VALUES AS MEDIATORS IN ATTITUDE PERCEPTION

ROCHELLE A. ZORZI

VALUES AS MEDIATORS IN ATTITUDE PERCEPTION

by

Rochelle A. Zorzi

A thesis submitted to the

School of Graduate Studies

in partial fulfilment of the

requirements for the degree of

Master of Science

Department of Psychology

Memorial University of Newfoundland

January 2000

St. John's Newfoundland

Abstract

The Value-Referent Model of attitude inference proposes that people refer to values when inferring one attitude from another. This paper presents two studies designed to test the model. Study One used a non-experimental design to explore the assumption that people perceive links between values and attitudes. Participants were required to infer values on the basis of attitudes, or attitudes on the basis of values. It was found that the participants perceived consistent and meaningful relationships between the values and the attitudes, but inferring attitudes from values was easier than inferring values from attitudes.

Study Two used an experimental design to test the model more directly. Participants were asked to make attitude-to-attitude inferences. The attitude statement that was attributed to the target person was relevant to two values, each of which was made salient for some of the participants prior to the attitude inference task. Each of these values was relevant to some of the attitudes that were to be inferred. If the model is correct, value salience should have increased response speed for those items related to the value. A General Linear Model analysis found no significant effects. A manipulation check revealed problems with the response speed measurement, so the results of the experiment are inconclusive. Qualitative data collected from participants at the end of the study suggested that many of them did refer to values when making the attitude inference, although not to the values that were made salient in the experiment. Further research is necessary to confirm or disconfirm the model.

Table of Contents

Table of Contents (Continued)

Table of Contents (Continued)

List of Tables

List of Figures

Acknowledgements

The author gratefully acknowledges the advice, patience, and guidance of Dr. Abraham Ross, Malcolm Grant, and Dr. Cathryn Button of the Memorial University of Newfoundland, and Dr. Jonathan Oakman of the University of Waterloo. Two anonymous reviewers also deserve thanks for their helpful comments about the research report. The author expresses gratitude to the Department of Psychology, Memorial University of Newfoundland, for providing funding for this research.

Values as Mediating Variables in Attitude Perception

Introduction

Research at the Memorial University of Newfoundland has investigated the way we perceive other people's attitudes (Button, Grant, Hannah, & Ross, 1993; Grant, Hannah, Ross, & Button, 1995). Research on attitude perceptions is of interest because attitude perceptions affect how we behave toward other people. As Button et al. (1993) emphasized,

> There is abundant evidence that our impressions of others' attitudes can influence our behaviour toward them in important ways. Our liking for other people (Byrne, 1971), the strategies we adopt to win their liking for us (Jones, 1964), our eagerness to influence them (Schachter, 1951), and our readiness to be influenced by them (Aronson, Turner, & Carlsmith, 1963; Ross, Bierbrauer, & Hoffman, 1976) have all been shown to depend on the assumptions we make about the nature and strength of their attitudes. (p 231)

Attitudes

An *attitude* is defined by Eagly and Chaiken (1993) as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor." (p 1). This definition implies that an attitude a) is fairly stable for a given individual, b) is specific to a particular object (called an attitude object), and c) involves an evaluative (positive or negative) response to that object. The response need not be overt; it can be cognitive, affective, or behavioural (Eagly & Chaiken, 1993). A *perceived attitude* is an attitude that one person believes to be held by another person.

The Structure of Perceived Attitudes

Button et al. (1993) investigated the dimensional structure underlying perceived attitudes. They compiled two lists of attitude statements about a wide range of issues that were important to university students. For each list, they asked students to group similar statements using a computerized sort procedure. The researchers conducted multidimensional scaling analyses on the similarity data, and found that, for both lists, the perceived attitudes were organized along two orthogonal dimensions. The first was a Liberal vs. Conservative dimension. The second was a Traditional vs. Radical dimension in which moral and traditional attitudes rested at one end of the dimension, and radical attitudes at the other.

The two dimensions divide attitude perceptions into four quadrants: Traditional-Liberal (TL), Traditional-Conservative (TC), Radical-Conservative (RC), and Radical-Liberal (RL). As an example of the types of attitude statements found in each quadrant, consider the following four statements concerning women's rights:

- The women's liberation movement deserves support. (TL)
- Women would be better off without men. (RL)
- Most feminists hate men. (RC)
- Women who stay at home to raise children contribute as much to society as career women. (TC)

Grant et al. (1995) conducted a second study to confirm the dimensional structure of perceived attitudes. University students were asked to form impressions of a fictitious target person based on attitudes that were attributed to that person. Five attitude statements were attributed to the target person, one at a time. The students assimilated each statement into their perceptions of the target person before viewing the next statement. For each target person, the first three attitude statements were all from the same quadrant. The fourth attitude was from a quadrant that was either a) the same as the first, b) different on the Liberal vs. Conservative dimension, c) different on the Traditional vs. Radical dimension, or d) different on both dimensions. A fifth attitude statement was from the same quadrant as the first three.

