly favorable NB condition read the following paragraph.
In a small but representative sample of I.S.U. students last quarter it was observed that students have attitudes strongly in favor of signing such forms. About nine students in ten (90%) said they would sign the photograph release forms.

Subjects in the highly unfavorable NB condition read this paragraph.

In a small but representative sample of I.S.U. students last quarter it was observed that students have attitudes strongly opposed to signing such forms. About one student in ten (10%) said he would sign the photograph release forms.

Each subject's attitudes were obtained towards use of a photograph of the subject shaking hands with a uniformed Army R.O.T.C. student in three public situations. Pilot studies (Appendixes N and O) indicated that these three situations would facilitate adequate tests of the hypotheses. The three situations used were:

(a) **Situation A.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in large lecture sections of introductory sociology, psychology, and political science to request volunteers for laboratory studies in psychology and communications. Your name will not appear with the photograph.

(b) **Situation B.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used for a publicity campaign about a university event. The picture will appear in the *Iowa State Daily*, the *Ames Tribune*, and the paper your parents and their friends read. Your name and the name of the Army R.O.T.C. student will appear with the photograph.
(c) Situation C. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in university residence halls and houses to publicize a university event sponsored by Army R.O.T.C. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

Measures of the Intention Models

With the exception of the valence of non-immediate outcomes operationalizations of the Fishbein and instrumentality attitude models were collected first for Situation A, then for Situation B, and then for Situation C. Values of all non-immediate outcomes were obtained after all other attitude measures had been obtained. The section of the questionnaire booklet with which these measures were collected is contained in Appendix F.

A-act. Each subject's attitude towards each behavioral act was obtained by three procedures.

In the first procedure each of the situations was listed followed by a scale of four seven-point items anchored with these bipolar adjectives: punishing—rewarding, interesting—boring, good—bad, and pleasant—unpleasant. A-act (direct) consisted of the sum of the four sets of bipolar adjectives comprising the scale (Appendix F, Items 1, 16, and 29).

A second measure of A-act which has been employed in tests of Fishbein's model was labelled A-act (good-bad). A-act (good-bad) was the response of the subject to one item of
the four-item A-act (direct) scale.

The third procedure consisted of (a) the stem, "What kinds of consequences will follow from your signing the release?" and a good—bad scale, and (b) the stem, "How likely is it that these consequences will follow from your signing the release?" and a probable—improbable scale. A-act (indirect) was the product of these two scale scores (Appendix F, Items 2-3, 17-18, 32-33).

NB. In measuring NB three items were used, each with a different referent. These referents were selected on the basis of a preliminary study in which they were mentioned most often by subjects as important influences of their intention to sign release statements. The referents used were "your closest friends," "other students," and "your parents." Items were of the form, "Your parents would expect you to sign the release for Situation A: probable—improbable." The sum of the three items constituted the NB measure for each situation (Appendix F, Items 4-6, 19-21, 34-36).

Mc. For each of the three situations a separate measure of Mc was obtained. The item used was, "In general how much do you want to do what most people who are important to you think you should do? I want very much—I want very much not to do what most people who are important to me think I should do (Appendix F, Items 7, 22, and 37)."
Instrumentality Model Measures. On the basis of a preliminary study (Appendix 0), the five to seven most salient outcomes of having one's photograph actually used in each situation were determined. Subjects in the present study were asked to evaluate these non-immediate outcomes on a good--bad scale (Appendix F, Item 45). For each situation subjects judged the probability that each salient non-immediate outcome would actually occur as a function of the immediate outcome of release-signing (outcome-outcome probability; Appendix F, Items 8-14, 23-29, 38-43). A measure labelled "valence" was defined for each of the three situations as the sum of the products of the evaluation of each non-immediate outcome and its probability of being associated with the immediate outcome. This probability was assumed to range from +3.0 to -3.0. Finally, subjects indicated their expectancy (action-outcome probability) that their signing the release would actually result in their photograph being used in each particular situation (Appendix F, Items 15, 30, 44). A measure called "force" was defined for each of the three situations as the sum of the products of the expectancy (1.0 to 7.0) and "valence" variables.

Behavioral Intentions

Each subject indicated his behavioral intentions (BI) towards signing a photograph release statement to allow use of the photograph in each of the three situations. A subject
indicated on a 99-point scale whether it was "very probable (+99.0)" or "very improbable (+1.0)" that he would actually sign a photograph release statement for each situation (Appendix G). To increase the reliability of these single-item scales the BI responses were transformed to standard normal deviation scores on a 0.0 to 466.0 scale (Liu, 1971).

At this point in the procedure subjects completed a number of bipolar adjective scales included in the questionnaires to lend face validity to Session I. Subjects used the AB scale procedure to evaluate the object, "Army R.O.T.C. (Appendix H)." Also collected were responses to a set of four-item bipolar adjective scales tapping attitudes toward each branch of the military (Appendix I).

**Session-I Manipulation Checks**

**Normative beliefs.** The check on the NB manipulation consisted of a single item: "To what extent would other students expect you to sign photograph release statements? strongly expect you to sign--strongly expect you not to sign (Appendix I)."

**Knowledge of later OB measurement.** The check on the knowledge manipulation consisted of four open-ended questions: "Describe in a few short phrases (a) what the purpose of this evening's session is and (b) what you have done in the study so far. Describe in a few short phrases (a) what the purpose of the second session will be and (b) what you
expect to do in the second session (Appendix I)."

Procedure: Session II

Attitude-Towards-Military-Life Questionnaire

The next evening subjects reported in smaller groups to a different classroom. When all subjects scheduled for the session had arrived, subjects entered the classroom and were given copies of a questionnaire concerning life in the military (Appendix J). The purpose of this questionnaire was to fulfill the pledge made the first night that, "When you return for the second session tomorrow night, you will complete another group of attitude measures tapping your perception of various aspects of actual military life." This bogus questionnaire was included to lend face validity to the second evening's procedure, thus minimizing any suspicion a subject might have had concerning deception on the part of the experimenter. Before each subject began responding to the questionnaire, the experimenter read these instructions to the subjects.

The purpose of this questionnaire is to measure your perception of various aspects of actual military life. These measures will determine the correspondence between your expectations of what it is like and what psychologists have determined it to be like.

Indicate how descriptive or nondescriptive of actual military life you consider the statements below. For each of the 20 items write a number from 1 to 99
in the space next to the statement. If you consider the statement highly descriptive of actual military life, write "99" in the space near the statement. If you consider the statement highly nondescriptive of actual military life, write "1" in the space near the statement.

You may use any number from 1 to 99. This does not mean that you have to use all of the numbers from 1 to 99. Some people only use the numbers 1, 25, 50, 75, and 99. Others use 1, 10, 20, 30, 40, . . . up to 99. The point is, the distinctions you make should be as fine as you feel you can make. Use the numbers along the range you feel most comfortable with. If you feel that you can distinguish between 50 and 51, then do so. This procedure satisfies some people's need to make fine distinctions, but others who feel they cannot respond with such precision may use fewer different numbers.

All right, go ahead and complete the questionnaire. When you finish, turn it over and wait quietly for the rest of the group to finish.

After all subjects had completed the military life questionnaire, the experimenter said, "All right, the next part of the experiment will be held in another room. Pick up your books and purses and move to the adjacent room, Room 311."

**Videotaping Session**

When the group of subjects entered the videotaping room, they were seated on one side of the room at seats numbered from one to fifteen. The experimenter gave the following instructions to the group.

All right, in a few minutes we're actually going to obtain videotapes of you interacting with Mr. Ron Parker, a recent graduate of the Army R.O.T.C. program
here at Iowa State.

We're interested in obtaining photographs for use in a variety of situations. We've tried to use still cameras and Polaroid film, but such pictures seem stilted, unreal, 'hookey.'

In an attempt to make the picture-taking situation more natural and relaxed, we're going to try to use videotape recordings.

Each of you will be videotaped with Mr. Parker. I'll then make a photographic print from what I consider to be your best shot. This photograph will, of course, be in black and white and will be no better in quality than the replay of the videotape which you will see later. I can retouch the photograph a little bit, but I can't retouch the picture very much or I'll lose the detail of your facial features. So the photographic print I make will look almost exactly like the videotape I get of you.

Now here's what I want you to do. One at a time, pick up the number on your desk, stand in the taped box with Mr. Parker, and place the number under your face so that I can identify you. Then put the number down on this empty seat and return to the box, facing Mr. Parker. He'll ask you some questions. Try to talk to him and smile while I tape you. I'll have each of you on tape for about 15 seconds.

Are there any questions? O.K., Number 1, step into the box.

After each subject had been taped and had returned to his seat, the experimenter continued:

Now, while the videotape is being rewound, let me explain what I want you to do next.
I want you to come one at a time to the front to the room, look at your own videotape recording, pick up an evaluation sheet for your videotape, and then find the seat with your number on it somewhere on the right side of the room. Evaluate your own videotape by answering the 10 items on the evaluation sheet. After you finish the videotape evaluation, turn the evaluation sheet over and wait quietly for everyone else to finish.

The videotape monitor was positioned so that only the person evaluating his own sequence could see the monitor screen. The evaluation form consisted of 10 semantic differential-type items concerning various aspects of the videotaping session (Appendix K). The videotape evaluation index consisted of the sum of each subject's 10 responses. After each subject had completed his evaluation form the experimenter collected all evaluations and began distributing the final questionnaire booklet to the subjects. These booklets contained the photograph release statements and Session II checks on the experimental manipulations (Appendixes L and M). As he distributed the booklets to the subjects, the experimenter said:

Finally, since we will use these photographs in a variety of situations this fall, we need to obtain photograph release statements from each of you. At this time we anticipate using your photographs in three situations. Sign one of the five photograph release statements for each of the three situations. Sign one statement on the first page, one on the second page and one on the third page. Then answer the items in the rest of the questionnaire.
After signing the release statements subjects completed the Session II checks on the experimental manipulations. The check on the knowledge manipulation consisted of open-ended questions similar to those used in Session I. The persistence of the NB manipulation was assessed by a three-item scale, "To what extent would other I. S. U. students probably allow their photographs to be used in the three photograph release situations? Situation A, probable--improbable; Situation B, probable--improbable; Situation C, probable--improbable." The index used as the Session II NB manipulation check was the mean of each subject's responses to the three items.

After all subjects had completed the final questionnaire, the experimenter conducted a debriefing session in which the purpose of the experiment and experimental hypotheses were explained to the subjects. The experimenter emphasized how important it was that potential subjects did not know what actually occurred during the second evening of the experiment. When he had answered all of the subjects' questions concerning the experiment, the experimenter thanked the subjects and dismissed them.
Analyses

The first step in the data analyses was calculation of the different indexes representing operationalizations of the models. Next, analysis of variance and chi-square procedures were used to test the design features of the experiment.

Hypotheses IA and IB stated that knowledge would moderate the variance of intentions and behavior accounted for by Fishbein's model. Two moderator techniques were used to examine each hypothesis.

The first method consisted of subgroup analyses (Frederiksen & Melville, 1954) in which the criterion (e.g., intentions or behavior in each situation) was regressed on Fishbein's model separately for each of the two knowledge subgroups. The second procedure used was the moderated multiple regression method (Saunders, 1956) in which (a) the moderator variable (e.g., knowledge of later OB measurement) was treated as an additional predictor and (b) interactions of knowledge with each component of Fishbein's model were included in prediction of the criterion.

Data relevant to the remaining hypotheses were intercorrelated and appropriate statistical tests conducted. Statistical program packages used in several subsets of these computations included ÖMNITAB (Chamberlain & Jowett, 1969), MALAMUTE (Kennedy & Stein, 1971), and SAS (Barr & Goodnight,
RESULTS

Checks on the Experimental Design

**Initial Intercell Differences**

A number of biographical variables were collected to determine if these variables might have affected the outcomes of the study. Chi-square and analysis of variance procedures were used to test for differences among treatment cells using the biographical variables as dependent variables. There were no systematic differences between subjects for any of the variables except the number of psychology courses taken prior to the experiment and the level of the psychology course in which the subject was enrolled when he participated in the experiment. Subjects in the favorable normative belief (FNB) condition had taken more psychology courses than subjects in the unfavorable normative belief (UNB) condition ($F = 6.36, df = 1/116, p < .05$; Mean FNB = 1.95, Mean UNB = 1.17). This difference was probably due to disproportionate assignment of subjects who were taking upper-level courses (300-400) to the FNB condition and subjects who were taking lower-level courses (100-200) to the UNB condition ($x^2 = 52.09, df = 3, p < .001$).
Checks-on-the-Manipulations

Normative beliefs. The effectiveness of the NB manipulation was measured near the end of each session by asking subjects to indicate the probability that other I.S.U. students would sign photograph release statements. These data were analyzed using a repeated measures analysis of variance with two between-subject factors (NB and K) and one within-subject factor (Session).

The null hypothesis that subjects assigned to the two NB cells differed in their perceptions of whether other students would sign the releases was not rejected (F < 1.00). However, the null hypothesis that subjects assigned to the different knowledge cells did not differ in their perceptions of whether other students would sign the releases was rejected (F = 4.52, df = 1/116, p < .05). Subjects with no knowledge of later OB measurement considered it slightly probable that other I.S.U. students would sign the release statements, while subjects with knowledge indicated that it would be slightly improbable that other I.S.U. students would sign release statements. Thus, it appeared that subjects' perceptions of whether other students would sign releases was influenced more by whether they realized their own release-signing behavior would be assessed later than by whether other students had signed release statements in the past.
The only other significant effect was the within-subject effect of Session ($F = 4.10$, $df = 1/116$, $p < .05$). After completing Session I subjects considered it less probable that other students would sign releases than after Session II, when the subjects, themselves, had actually signed release statements.

This analysis of the checks on the normative belief manipulation indicated that the experimental induction used was unsuccessful in creating the predicted two groups of subjects with different perceptions of whether I.S.U. students would sign photograph release statements.

Knowledge manipulation. Like the NB manipulation knowledge of what was to occur at Session II was assessed once during Session I and once during Session II. Subjects' responses for each session were evaluated by two judges who responded on a five-point scale (1.0 = strongly disagree, 5.0 = strongly agree) to four statements concerning each subjects' responses at each session. The statements used were:

(a) The subject was very certain that the purpose of the Time 2 session involved a comparison of his Time 1 and Time 2 sessions' responses.

(b) The subject was very certain that the purpose of the second session was to obtain a photograph of him and a K.O.T.C. student.

(c) The subject was very certain that the purpose of the second session was to obtain a photograph of him
and a R.O.T.C. student **AND TO SEE IF HE WOULD SIGN A PHOTOGRAPH RELEASE STATEMENT.**

(d) The subject was highly suspicious of the experimenter's stated intent.

Thus, each judge read 120 subjects' responses to the open-ended questions and indicated for each subject's responses agreement or disagreement with the above statements. This procedure then was repeated for subjects' responses to the open-ended questions completed at Session II.

The agreement between the two raters concerning each response was determined by correlating each judge's response to the four items for each subject. These correlations are shown in Table 1.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Session I Responses</th>
<th>Session II Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change Involved?</td>
<td>.50</td>
<td>.61</td>
</tr>
<tr>
<td>Photo at Session II?</td>
<td>.76</td>
<td>.62</td>
</tr>
<tr>
<td>Release Signing?</td>
<td>.74</td>
<td>.58</td>
</tr>
<tr>
<td>Subject Suspicious?</td>
<td>.28</td>
<td>.19</td>
</tr>
</tbody>
</table>

**Note.**—The index of reliability was the product-moment correlation between the two judges' responses to each item. N = 120. All r's were significant at p < .05.
The judges' agreement on the first three statements was satisfactory. The rather low reliability of the fourth statement may have been due to an extreme positive skew (e.g., strongly disagree) in responses by one judge to the fourth statement.

The effectiveness of the knowledge manipulation was evaluated using a three-factor repeated measures analysis of variance design with two between-subjects factors (NB and K) and one within-subject factor (Session). The dependent variable in the analysis was the average of the two judges' responses to each statement.

Analysis of variance of the first statement revealed a significant within-subject effect for Session ($F = 5.26, df = 1/116, p < .05$). Subjects were judged to have mentioned evaluating attitude change as a purpose of the experiment more often in their Session I responses (Mean = 2.45) than in their Session II responses (Mean = 2.79).

There also was a significant Knowledge X Session interaction ($F = 12.53, df = 1/116, p < .01$). Post hoc analyses of these cell means using the Newman-Keuls procedure revealed that judgments of Session I responses did not differ between subjects with knowledge (Mean = 2.63) and subjects with no knowledge (Mean = 2.27). However, judgments of Session II responses indicated that at this point in the experiment
change was mentioned more often by subjects with no knowledge (Mean = 3.12) than by subjects with knowledge (Mean = 2.45). There were no differences between judges' perceptions of responses collected at Session I from subjects with no knowledge and judges' perceptions of responses collected at either session from subjects with knowledge (p > .05).

There was a significant between-subjects effect for knowledge based on judges' responses to the second statement (F = 23.16, df = 1/116, p < .001). Subjects with no knowledge (Mean = 1.95) were judged to have mentioned less often than subjects with knowledge (Mean = 2.80) that obtaining photographs was a purpose of Session II. A significant within-subject effect due to Session also was obtained (F = 79.34, df = 1/116, p < .001). A subject was more likely to have mentioned at Session II (Mean = 3.05) than at Session I (Mean = 1.70) that one purpose of Session II was obtaining photographs.

The third statement required the judges to evaluate whether the subject believed that a purpose of Session II was to obtain photographs and photograph release statements. Of the four statements this item was the most direct check of the effectiveness of the knowledge manipulation.

As predicted there was a significant between-subjects effect for knowledge (F = 11.35, df = 1/116, p < .01). The purpose of Session II was described as obtaining photographs
and releases less often by subjects with no knowledge (Mean = 1.77) than by subjects with knowledge (Mean = 2.30).

Moreover, there were two significant within-subject effects obtained (Session: $F = 54.94, df = 1/116, p < .001$; Knowledge X Session: $F = 6.53, df = 1/116, p < .05$). Subjects were more likely to have mentioned at Session II (Mean = 2.53) than at Session I (Mean = 1.55) that a purpose of Session II was to obtain photographs and release statements.

Post hoc analysis of the Knowledge X Session interaction using the Newman-Keuls procedure indicated that at Session I photographs and release statements were mentioned less often by subjects with no knowledge (Mean = 1.12) than by subjects with knowledge (Mean = 1.98). Thus, the two knowledge subgroups differed in the expected direction based on their Session I responses. However, the mean of the knowledge subgroup's responses suggested that a moderate number of subjects in the knowledge condition did not expect the major purpose of Session II to be obtaining photographs and release statements. Although each of the two knowledge subgroups were judged to have correctly identified the purpose of the experiment at Session II more often than either group had at Session I, there was no difference between the mean responses of the two subgroups on the Session II measure (Mean-no knowledge = 2.43; Mean-knowledge = 2.63).
The final statement used by judges to evaluate subjects' responses was the amount of "suspicion" felt by the subject concerning the extent of deception involved in the experiment. Analysis of this item revealed only a main effect for the within-subject factor, Session ($F = 11.83$, $df = 1/116$, $p < .01$). Subjects were considered to have been more suspicious at Session I (Mean = 2.27) than at Session II (Mean = 1.92).

These analyses of the checks on the knowledge manipulation indicated that the experimental induction was successful in creating two groups of subjects with different perceptions of what would occur at Session II.

**Effects-Due-to Sex of Subject**

To determine if the sex of subject was significantly related to the major dependent variables in the study, $t$ tests were conducted using sex of subject as the independent variable and intentions and actual behavior in the three situations as dependent variables. Because subjects had been assigned to the NB conditions without regard to sex, unequal groups resulted. There were no significant effects due to sex of subject for BI or OB in any situation ($p > .05$).

**Effects Due to Session II Group Membership**

The nature of the experimental procedure did not allow precise control of the size or composition of the Session II groups. To determine if the nature of the Session II group
experience varied systematically between the 15 different Session II groups, a single-classification, 15-level, unbalanced analysis of variance was performed using each of the OB measures as a dependent variable. Group membership differentially affected release-signing behavior for Situation A ($F = 1.85$, $df = 14/105$, $p < .05$) and for Situation C ($F = 1.85$, $df = 14/105$, $p < .05$) but not for Situation B ($F = 1.55$).

In order to control for the effects of Session II group membership, the variance due to group membership was removed from the variance of each OB measure. These modified OB measures were used in all tests of hypotheses involving OB.

**Hypothesis IA**

This hypothesis was a statement that the relationship between Fishbein's model and intentions would be stronger when subjects had knowledge of later OB measurement than when they had no such knowledge.

Three sets of analyses were used to examine this hypothesis. The first set of analyses directly tested the hypothesis by regressing BI on A-act (direct) and NBMc for each knowledge subgroup. The second set of analyses explored the usefulness of expanding Fishbein's model to include the knowledge variable. A third set of analyses determined whether consideration of the interactions of the knowledge
induction with the components of Fishbein's intention model increased prediction of intentions over and above that obtained without considering the interactions. Both the second and third sets of analyses were designed to explore further the effects of the knowledge variable.

In the first set of analyses BI was regressed on the appropriate A-act (direct) and WBMC measures for each situation. The double cross-validation procedure (Mosier, 1951) was used to obtain an unbiased estimate of the model's predictive effectiveness in each situation. To the extent that these zero-order correlations differed between knowledge subgroups, the knowledge variable operated as a moderator.

For each situation the cross-validity of the no knowledge subgroup and the knowledge subgroup were treated as two sample values of r. After transforming these correlations to Fisher's z, the hypothesis was tested that each pair of sample values of r for each situation was drawn at random from the same population (Snedecor & Cochran, 1967). There was a significant difference between the cross-validity coefficients under knowledge and no knowledge conditions for Situation A (t = 2.64, df = 118, p < .01), for Situation B (t = 3.79, df = 118, p < .001), and for Situation C (t = 2.06, df = 118, p < .05).

These data, summarized in Table 2, provide strong support for Hypothesis IA.
Table 2. Correlations of intentions with Fishbein's model in different knowledge conditions.

<table>
<thead>
<tr>
<th>All subjects (N = 120)</th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>BI--A-act</td>
<td></td>
<td>BI--NBMc</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$\beta$</td>
<td></td>
<td>$\beta$</td>
<td></td>
<td>R</td>
</tr>
<tr>
<td>Sit. A</td>
<td>.58***</td>
<td>.51***</td>
<td>.38***</td>
<td>.17*</td>
<td>.61***</td>
</tr>
<tr>
<td>Sit. B</td>
<td>.65***</td>
<td>.54***</td>
<td>.49***</td>
<td>.19*</td>
<td>.66***</td>
</tr>
<tr>
<td>Sit. C</td>
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1Standardized partial regression coefficient of variable in multiple regression equation

*p < .05
**p < .01
***p < .001
Examination of the standardized partial regression coefficients indicated that addition of the normative component to the attitudinal component did not increase the variance accounted for when subjects had no knowledge of later OB measurement.

In the second set of analyses the Fishbein intention model was modified to include the knowledge induction used in this study. This three-component model may be represented as,

\[ OB \approx BI = (A_{act})w_0 + (Mc \sum_{i=1}^{n} NB_i)w_1 + (K)w_2 \]  

(7)

where \( OB \) = overt behavior, \( BI \) = behavioral intentions toward the act, \( A_{act} \) = the individual's attitude towards the act, \( Mc \) = general motivation to comply with the perceived expectations of others, \( NB_i \) = the perceived expectations of \( n \) others towards the act, \( K \) = knowledge that the opportunity will exist to perform the act, and the \( w_i's \) = empirically determined weights.

The predictive increment of this three-component model over that of the Fishbein model was tested using an \( F \)-statistic (Cohen, 1968, Formula 7). \( BI \) was regressed on a 120 X 3 array of independent variables to obtain \( R^2 \) for the full model (Equation 7 above). The knowledge component of the model was treated as a "dummy" variable, coded
dichotomously for a subject's assignment to the knowledge (1.0) or no knowledge (0.0) subgroups. To obtain the reduced model, BI was regressed on the attitudinal and normative components of Fishbein's model. There was no significant predictive increment obtained by adding a knowledge component to Fishbein's model in Situation A (R²-full = .3807, R²-reduced = .3664, F = 2.67, df = 1/116), in Situation B (R²-full = .4523, R²-reduced = .4441, F = 1.73, df = 1/116), or in Situation C (R²-full = .4599, R²-reduced = .4433, F = 3.57, df = 1/116).

In the third set of analyses the Fishbein intention model was modified to include a knowledge component and components representing interactions of the knowledge induction with the attitudinal and normative components. The model generated may be represented as,

\[
OB \propto BI = (A-\text{act})w_0 + (Mc \sum_{i=1}^{n} NB_i)w_1 + (K)w_2
\]

\[
+ ((A-\text{act})(K))w_3 + ((Mc \sum_{i=1}^{n} NB_i)(K))w_4
\]

\[
+ ((A-\text{act})(Mc \sum_{i=1}^{n} NB_i)(K))w_5
\]  

(8)

where OB = overt behavior, BI = behavioral intentions toward the act, A-act = the individual's attitude towards the act, Mc = general motivation to comply with the perceived expectations of others, NB = the perceived expectations of others towards the act, K = knowledge that the opportunity will
exist to perform the act, and the $w's = \text{empirically determined weights.}$

It was hypothesized that this model (Equation 8) would significantly increase the explained $BI$ variance over and above the variance accounted for by a reduced model which included no interaction terms (Equation 7). An $F$-statistic was computed based on the $R^2$ values of $BI$ regressed on the full and reduced models in each situation.

Addition of the interaction terms did not significantly increase the variance of $BI$ accounted for in Situation A ($R^2_{\text{full}} = .4270, R^2_{\text{reduced}} = .3807, F = 2.62, \text{df} = 3/113$), in Situation B ($R^2_{\text{full}} = .4800, R^2_{\text{reduced}} = .4523, F = 2.01, \text{df} = 3/113$), or in Situation C ($R^2_{\text{full}} = .4755, R^2_{\text{reduced}} = .4599, F = 1.12, \text{df} = 3/113$).

Summary

1. The hypothesis that the relationship between Fishbein's model and intentions would be stronger when subjects have knowledge of later OB measurement than when they have no such knowledge was supported. Evidence was obtained that little was gained by adding the normative component to the attitudinal component in predicting intentions when subjects have no knowledge of later OB measurement.