Participants rated the fit between the attitude statements and their overall impression of the target person. The fit ratings for the fourth statement were highest when it was consistent with the other statements, lower when it was discrepant on only one dimension, and lowest when it was discrepant on both dimensions. The results of this study were thus consistent with the theory that perceived attitudes are organized along Liberal vs. Conservative and Traditional vs. Radical dimensions.

Dimension-Referent Model of Attitude Inference

If perceived attitudes are organized along two dimensions, it is plausible that people refer to these dimensions when making inferences about other people's attitudes.

For instance, when someone tells us their attitude toward a specific issue, we might use this attitude to rate them along the two dimensions, and then use the dimensions to infer their attitudes toward other issues. This model, the Dimension-Referent Model of Attitude Inference, is represented in Figure 1. The model is plausible, since references to the dimensions would greatly simplify cognitive processing. However, researchers have not been able to show that people actually refer to dimensions when they are inferring other people's attitudes (A. S. Ross, September 1997, personal communication).

Values

This paper investigates the possibility that the link between the dimensions and perceived attitudes is mediated by another related construct: perceived personal values. *Values* are fairly enduring, abstract beliefs that pertain to desirable modes of conduct or end-states of existence and that guide selection or evaluation of behaviour, people, or events. This definition incorporates the following widely accepted features of values (see Rokeach, 1973; Schwartz 1992, 1994):

- A value is a belief.
- A value is enduring, but can still change over time.
- A value pertains to desirable modes of conduct or goals (individual/social).
- A value transcends specific objects or situations.
- A value guides selection or evaluation of behaviour, people, or events.

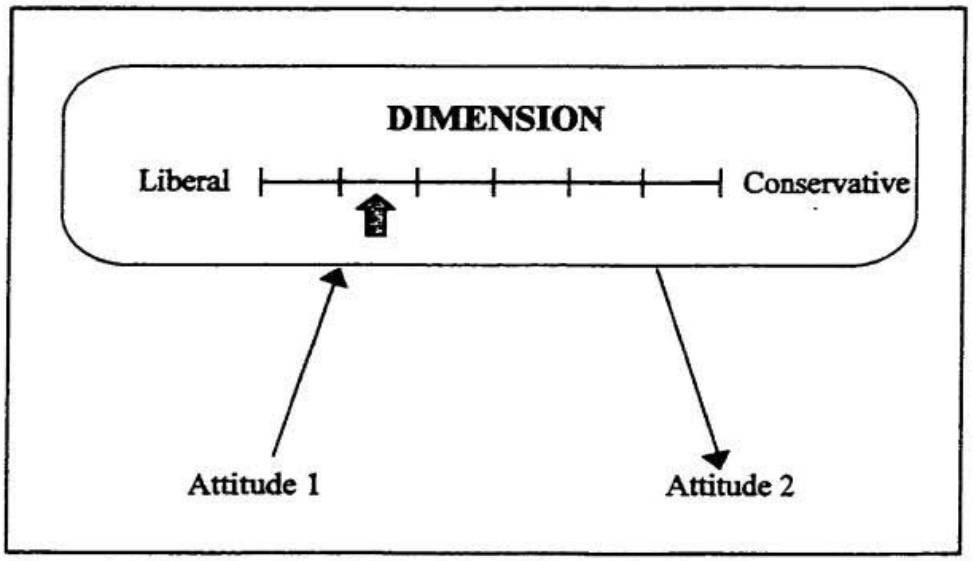

Figure 1: The Dimension-Referent Model of Attitude Inference

Values differ from attitudes in several ways. They are more abstract than attitudes because they transcend objects and situations. As a result, we have relatively few values, but many attitudes. Another difference is that values are believed to be more central to the individual; in particular, it is thought that values have more connections to other cognitive elements than do attitudes, and are thus more stable and enduring (Rokeach, 1973).

An important assumption made about values is that they are universal. Because values are generally positive, everyone is thought to possess the same values, to varying degrees. However, based on social and personal experiences, individuals come to place a higher priority on some values than they do on others. As a result, people develop value systems, or organizations of values, in which each value is ordered in importance relative to other values (Rokeach, 1973).

These assumptions have important implications for value measurement. Rather than assessing whether or not people "have" a given value, we need instead to determine how important that value is to them, relative to other values. In the past, this has been achieved through two methods: ranking a set of values in order of importance (e.g., Rokeach, 1973), and rating the importance of individual values (e.g., Schwartz, 1994). While there is some debate about which method is preferable, they seem to produce

equivalent results at the aggregate level (Alwin & Krosnick, 1985; Rankin & Grube, 1980).