2. However, adding a "knowledge" component to Fishbein's model produced no significant predictive increment in any of the three release signing situations.
3. In each of the three situations the addition of terms representing the interactions of the knowledge induction and the components of Fishbein's model failed to significantly increase the magnitude of BI prediction above that obtained using only terms representing main effects of these variables.

**Hypothesis IB**

This hypothesis was a statement that the relationship between Fishbein's model and release signing behavior would be stronger when subjects had knowledge of later OB measurement than when they had no such knowledge.

The same three sets of analyses were used to examine this hypothesis as were used to examine Hypothesis IA.

In the first set of analyses OB was regressed on the appropriate A-act (direct) and NBMc measure for each situation and the multiple correlation cross-validated. These unbiased estimates of relationship were converted to Fisher's $z$ and used to determine if differences existed between subgroups based on the knowledge variable. There was no significant difference between these correlations under the two knowledge conditions for Situation A ($t = 1.18, df = 118$), for Situation B ($t = 1.08, df = 118$), or for Situation C ($t = .40, df = 118$).
These data, summarized in Table 3, failed to support Hypothesis IB.

There was little difference between correlations for the knowledge subgroups. The attenuated multiple correlations obtained for the no knowledge subgroup when BI was regressed on the model were not obtained when OB was regressed on the model. Moreover, in the OB regressions using the knowledge subgroup, the addition of the normative component to the additive component did not uniformly increase the explained variance in Situation A or in Situation C.

In the second set of analyses the predictive increment of a three-component model (Equation 7) to Fishbein's model was examined. There was no significant predictive increment obtained by adding a knowledge component in Situation A ($R^2$-full = .3820, $R^2$-reduced = .3804, $F = .31$, $df = 1/116$), in Situation B ($R^2$-full = .4134, $R^2$-reduced = .4114, $F = .38$, $df = 1/116$), or in Situation C ($R^2$-full = .3944, $R^2$-reduced = .3943, $F = .01$, $df = 1/116$).

The third set of analyses evaluated the predictive increment of a model including interaction terms (Equation 8) over a model not including such terms (Equation 7). Addition of these terms to the three-component model did not significantly increase prediction of OB in Situation A ($R^2$-full = .3908, $R^2$-reduced = .3820, $F = .54$, $df = 3/113$), in Situation B ($R^2$-full = .4264, $R^2$-reduced = .4134, $F = .85$, $df = 3/113$),
Table 3. Correlations of behavior with Fishbein's model in different knowledge conditions.

All subjects (N = 120)

<table>
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<tr>
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Knowledge Absent (N = 60)

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Knowledge Present (N = 60)

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</table>

¹Standardized partial regression coefficient of variable in multiple regression equation

*p < .05
**p < .01
***p < .001
or in Situation C ($R^2_{full} = .4017, R^2_{reduced} = .3944, F = .46, df = 3/113$).

Summary:

1. The hypothesis that the relationship between Fishbein's model and actual behavior would be stronger when subjects had knowledge of later OB measurement than when they had no knowledge was not supported. The moderating effect of the knowledge induction on the standardized partial regression coefficient of the normative component obtained when predicting intentions was not obtained when predicting actual behavior.

2. Adding a "knowledge" component to Fishbein's model produced no significant increase in variance of release signing behavior accounted for above that of Fishbein's model alone.

3. In none of the three situations did the addition of terms representing the interactions of the knowledge induction and the components of Fishbein's model significantly increase the magnitude of OB prediction above that obtained using only terms representing main effects of these variables.

Hypothesis IC

This hypothesis stated that the relationship between BI and OB would be higher when subjects knew that their OB would
be assessed later than when subjects did not know that their OB would be assessed later.

The correlations between BI and OB under the different knowledge conditions are shown in Table 4.

Table 4. Correlations of behavior with intentions in different knowledge conditions.

<table>
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<th>Knowledge Present</th>
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</tr>
<tr>
<td>Situation C</td>
<td>.69</td>
<td>.68</td>
<td>.71</td>
</tr>
</tbody>
</table>

Note.—All correlations were significantly different from zero ($p < .001$).

$^1N = 120$

$^2N = 60$

The relationship between BI and OB when knowledge was present and when knowledge was absent were treated as two sample values of $r$. After transforming these correlations to Fisher's $z$, the hypothesis was tested that each pair of sample values of $r$ for each situation was drawn at random from the same population (Snedecor & Cochran, 1967). There was no significant difference between the BI--OB correlations under knowledge and no knowledge conditions for Situation A ($t =$
.37), for Situation B ($t = .50$), or for Situation C ($t = .31$). Hypothesis IC was not supported.

Hypothesis II

Hypothesis II was a statement that A-act (direct), A-act (indirect), and A-act (good-bad) would be highly intercorrelated and would function in much the same way as operationalizations of the attitudinal component in Fishbein's model.

This hypothesis was tested by comparing the intercorrelations between the measures and then by evaluating each in Fishbein's model in the prediction of BI and OB.
Table 5. Correlations of the different measures of the attitudinal component of Fishbein's model with measures of the instrumentality model.

<table>
<thead>
<tr>
<th>Measure</th>
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Table 5 (continued).

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</table>


As shown in Table 5 the $A$-act (direct) and $A$-act (good-bad) measures were correlated above .90 for all three situations. The correlations of $A$-act (indirect) with the other two measures were surprisingly low.

Table 6 summarizes the results of comparing the three $A$-act measures in predictive use in Fishbein's model. In general the magnitude of intention variance accounted for was greater when $A$-act (direct) or $A$-act (good-bad) was employed.

Examination of the standardized partial regression coefficients indicated that adding the normative component to the attitudinal component significantly increased the prediction
Table 6. Correlations of intentions with Fishbein's model using three operationalizations of the attitudinal component.

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### A-act (good-bad)

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</tr>
<tr>
<td>Sit. B</td>
<td>.65***</td>
<td>.48***</td>
<td>.49***</td>
<td>.29***</td>
</tr>
<tr>
<td>Sit. C</td>
<td>.68***</td>
<td>.55***</td>
<td>.50***</td>
<td>.24***</td>
</tr>
</tbody>
</table>

Note.—$n = 120$.  

1 Standardized partial regression coefficient of variable in multiple regression equation

* $p < .05$  
** $p < .01$  
*** $p < .001$
of intentions only when the attitudinal component was operationalized as A-act (direct) or as A-act (good-bad). In contrast, the A-act (indirect) measure was a relatively inadequate single predictor in intentions, adding nothing to the intentions variance accounted for by the normative component.

The effects of using the different attitudinal components in predicting OB are shown in Table 7. The multiple correlations of behavior on Fishbein's model appeared to be slightly attenuated when A-act (indirect) was used.
Table 7. Correlations of behavior with Fishbein's model using three operationalizations of the attitudinal component.

### A-act (direct)

<table>
<thead>
<tr>
<th></th>
<th>BI—A-act</th>
<th>BI—NBMc</th>
<th>R</th>
<th>Cross-Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>beta</td>
<td>beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sit. A</td>
<td>.60***</td>
<td>.54***</td>
<td>.37***</td>
<td>.15</td>
</tr>
<tr>
<td>Sit. B</td>
<td>.63***</td>
<td>.56***</td>
<td>.43***</td>
<td>.13</td>
</tr>
<tr>
<td>Sit. C</td>
<td>.63***</td>
<td>.61***</td>
<td>.38***</td>
<td>.02</td>
</tr>
</tbody>
</table>

### A-act (indirect)

<table>
<thead>
<tr>
<th></th>
<th>BI—A-act</th>
<th>BI—NBMc</th>
<th>R</th>
<th>Cross-Validity</th>
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<tbody>
<tr>
<td></td>
<td>beta</td>
<td>beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sit. A</td>
<td>.05</td>
<td>.00</td>
<td>.37***</td>
<td>.37***</td>
</tr>
<tr>
<td>Sit. B</td>
<td>.31***</td>
<td>.20*</td>
<td>.43***</td>
<td>.37***</td>
</tr>
<tr>
<td>Sit. C</td>
<td>.20*</td>
<td>.10</td>
<td>.38***</td>
<td>.36***</td>
</tr>
</tbody>
</table>

### A-act (good–bad)

<table>
<thead>
<tr>
<th></th>
<th>BI—A-act</th>
<th>BI—NBMc</th>
<th>R</th>
<th>Cross-Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>beta</td>
<td>beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sit. A</td>
<td>.56***</td>
<td>.49***</td>
<td>.37***</td>
<td>.19*</td>
</tr>
<tr>
<td>Sit. B</td>
<td>.64***</td>
<td>.57***</td>
<td>.43***</td>
<td>.15</td>
</tr>
<tr>
<td>Sit. C</td>
<td>.62***</td>
<td>.59***</td>
<td>.38***</td>
<td>.05</td>
</tr>
</tbody>
</table>

Note.—N = 120.

1Standardized partial regression coefficient of variable in multiple regression equation

*p < .05

**p < .01

***p < .001
The standardized partial regression coefficients revealed that in five of nine situations the inclusion of the normative component failed to increase the variance accounted for above that accounted for by either the A-act (direct) or the A-act (good-bad) measure alone. As in the prediction of BI, A-act (indirect) was a relatively inadequate single predictor of OB. Addition of the A-act (indirect) measure to the normative component increased prediction of behavioral variance above that obtained using only the normative component in Situation B but not in Situation A or in Situation C.

Thus, Hypothesis II was only partially confirmed. The A-act (direct) and A-act (good-bad) measures did appear to function similarly as operationalizations of the attitudinal component of Fishbein's model. However, the A-act (indirect) measure demonstrated a pattern of relationship with the normative component, intentions, and behavior that was markedly different from the pattern of relationships obtained using the other two A-act measures.

Hypothesis III

Hypothesis III was a statement that the instrumentality model would be more highly related to BI and OB than any of the A-act measures or the two-component Fishbein model. The correlations of BI and OB with the instrumentality model's variables were obtained in each photograph release situation.
As shown in Table 8 neither BI nor OB was related significantly to either instrumentality measure in any of the situations. Hypothesis III was not supported.

Table 8. Correlations of intentions and behavior with measures of the instrumentality model and with measures of A-act.

<table>
<thead>
<tr>
<th>Behavioral Intentions</th>
<th>Valence of Immediate Forced Outcomes</th>
<th>A-act Measure</th>
<th>Direct</th>
<th>Indirect</th>
<th>Good-Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Situation A</td>
<td>.00</td>
<td>.07</td>
<td>.58***</td>
<td>.03</td>
<td>.56***</td>
</tr>
<tr>
<td>Situation B</td>
<td>.09</td>
<td>.10</td>
<td>.66***</td>
<td>.26**</td>
<td>.65***</td>
</tr>
<tr>
<td>Situation C</td>
<td>.08</td>
<td>.08</td>
<td>.65***</td>
<td>.25**</td>
<td>.68***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Actual Behavior</th>
<th>Valence of Immediate Forced Outcomes</th>
<th>A-act Measure</th>
<th>Direct</th>
<th>Indirect</th>
<th>Good-Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Situation A</td>
<td>.00</td>
<td>-.08</td>
<td>.60***</td>
<td>.05</td>
<td>.56***</td>
</tr>
<tr>
<td>Situation B</td>
<td>.00</td>
<td>-.06</td>
<td>.63***</td>
<td>.31**</td>
<td>.64***</td>
</tr>
<tr>
<td>Situation C</td>
<td>-.08</td>
<td>-.08</td>
<td>.63***</td>
<td>.20*</td>
<td>.62***</td>
</tr>
</tbody>
</table>

Note.—N = 120.

1Force = Expectancy X Valence of immediate outcomes

*p < .05  
**p < .01  
***p < .001
DISCUSSION

The discussion of these results is organized into four sections. First, this study's implications for Fishbein's behavioral intentions model are presented. Next, possible explanations for the ineffectiveness of the instrumentality model are discussed. The third section elaborates a criticism of this study that is common to any test of psychological models employing multiplicative variables. The final section contains a short discussion of the relation of OB with the various measures collected in this study.

Fishbein's Model of Behavioral Intentions

Has the strong relationship between the Fishbein model and behavioral intentions merely been an artifact due to the uncontrolled effects of knowledge of later OB measurement? Results of the present study suggest that this may have been the case. The presence of such knowledge (a) seems to be a necessary condition for the high correlations generally obtained with intentions and (b) may be a prerequisite for the normative component of the model contributing to explained BI variance beyond that of the attitudinal component alone.

To some extent these data supported Fishbein's contention that no variable "external" to the model will be related to intentions when the effects of the attitudinal and normative components are held constant. The additive effects
of the knowledge induction did not significantly increase explained BI or OB variance above that explained by the two-component model in any of the three release-signing situations. Moreover, the non-additive effects of the knowledge induction did not increase the explained BI variance in any of the three situations. These data failed to support an expanded model of behavioral intentions, one which was composed of Fishbein's model, knowledge of later OB measurement, and selected non-additive effects of these variables.

For several reasons the operationalization of the knowledge variable used in this study may have resulted in an underestimation of the variable's true utility in an expanded model of intentions.

In this study individual differences in the extent of knowledge were not considered. Since Fishbein's model allows for individual differences in A-act and NBNc, a test of an expanded model employing a variable not allowing such differences may have been inappropriate. By coding the knowledge induction dichotomously the variability of the induction's effectiveness across individuals was minimized. This may have attenuated the moderating effect of knowledge.

A related factor which may have led to an underestimate of the effects of knowledge was the operationalization of knowledge as a design variable, not as a self-report variable. Since Fishbein's model is cognitive, any expansion of
that model should ideally include cognitive variables operationalized as self-report measures. In the present study a more appropriate, self-report measure of knowledge might have been one of the manipulation checks collected at Session I. The most satisfactory single check was the one requiring judges to rate whether a subject's responses indicated that the subject believed that the major purpose of Session II would be to collect photographs and release statements.

Finally, regardless of the fact that subjects in the knowledge and no knowledge groups differed as groups concerning their anticipation of later release signing, there was undoubtedly a number of individuals in the knowledge condition who did not expect to have their attitudes and intentions tested against some criterion during the second session. Thus, there may have been no true knowledge condition. In future investigations of the effects of knowledge on Fishbein's model, a procedural strategy might be devised in which subject's expectancies of later criterion measurement are assessed at different stages of the study. At each stage subjects who expect no later measurement would be eliminated, thereby creating a true knowledge condition.

By eliminating certain data collected in the study and by repeating several of the regression analyses it was possible to determine the extent to which the above factors re-
sulted in a conservative estimate of the effects of the knowledge variable.

Instead of operationalizing the knowledge variable as a dichotomously coded design variable, the knowledge variable was operationalized as the subjects' judged Session I responses to the knowledge manipulation check. The specific measure used was the item requiring judges to rate whether a subject's responses indicated that the subject believed that the major purpose of Session II would be to collect photographs and release statements. To insure homogeneity of each knowledge subgroup, a subject's responses were eliminated from the analyses (a) if the subject had been assigned to the no knowledge subgroup but judges had rated the subject as expecting later criterion measurement (The mean of the judges' ratings on Statement 3 was greater than 2.5.) or (b) if the subject had been assigned to the knowledge subgroup but had not indicated in his responses an expectation of later criterion measurement (The mean of the judges' ratings on Statement 3 was less than 2.5.). The data of three subjects in the no knowledge condition and of 41 subjects in the knowledge condition were eliminated from the post hoc analyses.

After eliminating these data the second and third sets of analyses used to evaluate Hypotheses Ia and Ib were repeated. Adding a self-report knowledge component to
Fishbein's model produced no significant predictive increment for intentions or behavior in any of the three release signing situations. Addition of terms representing the interactions of the self-report knowledge variable and the components of Fishbein's model failed to significantly increase the magnitude of either intentions or behavior prediction above that obtained using only terms representing main effects of these variables.

These post hoc analyses revealed that the procedure used in this study did not result in overly conservative tests of the usefulness of expanding Fishbein's model to include the knowledge variable and selected non-additive effects.

The utility of the normative component of the Fishbein's model was affected markedly by the measure of A-act used and by the knowledge induction. When subjects knew that they would be given the opportunity to later sign release statements, the normative component contributed significantly to explained intentions variance beyond the variance explained by the attitudinal component. When subjects had no knowledge, there was no such significant increment.

If the normative beliefs manipulation had been successful, the normative component might have been weighted significantly in the subgroup analyses for both knowledge subgroups. In other words the normative component may be significantly weighted only when the behavior of others is
unambiguously perceived and their attitudes clearly inferred. However, such an argument assumes that in this study other students were the salient referents in the situation. Such an interpretation may be questionable. Pilot Study II indicated that three referents were important in each situation: closest friends, parents, and other students. In the experiment an attempt was made to manipulate the subject's perception of the attitude of only one of these three referents. Thus, even successful manipulation of subjects' perceptions of the attitudes of other students may not have affected the total set of outcomes, "pleasing or displeasing relevant others."

What did affect a subject's perception of other students' willingness to sign release statements was the extent of the subject's knowledge of his own later OB measurement. If the subject knew that his own OB would be assessed later he considered it less probable that other students would sign releases.

Thus, in this study manipulation of knowledge may have affected the subject's normative beliefs. This may explain the effect of the different knowledge conditions on the regression weights of the normative component. Manipulation of the knowledge variable affected Fishbein's model exactly as would be predicted if one were attempting to manipulate the importance of perceived attitude of others in predicting
intentions.

This result may provide a means of extending Fishbein's model of intention prediction and attitude change to relatively uncontrolled field situations. In most field situations a variety of referents may be important in determining normative beliefs. Changing intentions by manipulating each of these referent's perceived attitude toward the act may be impractical, much as it was in the present study (e.g., How would one manipulate each individual's perception of the attitude of his "closest friends"?). An alternative procedure with the same effect may be simply to manipulate the individual's knowledge of later OB measurement.

Instrumentality Theory as a Model of Behavioral Intentions

What is the relationship between Fishbein's concept of intentions and the instrumentality models of Vroom (1964) and others? The position taken in this study was that Fishbein's measures of BI were quite similar to Vroom's conceptualization of force. Fishbein's model of behavioral intentions was thought to represent an alternative means of formulating action-outcome probabilities and outcome evaluations. Given the ineffectiveness obtained of either force or valence measures in predicting intentions, a reassessment of these assumptions is warranted.
In Vroom's model perceived performance is conceived to be a multiplicative function of the individual's perceived ability to perform and his force or motivation to perform. It is proposed here that Fishbein's measure of BI is quite similar operationally to measures of self-perceived performance. However, the two concepts—intentions and self-perceived performance—are distinct. Intentions refer to evaluation of the probability of committing future behaviors. Self-perceived performance refers to the individual's evaluation of his current level of performance, based presumably on his past behavior.

But the cognitions involved in stating one's intentions and stating one's evaluation of one's own behavior would actually be quite similar. For instance, in stating one's intention, an individual might say to himself, "Based on what I know now and have experienced in the past, I can extrapolate that I would perform the act at this particular level of probability." In stating self-evaluation of performance, the individual might think, "Based on what I know now and have experienced in the past, I can extrapolate that I am performing at this particular level." Thus, the appropriate criterion for both the Fishbein model of behavioral intentions and the Vroom model of performance is an individual's estimate of his own position on a psychological continuum.
Since Vroom conceives of self-perceived performance as a multiplicative function of ability and force, the inadequate prediction of intentions by the instrumentality model may have been due to the fact that in this study no measure of ability was included in the model. If it is assumed that when predicting intentions the knowledge variable operates similarly to the ability variable, then the knowledge variable should interact with force in predicting intentions. This can be tested by post hoc examination of the correlations between force and intentions in each knowledge condition. To the extent that the correlation between force and intentions is higher for subjects with knowledge (a high level of "ability") than for subjects with no knowledge (a low level of "ability") the revised formulation of intentions and Vroom's model would be supported.

The correlations between BI and force in each knowledge group were obtained. The correlations between BI and force in the no knowledge group remained non-significant for each situation. However, in the knowledge subgroup the correlation between BI and force approached significance in two of the three situations (Situation B, r = .23, p < .10; Situation C, r = .21, p < .10). This post hoc analysis provides limited support for the above reinterpretation of instrumentality theory as a model of behavioral intentions.
Several other methodological problems in measuring the instrumentality model's variables may have contributed to the instrumentality model's ineffectiveness. First, only a limited number of outcomes of action were included in this study. Although some evidence exists that a limited number of listed outcomes is adequate (Rosenberg, 1956) and care was taken to insure that the most salient outcomes were selected, the list of outcomes certainly was not exhaustive and may have been irrelevant for a substantial number of subjects. For example, the outcome "obtaining more dates" was selected on the basis of responses from a sample of subjects predominantly single. In contrast, one-quarter of the subjects included in the present study were married and may have considered the outcome, "obtaining more dates" as an irrelevant outcome of having their photograph used in the situations.

In addition, instrumentalities (outcome-outcome probabilities) may have been inadequately represented. Subjects were not explicitly instructed to consider the relationship between the immediate outcome of having their photograph actually used in each situation and the listed non-immediate outcome as ranging from a high probability of occurrence (+1.0) to a high probability of non-occurrence (-1.0). Because of the ambiguity of the bipolar anchors subjects may have interpreted the anchors of these items as a
highly probable occurrence of an outcome-outcome relationship (+1.0) and a very low probability of occurrence of an outcome-outcome relationship (+0.0).

Finally, the method used to measure the valence and instrumentality of non-immediate outcomes was a marked departure in format from the methods used in previous studies of instrumentality theory (i.e., Galbraith & Cummings, 1967). For example, instead of using a format in which several Thurstone-type scaled statements of relationship constituted each instrumentality measure, a single item, bipolar adjective format was used. It may be that this latter format is so ambiguous or so susceptible to types of rating bias that the format should not be used in operationalizing instrumentality theory.

Scale Factors and Multiplicative Variables

A problem existed in this study that is applicable to any test of psychological models operationalized as multiplicative variables.¹ Psychological theories usually are conceptualized in terms of variables measured on a ratio scale. However, in operationalizing a theoretical model, the investigator must be aware that the scales he uses are

¹This general criticism was suggested by Dr. Wolins and Dr. Dickinson.
imperfect representations of theoretical constructs (i.e., representations having interval properties at best).

Theorists using the instrumentality model have focused on the multiplicative relationships between such variables as expectancy, valence, and instrumentality. They have considered the product of these variables as the only variable of interest because of its theoretical importance. Thus, statistical models actually employed to determine the relationship of the instrumentality model with other variables have contained a single term representing the interaction between these three variables. However, such a representation is surely inaccurate. In terms of measurement theory, each variable used to form a product contains a true score component, an error component, and an intercept component. In multiplying one variable by a second to form a product, not only does one obtain products and cross-products of true scores and error, but also products of the intercepts and their cross-products with true scores and error. By ignoring the intercept component in operationalizing the instrumentality model, investigators have failed to test the actual instrumentality model.

In order to accurately test the model the investigator must include in a multiple regression equation the terms of theoretical interest—usually second- or third-order interactions—and all lower-order interactions and main
effects.

For example, in the present study the relationship between the various criteria and the instrumentality model should have been determined using a model composed of an Expectancy X Valence X Instrumentality component, an Expectancy X Valence component, an Expectancy X Instrumentality component, a Valence X Instrumentality component, an Expectancy component, a Valence component, and an Instrumentality component. The fact that only the Expectancy X Valence X Instrumentality component or only the Valence X Instrumentality component was used to predict intentions and behavior may have resulted in a considerably inaccurate estimate of the effects of Vroom's multiplicative model.

This same criticism may be made of the comparisons among different operationalizations of Fishbein's model made in this study. It was found that the different operationalizations of A-act were not equivalent when used in Fishbein's model. Specifically, the A-act (indirect) measure functioned quite differently from the A-act (direct) and A-act (good-bad) measures. The similarity of results obtained when using the A-act (direct) and A-act (good-bad) measures was not surprising. Not only was the A-act (good-bad) measure obtained as an item in the A-act (direct) scale, but both measures were operationalized non-multiplicatively. However, the disparate results obtained using the A-act
(indirect) measure may have been because A-act (indirect) was operationalized as a single Attitude X Belief component rather than as an Attitude X Belief component, an Attitude component, and a Belief component.

A number of investigators have found a slight attenuation in criterion prediction when the normative component of Fishbein's model was operationalized as a multiplicative variable (NBMc) rather than as a non-multiplicative variable (NB) (Ajzen & Fishbein, 1972b). This attenuation may have been because the multiplicative normative component was never operationalized properly. To correct the normative component, three components should represent the relationship in a multiple regression equation: a NB X Mc component, a NB component, and a Mc component. This was not done in the present study but should be included in any future investigations of Fishbein's model of behavioral intentions.

The Prediction of Overt Behavior

In the present study the conditions for prediction of behavior from models of intentions were maximized. The measurement of attitudes and of intentions occurred within one hour and OB was measured approximately 24 hours later for each subject. In addition, highly specific behaviors in highly specific situations were predicted.
As a result the correlations of both the intentions model and behavioral intentions with behavior were quite high. The multiple correlations of Fishbein's model were as high as and in some cases higher than the correlations reported by Ajzen and Fishbein (1972b) of intentions and behavior in various laboratory situations.

The hypotheses predicting greater consistency between Session I measures of intentions and Session II OB for subjects with knowledge of Session II OB measurement were not supported. The probable explanation is quite simple.

In the procedure of the experiment the knowledge induction performed at Session I may have been equalized between groups before the OB measures were collected. Immediately before being videotaped at Session II, all subjects were told that in a few minutes they would be given the opportunity to sign release statements. It is probable that at this point in the experiment all subjects had knowledge of OB measurement.

It is doubtful whether OB could be obtained in the photograph release signing paradigm without inducing prior expectancies of OB measurement at some point in the photograph session. An adequate test of the effects of knowledge of later OB measurement on the effectiveness of intention models in predicting behavior might be made by devising a situation where OB measures are collected using various types
CONCLUSIONS

1. When a subject knew before expressing his attitudes or intentions that a behavioral criterion would be collected later, the consistency between the variables in Fishbein's intentions model and BI was increased.

2. The knowledge variable manipulated in the study affected not only the magnitude of intention prediction but also the utility of the normative component of Fishbein's model.

3. No evidence was obtained supporting the utility of an expanded model of intentions composed of Fishbein's model, knowledge of later OB measurement, and selected non-additive effects of these variables.

4. Although they were significantly intercorrelated, the different measures of A-act were not interchangable operationalizations of the attitudinal component of Fishbein's model.

5. The attempt to extend instrumentality theory to the prediction of intentions was unsuccessful.
ACKNOWLEDGEMENTS

I would like to thank my advisory committee members—Dr. David Edwards, Dr. Arnold Kahn, Dr. Clifford Smith, and Dr. Jan Wijting—for their critical comments and encouragement in the preparation of this manuscript.

Several persons aided in the data collection and the analyses. Mr. Ron Parker served as the uniformed Army R.O.T.C. confederate in the study. The questionnaire items checking the knowledge manipulation were rated by Mr. John Ruffner and Ms. Nancy Tice. Their help was greatly appreciated.

Special thanks must go to my major professors, Dr. Terry Dickinson and Dr. Leroy Wolins. Both provided constructive criticism of the dissertation during its development and suggested several analyses of the data which effectively strengthened the conclusions reached.
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APPENDIX A

SESSION 1 MANIPULATIONS OF KNOWLEDGE:

KNOWLEDGE ABSENT
Introduction. One of the more pressing problems in government manpower utilization is the recruitment and retention of personnel in federal occupations. The present study is one of a series of studies being conducted in various educational settings across the country to determine the state of career preferences among college youth and, more importantly, the factors influencing those preferences.

The purpose of this study is to measure your feelings toward various aspects of the military. When you agreed to participate in this study, you were told that it would involve two evening sessions, the first lasting approximately one hour and the second lasting approximately 45 minutes.

The purpose of the session tonight is to obtain some biographical information about you and to obtain some data concerning R.O.T.C., which will be helpful in expansion of this study here at I.S.U. next fall.

The questionnaire booklet that you will complete tonight contains five sections. The directions for each section are self-explanatory. However, if you have any questions concerning what you are to do in any of the sections, raise your hand after you have read the section's instructions, and the questionnaire administrator will answer your individual question.

It should take you the full 60 minutes tonight to complete this questionnaire booklet if you do an adequate job of carefully considering each response that you make. To minimize confusion, no one may leave early. If you do finish early, wait quietly until the questionnaire administrator dismisses you.

When you return for the second session tomorrow night, you will complete another group of attitude measures tapping your perception of various aspects of actual military life. These measures will determine the correspondence between your expectations of what it is like to be in the military and what psychologists have actually determined it to be like.
Instructions. When you report for the second session tomorrow night, you will fill out several attitude questionnaires.

YOU ARE TO COME AT ____________ P.M. TOMORROW NIGHT TO ROOM ____________; PEARSON HALL. Wait outside the room until you are instructed to go in.

Please complete the information below:

YOUR NAME: ____________________________________________

YOUR CAMPUS ADDRESS: ____________________________________________

YOUR CAMPUS PHONE: ____________________ - ______________________

IN WHICH PSYCHOLOGY COURSE(S) ARE YOU NOW ENROLLED?

PSYCHOLOGY (Number) ____________ (Name of course)

PSYCHOLOGY (Number) ____________ (Name of course)

PSYCHOLOGY (Number) ____________ (Name of course)
APPENDIX B

SESSION I MANIPULATIONS OF KNOWLEDGE:

KNOWLEDGE PRESENT
Introduction. One of the more pressing problems in government manpower utilization is the recruitment and retention of personnel in federal occupations. The present study is one of a series of studies being conducted in various educational settings across the country to determine the state of career preferences among college youth and, more importantly, the factors influencing those preferences.

The purpose of this study is to measure your feelings toward various aspects of the military. When you agreed to participate in this study, you were told that it would involve two evening sessions, the first lasting approximately one hour and the second lasting approximately 45 minutes.

The purpose of the session tonight is to obtain some biographical information about you and to obtain some data concerning R.O.T.C., which will be helpful in expansion of this study here at I.S.U. next fall.

The questionnaire booklet that you will complete tonight contains five sections. The directions for each section are self-explanatory. However, if you have any questions concerning what you are to do in any of the sections, raise your hand after you have read the section's instructions, and the questionnaire administrator will answer your individual question.

It should take you the full 60 minutes tonight to complete this questionnaire booklet if you do an adequate job of carefully considering each response that you make. To minimize confusion, no one may leave early. If you do finish early, wait quietly until the questionnaire administrator dismisses you.

When you return for the second session tomorrow night, you will complete another group of attitude measures tapping your perception of various aspects of actual military life. These measures will determine the correspondence between your expectations of what it is like to be in the military and what psychologists have actually determined it to be like.

You will also have the opportunity to interact with an Army R.O.T.C. cadet. You will be photographed with the cadet and given the opportunity to sign release forms allowing us to use the photograph of you and the cadet in various public situations.
Instructions. When you report for the second session tomorrow night, you will fill out several attitude questionnaires and actually be photographed with an Army R.O.T.C. cadet. You will be given the opportunity to allow your photograph to be used in a variety of public situations.

YOU ARE TO COME AT ___________ p.m. TOMORROW NIGHT TO ROOM __________

PEARSON HALL ___________. Wait outside the room until you are instructed to go in.

Please complete the information below:

YOUR NAME: ____________________________________________________________

YOUR CAMPUSS ADDRESS: ______________________________________________

YOUR CAMPUS PHONE: ___________ - _________________________________

IN WHICH PSYCHOLOGY COURSES ARE YOU NOW ENROLLED?

PSYCHOLOGY
(Number) ___________________________ (Name of course)

PSYCHOLOGY
(Number) ___________________________ (Name of course)

PSYCHOLOGY
(Number) ___________________________ (Name of course)
SECTION A

Instructions. Complete the following information about yourself. Where applicable, respond to the items by placing an "X" on the line between a pair of colons for the pair of adjectives.

Example, Incorrect--
Correct--

1. Your sex (Circle one.)? Female Male
2. Your marital status (Circle one.)? Single Married
3. Number of quarters (or equivalent) of college completed: ______
4. Your age on your last birthday (in years): ______
5. Have you served on active duty in the Armed Forces (Circle one.)? Yes No
6. Are you now a member of the Reserves, R.O.T.C., or the National Guard (Circle one.)? Yes No
7. If you are not now or never have been a member of the Armed Forces, do you expect to enter military service?
   Probable Improbable
8. Would you consider your background as rural (small town, etc.) or urban (large metropolitan area, large city, etc.)?
   very urban very rural
9. In approximately how many psychology experiments have you participated prior to this study? ______
10. In general you would expect to find participation in psychology experiments to be...
    interesting boring
APPENDIX D.

HIGHLY FAVORABLE NORMATIVE BELIEF MANIPULATION
Instructions. The purpose of this section is to obtain your attitudes toward different kinds of situations involving interaction between Army R.O.T.C. cadets and yourself.

The basic situation is your allowing a photograph of you and an Army R.O.T.C. cadet to be publically displayed in a variety of situations. Whenever a photograph is to be used for any type of public presentation, it is customary to obtain a statement from the people in the photograph which gives permission for use of the photograph. These types of statements are called "photograph release statements."

In a small, but representative, sample of I.S.U. students last quarter, it was observed that students have attitudes strongly in favor of signing such forms. About nine students in ten (90%) said they would sign the photograph release forms.

On the next several pages are a number of situations and a number of pairs of adjectives. Respond to each item by placing an "X" between a pair of colons for each pair of adjectives. Be sure to place your "X" on the line between a pair of colons.

Examples.

**INCORRECT**

<table>
<thead>
<tr>
<th>good</th>
<th>bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>probable</td>
<td>improbable</td>
</tr>
</tbody>
</table>

**CORRECT**

<table>
<thead>
<tr>
<th>good</th>
<th>bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>probable</td>
<td>improbable</td>
</tr>
</tbody>
</table>
APPENDIX E

HIGHLY UNFAVORABLE NORMATIVE BELIEF MANIPULATION
Instructions. The purpose of this section is to obtain your attitudes toward
different kinds of situations involving interaction between Army R.O.T.C. cadets
and yourself.

The basic situation is your allowing a photograph of you and an Army R.O.T.C. cadet
to be publicly displayed in a variety of situations. Whenever a photograph is
to be used for any type of public presentation, it is customary to obtain a state­
ment from the people in the photograph which gives permission for use of the
photograph. These types of statements are called "photograph release statements."

In a small, but representative, sample of I.S.U. students last quarter, it was
observed that students have attitudes strongly opposed to signing such forms.
About one student in ten (10%) said he would sign the photograph release forms.

On the next several pages are a number of situations and a number of pairs of
adjectives. Respond to each item by placing an "X" between a pair of colons for
each pair of adjectives. Be sure to place your "X" on the line between a pair
of colons...

Examples.

INCORRECT

<table>
<thead>
<tr>
<th>good</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>X</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>probable</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CORRECT

<table>
<thead>
<tr>
<th>good</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>X</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>probable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
APPENDIX F

MEASURES OF THE FISHBEIN AND INSTRUMENTALITY MODELS
SECTION B (continued)

SITUATION A. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in large lecture sections of introductory sociology, psychology, and political science to request volunteers for laboratory studies in psychology and communications. Your name will not appear with the photograph.

Place one "X" on each line below between a pair of colons.

1. Signing a release for Situation A
   - good: ______ ______ ______ ______ ______ ______ ______ ______
   - bad: ______ ______ ______ ______ ______ ______ ______ ______
   - foolish: ______ ______ ______ ______ ______ ______ ______ ______
   - wise: ______ ______ ______ ______ ______ ______ ______ ______
   - harmful: ______ ______ ______ ______ ______ ______ ______ ______
   - beneficial: ______ ______ ______ ______ ______ ______ ______ ______
   - rewarding: ______ ______ ______ ______ ______ ______ ______ ______
   - punishing: ______ ______ ______ ______ ______ ______ ______ ______

2. What kinds of personal consequences would result from your signing the release for Situation A?
   - good: ______ ______ ______ ______ ______ ______ ______ ______
   - bad: ______ ______ ______ ______ ______ ______ ______ ______

3. How likely would it be that either good or bad personal consequences would result from your signing a release statement for Situation A?
   - probable: ______ ______ ______ ______ ______ ______ ______ ______
   - improbable: ______ ______ ______ ______ ______ ______ ______ ______

4. Other students would expect you to sign the release for Situation A,
   - probable: ______ ______ ______ ______ ______ ______ ______ ______
   - improbable: ______ ______ ______ ______ ______ ______ ______ ______

5. Your closest friends would expect you to sign the release for Situation A,
   - probable: ______ ______ ______ ______ ______ ______ ______ ______
   - improbable: ______ ______ ______ ______ ______ ______ ______ ______

6. Your parents would expect you to sign the release for Situation A,
   - probable: ______ ______ ______ ______ ______ ______ ______ ______
   - improbable: ______ ______ ______ ______ ______ ______ ______ ______

7. In general, how much do you want to do what most people who are important to you think you should do?
   - You want very much: ______ ______ ______ ______ ______ ______ ______ ______
   - You want very much not to do what most people who are important to you think you should do: ______ ______ ______ ______ ______ ______ ______ ______

IF THE PHOTOGRAPH WERE ACTUALLY USED IN SITUATION A, HOW PROBABLE WOULD IT BE...

8. ...that you would become better known on campus?
   - probable: ______ ______ ______ ______ ______ ______ ______ ______
   - improbable: ______ ______ ______ ______ ______ ______ ______ ______

9. ...that your friends would like you less?
   - probable: ______ ______ ______ ______ ______ ______ ______ ______
   - improbable: ______ ______ ______ ______ ______ ______ ______ ______

10. ...that campus discussion of R.O.T.C. would be encouraged?
    - probable: ______ ______ ______ ______ ______ ______ ______ ______
    - improbable: ______ ______ ______ ______ ______ ______ ______ ______

11. ...that you would be identified as a supporter of R.O.T.C.?
    - probable: ______ ______ ______ ______ ______ ______ ______ ______
    - improbable: ______ ______ ______ ______ ______ ______ ______ ______

12. ...that you would obtain more dates?
    - probable: ______ ______ ______ ______ ______ ______ ______ ______
    - improbable: ______ ______ ______ ______ ______ ______ ______ ______

13. ...that other students would harass you (i.e., verbal abuse, social isolation, anonymous phone calls)?
    - probable: ______ ______ ______ ______ ______ ______ ______ ______
    - improbable: ______ ______ ______ ______ ______ ______ ______ ______
SECTION B (continued)

SITUATION A. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in large lecture sections of introductory sociology, psychology, and political science to request volunteers for laboratory studies in psychology and communications. Your name will not appear with the photograph.

Place one "X" between a pair of colons for each line below.

IF THE PHOTOGRAPH WERE ACTUALLY USED IN SITUATION A, HOW PROBABLE WOULD IT BE...

14. ...that volunteering for laboratory studies in psychology would be encouraged?
   probable  improperable

15. If you signed a release statement for Situation A, how likely do you think it would be that your photograph actually would be used for the purpose described in Situation A?
   probable  improperable

SITUATION B. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used for a publicity campaign about a university event. The picture will appear in the Iowa State Daily, the Ames Tribune, and the paper your parents and their friends read. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

16. Signing a release for Situation B
   good  bad
   foolish  wise
   harmful  beneficial
   rewarding  punishing

17. What kinds of personal consequences would result from your signing the release for Situation B?
   good  bad

18. How likely would it be that either good or bad personal consequences would result from your signing a release statement for Situation B?
   probable  improperable

19. Other students would expect you to sign the release for Situation B.
   probable  improperable

20. Your closest friends would expect you to sign the release for Situation B.
   probable  improperable

21. Your parents would expect you to sign the release for Situation B.
   probable  improperable

22. In general, how much do you want to do what most people who are important to you think you should do?
   You want very much  You want very much not to do what most people who are important to you think you should do.
SECTION B (continued)

SITUATION B. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used for a publicity campaign about a university event. The picture will appear in the Iowa State Daily, the Ames Tribune, and the paper your parents and their friends read. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

IF THE PHOTOGRAPH WERE ACTUALLY USED IN SITUATION B, HOW PROBABLE WOULD IT BE...?

23. ...that you would become better known on campus?
   probable | | | | | | | | | improbable

24. ...that your friends would like you less?
   probable | | | | | | | | | improbable

25. ...that campus discussion of R.O.T.C. would be encouraged?
   probable | | | | | | | | | improbable

26. ...that you would be identified as a supporter of R.O.T.C.?
   probable | | | | | | | | | improbable

27. ...that you would obtain more dates?
   probable | | | | | | | | | improbable

28. ...that other students would harass you (i.e., verbal abuse, social isolation, anonymous phone calls)?
   probable | | | | | | | | | improbable

29. ...that your parents and their friends would be proud of you?
   probable | | | | | | | | | improbable

30. If you signed a release statement for Situation B, how likely do you think it would be that your photograph actually would be used for the purpose described in Situation B?
   probable | | | | | | | | | improbable

SITUATION C. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in university residence halls and houses to publicize a university event sponsored by Army R.O.T.C. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

31. Signing a release for Situation C
   
   good | | | | | | | | | bad
   foolish | | | | | | | | | wise
   harmful | | | | | | | | | beneficial
   rewarding | | | | | | | | | punishing

32. What kinds of personal consequences would result from your signing the release for Situation C?
   
   good | | | | | | | | | bad

33. How likely would it be that either good or bad personal consequences would result from your signing a release statement for Situation C?
   probable | | | | | | | | | improbable
SITUATION C. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in university residence halls and houses to publicize a university event sponsored by Army R.O.T.C. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

34. Other students would expect you to sign the release for Situation C.
   probable    improbable

35. Your closest friends would expect you to sign the release for Situation C.
   probable    improbable

36. Your parents would expect you to sign the release for Situation C.
   probable    improbable

37. In general, how much do you want to do what most people who are important to you think you should do?
   You want very much    You want very much not
   to do what most people who are important to you
   think you should do.

IF THE PHOTOGRAPH WERE ACTUALLY USED IN SITUATION C, HOW PROBABLE WOULD IT BE...

38. ...that you would become better known on campus?
   probable    improbable

39. ...that your friends would like you less?
   probable    improbable

40. ...that campus discussion of R.O.T.C. would be encouraged?
   probable    improbable

41. ...that you would be identified as a supporter of R.O.T.C.?
   probable    improbable

42. ...that you would obtain more dates?
   probable    improbable

43. ...that other students would harass you (i.e., verbal abuse, social isolation, anonymous phone calls)?
   probable    improbable

44. If you signed a release statement for Situation C, how likely do you think it would be that your photograph actually would be used for the purpose described in Situation C?
   probable    improbable
45. Evaluate the following phrases.

... becoming better known on campus
  good | | | | | | | bad

... having your friends like you less
  good | | | | | | | bad

... encouraging campus discussion of R.O.T.C.
  good | | | | | | | bad

... being identified as a supporter of R.O.T.C.
  good | | | | | | | bad

... obtaining more dates
  good | | | | | | | bad

... being harrassed by other students (i.e., verbal abuse, social isolation, anonymous phone calls)
  good | | | | | | | bad

... making your parents and their friends proud of you
  good | | | | | | | bad

... encouraging volunteers for laboratory studies in psychology
  good | | | | | | | bad
APPENDIX G

MEASURES OF BEHAVIORAL INTENTIONS
SITUATION A. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in large lecture sections of introductory sociology, psychology, and political science to request volunteers for laboratory studies in psychology and communications. Your name will not appear with the photograph.

SITUATION B. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used for a publicity campaign about a university event. The picture will appear in the Iowa State Daily, the Ames Tribune, and the paper your parents and their friends read. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

SITUATION C. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in university residence halls and houses to publicize a university event sponsored by Army R.O.T.C. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

How probable would it be that you, personally, would actually sign a photograph release statement in each of the situations above? Indicate that probability by writing a number from 1 to 99 on the space below near each photograph release statement. If you consider it highly probable that you would sign a release statement, write "99" in the space near the statement. If you consider it highly improbable, write "1" in the space near the statement. In general, use the following scale:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Improbable</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Nor Probable</td>
<td>Improbable</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Your Response

You would sign a photograph release statement for Situation A.

You would sign a photograph release statement for Situation B.

You would sign a photograph release statement for Situation C.
APPENDIX H

AB SCALE FOR MEASURING ATTITUDE TOWARDS ARMY R.O.T.C.
**SECTION C**

**Instructions.** Below are 20 sets of adjectives designed to measure your attitude towards the phrase, "Army R.O.T.C." You are to place an "X" between a pair of colons for each pair of adjectives. It is extremely important that you place one "X" on each of the 20 lines.

DO NOT OMIT MARKING ANY PAIR OF ADJECTIVES. Be sure to place an "X" between a pair of colons.

**Example.**

Incorrect— educated | ignorant

Correct— educated | ignorant

---

(ARMY R.O.T.C.)

<table>
<thead>
<tr>
<th>rational</th>
<th>intuitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>harmful</td>
<td>beneficial</td>
</tr>
<tr>
<td>wise</td>
<td>foolish</td>
</tr>
<tr>
<td>dirty</td>
<td>clean</td>
</tr>
<tr>
<td>successful</td>
<td>unsuccessful</td>
</tr>
<tr>
<td>impossible</td>
<td>possible</td>
</tr>
<tr>
<td>educated</td>
<td>ignorant</td>
</tr>
<tr>
<td>cruel</td>
<td>kind</td>
</tr>
<tr>
<td>graceful</td>
<td>awkward</td>
</tr>
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<td>potent</td>
<td>impotent</td>
</tr>
<tr>
<td>false</td>
<td>true</td>
</tr>
<tr>
<td>active</td>
<td>passive</td>
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<td>existent</td>
<td>nonexistent</td>
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<td>good</td>
</tr>
<tr>
<td>probable</td>
<td>improbable</td>
</tr>
<tr>
<td>skeptical</td>
<td>believing</td>
</tr>
<tr>
<td>unlikely</td>
<td>likely</td>
</tr>
<tr>
<td>honest</td>
<td>dishonest</td>
</tr>
<tr>
<td>sick</td>
<td>healthy</td>
</tr>
<tr>
<td>strong</td>
<td>weak</td>
</tr>
</tbody>
</table>
APPENDIX I

SESSION I CHECKS ON THE EXPERIMENTAL MANIPULATIONS
Instructions. This section is designed to measure your attitudes toward the branches of the Armed Forces. Also included are several items concerning your perceptions of the experiment so far.

Place an "X" between a pair of colons for each of the service branches listed below.

### (ARMY)

<table>
<thead>
<tr>
<th>good</th>
<th>harmful</th>
<th>foolish</th>
<th>rewarding</th>
<th>bad</th>
<th>beneficial</th>
<th>wise</th>
<th>punishing</th>
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### (NAVY)

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<th>rewarding</th>
<th>bad</th>
<th>beneficial</th>
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</table>

### (MARINES)

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<thead>
<tr>
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<th>foolish</th>
<th>rewarding</th>
<th>bad</th>
<th>beneficial</th>
<th>wise</th>
<th>punishing</th>
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</table>

### (AIR FORCE)

<table>
<thead>
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<th>rewarding</th>
<th>bad</th>
<th>beneficial</th>
<th>wise</th>
<th>punishing</th>
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</tr>
</tbody>
</table>

To what extent would other students expect you to sign photograph release statements?

<table>
<thead>
<tr>
<th>strongly expect you to sign</th>
<th>strongly expect you not to sign</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
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</tbody>
</table>
Describe in a few short phrases (a) what the purpose of this evening's session is and (b) what you have done in the study so far.

(a)

(b)

Describe in a few short phrases (a) what the purpose of the second session will be and (b) what you expect to do in the second session.

(a)

(b)
APPENDIX J

ATTITUDE TOWARDS MILITARY LIFE QUESTIONNAIRE
ATTITUDE TOWARDS MILITARY LIFE

Introduction. The purpose of this questionnaire is to measure your perception of various aspects of actual military life. These measures will determine the correspondence between your expectations of what it is like and what psychologists have determined it to be like.

Instructions. Indicate how descriptive or nondescriptive of actual military life you consider the statements below. For each of the 20 items write a number from 1 to 99 in the space next to the statement. If you consider the statement highly descriptive of actual military life, write "99" in the space near the statement. If you consider the statement highly nondescriptive of actual military life, write "1" in the space near the statement. In general use the following scale:

<table>
<thead>
<tr>
<th>1</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
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<th>70</th>
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<th>90</th>
<th>99</th>
</tr>
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<tbody>
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<td></td>
<td></td>
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</tbody>
</table>

Your Response

1. In general, life on most military installations is similar to life in most small towns in the United States.

2. Prices in supermarkets on military bases are usually less than half what prices are in ordinary chain supermarkets.

3. As a member of the Armed Forces or as the wife of a member of the Armed Forces, you generally are under little social pressure to join clubs and local civic organizations.

4. On each military base the government maintains schools for children of service personnel which are completely independent of the civilian school system.

5. The sale and use of alcoholic beverages on a military base is controlled by means of a government liquor store.

6. Major medical and dental bills of servicemen and their dependents are generally paid by the government.

7. Service personnel typically accumulate a total of 60 days leave per year.

8. Drugs have created less problems on military bases in the continental United States than have racial conflicts.

9. The divorce rate among military families is higher than the divorce rate in the general civilian population.

10. Personal loans for small sums of money may be obtained by service men and women from military base funds.

11. Family housing conditions on the typical military base are below the national standard.

12. Career servicemen and their families move more often than the typical corporate middle-level manager.

13. Promotions in the military are based more on seniority than on merit.

14. "Cultural shock" or the problem involved in a serviceman and his family adapting to living in foreign countries is a major problem of military life.
15. Servicemen and their wives are generally separated by duty assignments about one-half of their married lives. 

16. With the recent pay increases the salary of most military personnel is competitive with civilian salaries and wages. 

17. A single man or woman is preferred to a married man or woman as a career officer or non-commissioned officer. 

18. Women are being recruited at a sharply increased rate by the military and assigned non-combat support roles. 

19. Military families typically do less long-range family planning than do civilian families. 

20. As a member of the Armed Forces on active duty, both you and your family are protected by the military Code of Justice which supercedes, in your cases, the normal civilian courts and codes.
APPENDIX K

VIDEOTAPE EVALUATION QUESTIONNAIRE
Instructions. Observe the replay of your videotaped picture, and then complete the questions below. Indicate how you feel about each question by placing an "X" between a pair of colons.

1. How often are you in a photograph of some kind?
   - very often (more than once per week)
   - very seldom (less than once per year)

2. Whenever you are in front of a camera, you feel
   - comfortable
   - uncomfortable

3. When being photographed for this videotape, you felt
   - comfortable
   - uncomfortable

4. The R.O.T.C. cadet with whom you were photographed in this videotape seemed to be
   - comfortable
   - uncomfortable

5. The R.O.T.C. cadet in the picture with you is
   - handsome
   - ugly

6. The videotape of you is
   - good
   - bad

7. The photograph of you to be made from the videotape will be
   - good
   - bad

8. Usually you think that photographs of yourself are
   - good
   - bad

9. In general, the other students' videotapes/photographs filmed tonight were
   - good
   - bad

10. How does your videotape/photograph compare to the other students' videotapes/photographs filmed tonight?
    - much better
    - much worse
APPENDIX L

MEASURES OF OVERT BEHAVIOR: PHOTOGRAPH RELEASE STATEMENTS
SITUATION A. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in large lecture sections of introductory sociology, psychology, and political science to request volunteers for laboratory studies in psychology and communications. Your name will not appear with the photograph.

Please sign one of the photograph release statements below.

1. I will not allow the use of my photograph in Situation A.

   __________________________
   (Signature)

2. I am unwilling at the present time to allow my photograph to be used in Situation A. I will have to consider further possible consequences of my photograph being used in this situation and may change my mind if contacted next fall.

   __________________________
   (Signature)

3. I will permit my photograph to be used in Situation A but would prefer that my photograph be used in some other, less public way. I understand that such an alternate use of my photograph is highly unlikely.

   __________________________
   (Signature)

4. I will permit my photograph to be used in Situation A with no qualifications, whatsoever.

   __________________________
   (Signature)

5. I will permit my photograph to be used in Situation A. I would also be willing to participate in future photograph sessions designed to obtain photographs for use in this situation. I understand that I would receive no money or research participation credits for these future sessions.

   __________________________
   (Signature)

VIDEOTAPE SEGMENT NUMBER __________
SITUATION B. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used for a publicity campaign about a university event. The picture will appear in the Iowa State Daily, the Ames Tribune, and the paper your parents and their friends read. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

Please sign one of the photograph release statements below.

1. I will not allow the use of my photograph in Situation B.

   ____________________________
   (Signature)

2. I am unwilling at the present time to allow my photograph to be used in Situation B. I will have to consider further possible consequences of my photograph being used in this situation and may change my mind if contacted next fall.

   ____________________________
   (Signature)

3. I will permit my photograph to be used in Situation B but would prefer that my photograph be used in some other, less public way. I understand that such an alternate use of my photograph is highly unlikely.

   ____________________________
   (Signature)

4. I will permit my photograph to be used in Situation B with no qualifications, whatsoever.

   ____________________________
   (Signature)

5. I will permit my photograph to be used in Situation B. I would also be willing to participate in future photograph sessions designed to obtain photographs for use in this situation. I understand that I would receive no money or research participation credits for these future sessions.

   ____________________________
   (Signature)
SITUATION C. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in university residence halls and houses to publicize a university event sponsored by Army R.O.T.C. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

Please sign one of the photograph release statements below.

1. I will not allow the use of my photograph in Situation C.
   
   ___________________________
   (Signature)

2. I am unwilling at the present time to allow my photograph to be used in Situation C. I will have to consider further possible consequences of my photograph being used in this situation and may change my mind if contacted next fall.

   ___________________________
   (Signature)

3. I will permit my photograph to be used in Situation C but would prefer that my photograph be used in some other, less public way. I understand that such an alternate use of my photograph is highly unlikely.

   ___________________________
   (Signature)

4. I will permit my photograph to be used in Situation C with no qualifications, whatsoever.

   ___________________________
   (Signature)

5. I will permit my photograph to be used in Situation C. I would also be willing to participate in future photograph sessions designed to obtain photographs for use in this situation. I understand that I would receive no money or research participation credits for these future sessions.

   ___________________________
   (Signature)

VIDEOTAPE SEGMENT NUMBER _______
If it should become necessary to obtain your parents' (guardians') approval, which releases would they likely approve for your photograph?

Your parents would approve releasing the photograph for Situation A.
- probable
- improbable

Your parents would approve releasing the photograph for Situation B.
- probable
- improbable

Your parents would approve releasing the photograph for Situation C.
- probable
- improbable

Do you give permission for a copy of the photograph and copies of the release statements to be sent to your parents for their approval? Circle one:
- YES
- NO

What is your legal guardian's name and home address?

Name:

Street:

City:

State:

Zip Code:
Finally, we would like to know to what extent the releases you signed were determined by (a) your general attitude toward Army R.O.T.C., (b) your general attitude toward signing the releases, and (c) your evaluation of your videotape/photograph. For each of the three situations you are asked to fill in a percentage for each of these three factors. In each situation the three percentages should add up to 100%.

**SITUATION A.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in large lecture sections of introductory sociology, psychology, and political science to request volunteers for laboratory studies in psychology and communications. Your name will not appear with the photograph.

You signed Release Statement Number [fill in from page 1] for Situation A. To what extent was the statement you signed determined by

- (a) your feelings about Army R.O.T.C.? [%]
- (b) your general feelings about the importance or unimportance of signing release statements allowing your photograph to be used publically? [%]
- (c) your evaluation of the quality of your videotape/photograph? [%]
- (d) Total percentage (a + b + c) 100%

**SITUATION B.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used for a publicity campaign about a university event. The picture will appear in the Iowa State Daily, the Ames Tribune, and the paper your parents and their friends read. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

You signed Release Statement Number [fill in from page 2] for Situation B. To what extent was the statement you signed determined by

- (a) your feelings about Army R.O.T.C.? [%]
- (b) your general feelings about the importance or unimportance of signing release statements allowing your photograph to be used publically? [%]
- (c) your evaluation of the quality of your videotape/photograph? [%]
- (d) Total percentage (a + b + c) 100%
SITUATION G. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in university residence halls and houses to publicize a university event sponsored by Army R.O.T.C. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

You signed Release Statement Numberblank (Fill in from page 3,) for Situation G. To what extent was the statement you signed determined by

Write Percentage Here

(a) your feelings about Army R.O.T.C.? __________

(b) your general feelings about the importance or unimportance of signing release statements allowing your photograph to be used publically? __________

(c) your evaluation of the quality of your videotape/photograph? __________

(d) Total percentage (a + b + c) 100% 

Describe in a few short phrases (a) what the purpose of yesterday evening’s session was and (b) what you did in yesterday evening’s session.

(a)

(b)

Describe in a few short phrases (a) what the purpose of tonight’s session was and (b) what you did in tonight’s session.

(a)

(b)

To what extent would other I.S.U. students probably allow their photographs to be used in the three photograph release situations?

SITUATION A
probable __________ improbably
SITUATION B
probable __________ improbably
SITUATION C
probable __________ improbably

Did you enjoy participating in the experiment?
enjoyed participation very much

absolutely hated participation

This experiment was good __________ bad

YOUR COMMENTS ABOUT THE EXPERIMENT (i.e., suggested improvements):
APPENDIX M

SESSION II CHECKS ON THE EXPERIMENTAL MANIPULATIONS
SITUATION C. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in university residence halls and houses to publicize a university event sponsored by Army R.O.T.C. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

You signed Release Statement Number _______ (Fill in from page 3.) for Situation C. To what extent was the statement you signed determined by

Write
Percentage
Here

(a) your feelings about Army R.O.T.C.? %
(b) your general feelings about the importance or unimportance of signing release statements allowing your photograph to be used publically? %
(c) your evaluation of the quality of your videotape/photograph? %
(d) Total percentage (a + b + c) 100%

Describe in a few short phrases (a) what the purpose of yesterday evening's session was and (b) what you did in yesterday evening's session.

(a)

(b)

Describe in a few short phrases (a) what the purpose of tonight's session was and (b) what you did in tonight's session.

(a)

(b)

To what extent would other I.S.U. students probably allow their photographs to be used in the three photograph release situations?

<table>
<thead>
<tr>
<th>SITUATION A</th>
<th>SITUATION B</th>
<th>SITUATION C</th>
</tr>
</thead>
<tbody>
<tr>
<td>probable</td>
<td>improbable</td>
<td></td>
</tr>
<tr>
<td>probable</td>
<td></td>
<td>improbable</td>
</tr>
<tr>
<td>probable</td>
<td></td>
<td>improbable</td>
</tr>
</tbody>
</table>

Did you enjoy participating in the experiment?

- enjoyed participation very much
- absolutely hated participation

This experiment was

- good
- bad

YOUR COMMENTS ABOUT THE EXPERIMENT (i.e., suggested improvements):
APPENDIX N

PILOT STUDY I
Introduction

The purposes of the first pilot study were (a) to determine the variability of a dichotomous BI measure, (b) to determine the extent to which the dichotomous BI measure approximated a Guttman scale, (c) to collect non-immediate outcomes of an individual's photograph being used in each of six situations, and (d) to collect general attitude measures toward "Army R.O.T.C.," the "U.S. Army," and the "Vietnam War."

Method

Forty-six introductory psychology students (26 males, 20 females) participated in the study during April, 1972. Subjects reported in a group to a large room where each was given a 17-page questionnaire containing all variables of interest.

The questionnaire was divided into two parts. In Part I non-immediate outcomes of action and measures of the BI variable were collected for each of the following situations:

(a) Situation 1. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in laboratory studies in psychology and communications. Your name will not appear with the photograph.

(b) Situation 2. A photograph of you shaking hands
with a uniformed Army R.O.T.C. student will be used in large lecture sections of introductory sociology, psychology, and political science to request volunteers for laboratory studies in psychology and communications. Your name will not appear with the photograph.

(c) **Situation 3.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in university residence halls and houses to publicize a university event sponsored by Army R.O.T.C. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

(d) **Situation 4.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in a publicity campaign in the *Iowa State Daily* as part of a journalism/advertising study. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

(e) **Situation 5.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used for a publicity campaign about a university event. The picture will appear in the *Iowa State Daily*, the *Ames Tribune*, and the paper your parents and their friends read. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

(f) **Situation 6.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used as part of a nationwide publicity campaign advertising some aspect of the Army R.O.T.C. program in the weekly news magazines (e.g., *Time, Newsweek*, and *U.S. News & World Report*). Your name and the name of the Army R.O.T.C. student will appear with the photograph.

Subjects were instructed, "to consider yourself in each of the six situations. Read each situation carefully and then answer the questions that immediately follow the situation. When you have finished all six situations, wait for instructions before you begin Part II of this experiment."
The first situation was listed, followed by instructions asking the subject to generate five favorable and five unfavorable outcomes resulting for him when his photograph was used in the listed situation. Finally, a definition of a photograph release statement was presented and the subject was asked, "Would you be willing to sign a photograph release statement allowing a photograph of you shaking hands with an Army R.O.T.C. student to be used in the situation described above? (Circle 'yes' or 'no'.)" The subject's response to this question constituted the BI measure.

A similar procedure was followed for the remaining five situations in Part I. After they had completed Part I subjects read the following instructions for Part II:

In this section you are to indicate your general attitude towards several objects. On the following several pages are 20 sets of adjectives designed to measure your attitude towards what appears in parentheses above the adjectives. You are to place an "X" between a pair of colons for each pair of adjectives. It is extremely important that you place one "X" on each of the 20 lines. Do not omit marking any pair of adjectives.

On each of the next three pages was an AB scale (Fishbein & Raven, 1962) assessing the subject's beliefs toward the object (five-item bipolar adjective belief or probability scale) and his affect toward the object (five-item, bipolar adjective, evaluative scale). The attitude objects used were (a) "U.S. Army," (b) "Army R.O.T.C.", and "Vietnam War."

After they had completed Part II of the questionnaire
all subjects were debriefed and dismissed.

Results

The means and standard deviations of the BI measure in each of the six situations are shown in Table 9.

Table 9. Means and standard deviations of a set of dichotomous measures of release-signing behavior for six situations.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Mean</th>
<th>S. D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.80</td>
<td>.40</td>
</tr>
<tr>
<td>2</td>
<td>.71</td>
<td>.46</td>
</tr>
<tr>
<td>3</td>
<td>.54</td>
<td>.50</td>
</tr>
<tr>
<td>4</td>
<td>.54</td>
<td>.50</td>
</tr>
<tr>
<td>5</td>
<td>.57</td>
<td>.50</td>
</tr>
<tr>
<td>6</td>
<td>.61</td>
<td>.49</td>
</tr>
</tbody>
</table>

Note.—N = 46. 1.0 = would sign, 0.0 = would not sign

There appeared to be a ceiling effect on the BI measure, particularly in Situation 1. The variability of BI in the other situations was satisfactory.

The responses of 16 male and 16 female subjects were selected randomly from the responses to the BI measures to determine the Guttman scale properties of a six-item BI scale (Edwards, 1957; Torgerson, 1958). The reproducibility of the six-item scale was .91 and the minimum marginal
reproducibility of the scale was .58. The scale appeared to be an excellent approximation to the Guttman scale model.

A content analysis of the outcomes listed for each of the six situations was conducted. A number of outcome categories were selected after a careful reading and tallying of the data. Whenever possible "general" outcomes, applicable to two or more situations, were obtained. Then the data were reclassified on the basis of these general outcome categories. In some situations categories specific to a situation and frequently mentioned by subjects were also used for that particular situation.

The general outcomes obtained were (a) "becoming better-known on campus," (b) "your friends liking you less," (c) "campus discussion of R.O.T.C. would be encouraged," (d) "you would be identified as a supporter of R.O.T.C.," and (e) "other students would harass you."

Situation-specific outcomes mentioned frequently and included as categories were, "encouraging volunteers for lab studies in psychology (Situation 2)," "making your parents and their friends proud of you (Situations 5 and 6)," "obtaining national public exposure (Situation 6)," and "obtaining money for modeling or getting job offers (Situation 6)."

With the AB-scale procedure general attitude towards any object is composed of the product of two independent
subscales: an affect subscale and a belief subscale. All items used in this study were 10-point, bipolar, semantic differential type. Each subscale consisted of five items (affect: harmful—beneficial, wise—foolish, dirty—clean, bad—good, and sick—healthy; belief: impossible—possible, false—true, existent—non-existent, probable—improbable, and likely—unlikely). The means and standard deviations of each subscale and of the total attitude towards the three objects are shown in Table 10.

Table 10. Mean and standard deviation of responses to the AB scale.

<table>
<thead>
<tr>
<th>Attitude Object</th>
<th>Affect Subscale Mean</th>
<th>S.D.</th>
<th>Belief Subscale Mean</th>
<th>S.D.</th>
<th>AB Product Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Army</td>
<td>29.98</td>
<td>10.89</td>
<td>36.96</td>
<td>7.92</td>
<td>1155</td>
<td>606</td>
</tr>
<tr>
<td>Army R.O.T.C.</td>
<td>33.61</td>
<td>8.92</td>
<td>35.37</td>
<td>8.24</td>
<td>1246</td>
<td>552</td>
</tr>
<tr>
<td>Vietnam War</td>
<td>12.04</td>
<td>7.22</td>
<td>29.09</td>
<td>9.60</td>
<td>389</td>
<td>327</td>
</tr>
</tbody>
</table>

Note. — *N = 46.*

1The sum of each subscale could vary from 5.0 (low) to 50.0 (high).
2The AB scale score could vary from 25.0 (low) to 2500.0 (high).

Internal consistency reliabilities for the affect subscales were "U.S. Army," .900, "Army R.O.T.C.," .877, and
APPENDIX O

PILOT STUDY II
Introduction

The purposes of the second pilot study were (a) to determine the variability of a BI measure employing a behavior differential format (Triandis, 1971), (b) to obtain scale judgments of subject preferences for signing release statements for each of six situations, and (c) to determine important referents for allowing one's photograph to be used in the six situations.

Method

Fifty-six introductory psychology students (28 males and 28 females) were recruited during April, 1972. Subjects met as a group and completed a two-part questionnaire booklet. Before beginning the booklet subjects were given a list of six situations in which their photographs might be used.

(a) Situation A. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in laboratory studies in psychology and communications. Your name will not appear with the photograph.

(b) Situation B. A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used for a publicity campaign in the Iowa State Daily as a part of a journalism/advertising study. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

(c) Situation C. R.O.T.C. student will be used in large lecture sections of introductory sociology, psychology, and political science to request volunteers
for laboratory studies in psychology and communications. Your name will not appear with the photograph.

(d) **Situation D.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used as part of a nationwide publicity campaign advertising some aspect of the Army R.O.T.C. program in the weekly news magazines (e.g., *Time*, *Newsweek*, and *U. S. News and World Report*). Your name and the name of the Army R.O.T.C. student will appear with the photograph.

(e) **Situation E.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in university residence halls and houses to publicize a university event sponsored by Army R.O.T.C. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

(f) **Situation F.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used for a publicity campaign about a university event. The picture will appear in the *Iowa State Daily*, the *Ames Tribune*, and the paper your parents and their friends read. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

Subjects read these instructions on the first page of the questionnaire booklet.

Whenever a photograph is to be used for any type of public presentation, it is customary to obtain a statement from the people in the photograph which gives permission for use of the photograph. These types of statements are called, 'photograph release statements'.

The purpose of this part of the experiment is to obtain psychologically scaled judgments of a set of stimuli. These stimuli consist of six situations in which you, hypothetically, have been asked to sign photograph release statements.
You are to compare pairs of situations and select the one situation for each pair which you would prefer to sign a photograph release statement. Be sure to circle one-letter for each comparison pair.

'I would prefer to sign a release allowing my photograph to be used in Situation. . . .'*

After they completed the paired comparisons task subjects responded to a single seven-point behavior differential-type item for each situation. These items were of the form, "I would :::::::: would not sign a release for Situation ....".

In the last part of the questionnaire each subject indicated how probable it would be that each of four possible referents would punish him if he signed a photograph release statement. For purposes of comparison two additional behavioral acts were included in this section, "joining Army R.O.T.C." and "organizing a pro-R.O.T.C. demonstration." The item format used to obtain judgments of the importance of each referent followed closely that used by Darroch (1971). The general format of the items was:

If I organized a pro-R.O.T.C. demonstration:

the person I date would punish me;
probable :::::::: improbable

my parents would punish me;
probable :::::::: improbable

my closest friends would punish me;
probable :::::::: improbable
other students would punish me;
probable :::::::: improbable

Results

Scale values for the paired comparisons of preferences for signing releases for the six situations are shown in Table 11. Also shown are the means and standard deviations for the behavior differential responses.

Table 11. Scale values for six situations by two rating methods.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Paired Comparison</th>
<th>Behavior Differential</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>A</td>
<td>.751</td>
<td>6.07</td>
</tr>
<tr>
<td>B</td>
<td>.127</td>
<td>3.91</td>
</tr>
<tr>
<td>C</td>
<td>.640</td>
<td>5.45</td>
</tr>
<tr>
<td>D</td>
<td>.400</td>
<td>4.31</td>
</tr>
<tr>
<td>E</td>
<td>.000</td>
<td>3.57</td>
</tr>
<tr>
<td>F</td>
<td>.152</td>
<td>4.07</td>
</tr>
</tbody>
</table>

Note.—N = 56.

11.0 = would not sign; 7.0 = would sign.

The orderings of the situations by the two scaling methods were quite similar and corresponded generally to the ordering reported by Darroch (1971). The major exception to Darroch's
ordering was Situation E, ranked third in Darroch's study and sixth in the present study. The probable cause of this was the addition of a statement to each situation description in the present study advising the subject whether or not his name would appear with the photograph. No mention was made by Darroch that the photographs would be displayed along with the subject's name when the photograph was shown in residence halls. This may have accounted for the higher subject preference for Situation E obtained in Darroch's study.

Table 12 summarizes the success of the effort to determine the important referents for each situation. Generally, subjects considered it neither probable nor improbable that referents would punish them for signing the releases. However, across situations subjects considered it more improbable that other students rather than parents would punish them ($t = 2.560, df = 7, p < .05$). Subjects also believed it more probable that other students would punish them rather than their steady dates ($t = 5.475, df = 7, p < .01$).
Table 12. Means of subjects' judgments concerning the probability that different referents would punish them if they committed a particular behavior.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Date</th>
<th>Parent</th>
<th>Friend</th>
<th>Student</th>
<th>Ave.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joining P.O.T.C.</td>
<td>3.46</td>
<td>2.93</td>
<td>3.55</td>
<td>3.96</td>
<td>3.48</td>
</tr>
<tr>
<td>Organizing a pro-R.O.T.C.</td>
<td>4.02</td>
<td>4.43</td>
<td>4.04</td>
<td>4.09</td>
<td>4.15</td>
</tr>
<tr>
<td>demonstration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signing release for Sit. A</td>
<td>1.98</td>
<td>1.77</td>
<td>2.21</td>
<td>2.80</td>
<td>2.19</td>
</tr>
<tr>
<td>Signing release for Sit. B</td>
<td>2.71</td>
<td>2.04</td>
<td>3.12</td>
<td>3.77</td>
<td>2.91</td>
</tr>
<tr>
<td>Signing release for Sit. C</td>
<td>2.29</td>
<td>1.64</td>
<td>2.43</td>
<td>2.79</td>
<td>2.29</td>
</tr>
<tr>
<td>Signing release for Sit. D</td>
<td>2.71</td>
<td>2.41</td>
<td>3.16</td>
<td>3.88</td>
<td>3.04</td>
</tr>
<tr>
<td>Signing release for Sit. E</td>
<td>2.96</td>
<td>1.82</td>
<td>3.43</td>
<td>4.02</td>
<td>3.06</td>
</tr>
<tr>
<td>Signing release for Sit. F</td>
<td>3.05</td>
<td>2.34</td>
<td>3.41</td>
<td>4.23</td>
<td>3.38</td>
</tr>
<tr>
<td>Average</td>
<td>2.90</td>
<td>2.42</td>
<td>3.17</td>
<td>3.69</td>
<td></td>
</tr>
</tbody>
</table>

Note.—N = 56.

1 The scale varied from 1.0 (would not sign) to 7.0 (would sign).
On the basis of these data it was decided that three situations would be used as contexts for obtaining release statements. Situation C was chosen primarily because most--but not all--subjects indicated that they would sign a release statement for that situation. Situations E and F were chosen because in these situations other students appeared to constitute a relatively important reference group. Since NB was to be manipulated in the study by providing subjects with false norms concerning other students' release-signing behaviors, the situations selected had to reflect as much as possible the importance of the referent "other students" in affecting outcomes of release-signing.
APPENDIX P
PILOT STUDY III
The purpose of the third pilot study was to obtain scale values for each of 15 photograph release statements.

Thirty student (13 males and 17 females) enrolled in an advanced undergraduate psychological measurement course were selected as subjects.

Subjects completed the questionnaire during one class period. The experimenter introduced himself and read the first page of the scaling booklet to the subjects.

The purpose of this study is to obtain your judgments of a set of psychological stimuli which will eventually be used as dependent variables in a social psychology experiment.

Whenever a photograph is to be used for any type of public presentation, it is customary to obtain a statement from the people in the photograph which gives permission for use of the photograph. These types of statements are called 'photograph release statements.'

We want you to judge the extent to which signing each of 15 photograph release statements would indicate an individual's opinion of Army R.O.T.C. In other words, indicate the extent to which you believe an individual's signing each photograph release statement would represent an action based on a favorable or unfavorable attitude towards Army R.O.T.C.

Indicate the level of opinion or attitude by writing a number from 1 to 99 on the space near each photograph release statement. If you judge that an individual's signing of the photograph release statement would represent an unfavorable attitude towards Army R.O.T.C., place a number from 1 to 49 in the blank to the right of the release statement. If you judge that an individual's signing of the photograph release statement would represent a favorable attitude towards Army R.O.T.C., place a number from 51 to 99 in the
blank to the right of the release statement. If you feel that an individual's signing of the photograph release statement would represent no attitude towards Army R.O.T.C., write 50 in the blank to the right of the release statement.

You may use any number from 1 to 99 to indicate the attitude towards Army R.O.T.C. involved with signing each statement. This does not mean that you have to use all of the numbers from 1 to 99. Some people only use the numbers 1, 25, 50, 75, and 99. Others use 1, 10, 20, 30, 40,...up to 99. The point is that the distinctions you make should be as fine as you feel you can make. Use the numbers along the range you feel most comfortable with. If you feel you can distinguish between 50 and 51, then do so. This procedure satisfies some people's need to make fine distinctions, but others who feel they cannot respond with such precision may use fewer different numbers.

At the top of the next three pages was one of three situations:

(a) **Situation A.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in large lecture sections of introductory sociology, psychology, and political science to request volunteers for laboratory studies in psychology and communications. Your name will not appear with the photograph.

(b) **Situation B.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used for a publicity campaign about a university event. The picture will appear in the *Iowa State Daily*, the *Ames Tribune*, and the paper your parents and their friends read. Your name and the name of the Army R.O.T.C. student will appear with the photograph.

(c) **Situation C.** A photograph of you shaking hands with a uniformed Army R.O.T.C. student will be used in university residence halls and houses to publicize a university event sponsored by Army R.O.T.C. Your name and the name of the Army R.O.T.C. student will appear
with the photograph.

Following each situation were five photograph release statements.

(a) I will not allow the use of my photograph in Situation (A, B, or C).

(b) I am unwilling at the present time to allow my photograph to be used in Situation (A, B, or C). I will have to consider further possible consequences of my photograph being used in this situation and may change my mind if contacted next fall.

(c) I will permit my photograph to be used in Situation (A, B, or C) but would prefer that my photograph be used in some other, less public way. I understand that such an alternate use of my photograph is highly unlikely.

(d) I will permit my photograph to be used in Situation (A, B, or C) with no qualifications, whatsoever.

(e) I will permit my photograph to be used in Situation (A, B, or C). I would also be willing to participate in future photograph sessions designed to obtain photographs for use in this situation. I understand that I would receive no money or research participation credits for these future sessions.

The presentation order of the five statements was selected randomly for each of the three situations. The presentation order of each of the three situations was counterbalanced.

All responses were transformed to normal deviation scores with a low anchor of 0.0 and a high anchor of 466.0 (Liu, 1971). The mean and standard deviation of the
transformed responses to each statement are shown in Table 13.

Table 13. Mean scale values and standard deviations for 15 photograph release statements.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Statement</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>a</td>
<td>84.7333</td>
<td>80.9676</td>
</tr>
<tr>
<td></td>
<td>b</td>
<td>194.1333</td>
<td>59.7700</td>
</tr>
<tr>
<td></td>
<td>c</td>
<td>240.6000</td>
<td>59.9370</td>
</tr>
<tr>
<td></td>
<td>d</td>
<td>326.8665</td>
<td>77.7027</td>
</tr>
<tr>
<td></td>
<td>e</td>
<td>368.5999</td>
<td>74.7027</td>
</tr>
<tr>
<td>B</td>
<td>a</td>
<td>82.6333</td>
<td>81.5337</td>
</tr>
<tr>
<td></td>
<td>b</td>
<td>206.8000</td>
<td>69.2632</td>
</tr>
<tr>
<td></td>
<td>c</td>
<td>249.2667</td>
<td>52.6115</td>
</tr>
<tr>
<td></td>
<td>d</td>
<td>340.2998</td>
<td>81.7037</td>
</tr>
<tr>
<td></td>
<td>e</td>
<td>383.8333</td>
<td>75.7795</td>
</tr>
<tr>
<td>C</td>
<td>a</td>
<td>91.6333</td>
<td>83.3237</td>
</tr>
<tr>
<td></td>
<td>b</td>
<td>209.2667</td>
<td>65.4395</td>
</tr>
<tr>
<td></td>
<td>c</td>
<td>244.2333</td>
<td>65.6131</td>
</tr>
<tr>
<td></td>
<td>d</td>
<td>362.5332</td>
<td>8.5346</td>
</tr>
<tr>
<td></td>
<td>e</td>
<td>385.3665</td>
<td>80.4685</td>
</tr>
</tbody>
</table>

Note.—Variables were transformed to a scale ranging from 0.0 (low) to 466.0 (high). N = 30.

The five release statements' scale values displayed satisfactory range across the 466 point scale. In addition, statements were ordered similarly within each of the three situations.