Value-Referent Model of Attitude Inference

If values mediate the relationship between the dimensions and perceived attitudes, then people may refer to values when inferring the attitudes of another person. If so, then when someone tells us their attitude toward a specific issue, we would use this attitude to infer what values are important to them. For example, if somebody tells us that rock videos exploit women, we might infer that the values of Equality and Social Justice are important to them. We would then use these perceived values to infer the person's attitudes toward other issues, such as affirmative action or birth control. This model, the Value-Referent Model of Attitude Inference, is represented in Figure 2.

Notice that, in Figure 2, perceived values are thought to be organized according to a dimensional structure, and that dimensions are related to the structure of perceived attitudes only indirectly, through values. Implicit in this model are two assumptions: 1) people perceive a structure directly underlying values, not attitudes; and 2) people perceive relationships between values and attitudes. Although these assumptions have not been tested directly, they are supported by research concerning the structure of actual attitudes, the structure of actual values, and the relationship between actual attitudes and values. This research is described in the following discussion.

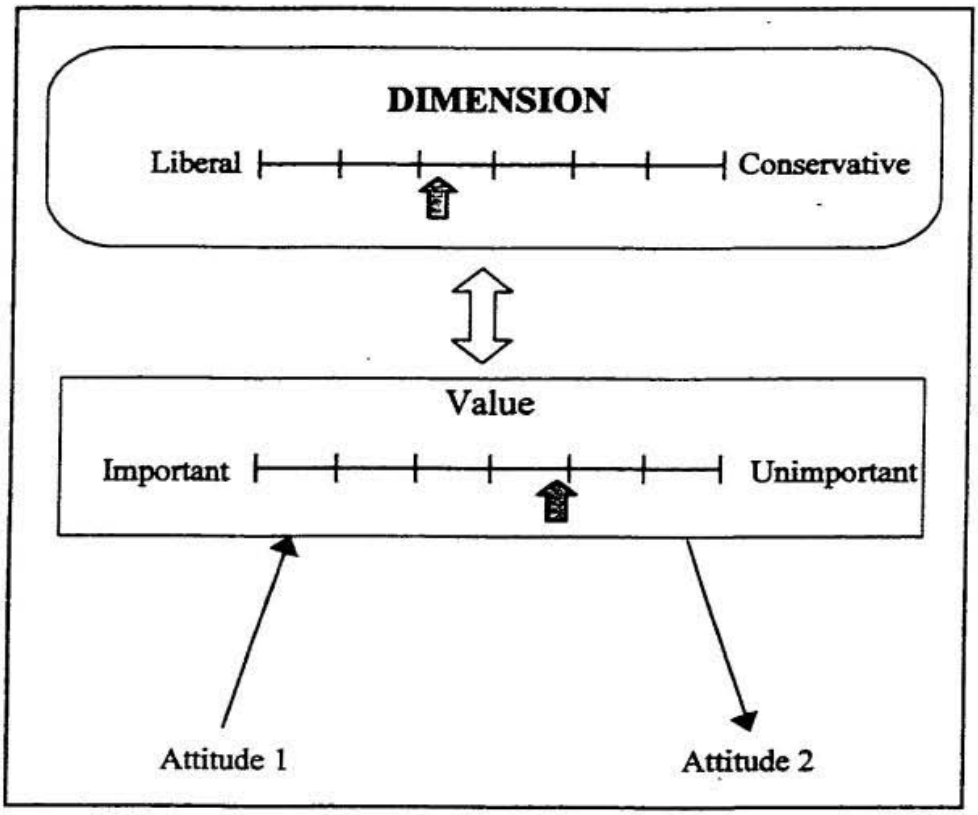

Figure 2: The Value-Referent Model of Attitude Inference

Perception of Attitude Structure

The structure of actual attitudes has long been debated by psychologists, sociologists, and political scientists, with no resolution (Kinder & Sears, 1985; McGuire, 1981). Some researchers believe that attitudes are organized along two dimensions (e.g., Kerlinger, 1984; Fleishman, 1988), others favour one dimension (e.g., Judd & Milburn, 1980) , and still others argue that most people's attitudes do not have any dimensional structure (e.g., Converse, 1964).

The Value-Referent Model assumes that people do not perceive a structure directly underlying attitudes. This assumption is supported by researchers' lack of agreement about attitude structure. If leading researchers in this area are unable to discern a consistent structure, it seems unlikely that a layperson could do so (although it is possible that the layperson perceives a structure, whether or not one really exists).

Perception of Value Structure

There are two reasons to believe that people would be better able to perceive a structure underlying values than attitudes. First, values are free of situational complications; they are simpler and more straightforward than attitudes. Secondly, the structure of values is less contentious than that of attitudes, with several differing models having recently been explained by a more comprehensive model (Schwartz, 1994).

Table 1: Schwartz' Motivational Types (adapted from Schwartz, 1994, p 22)		
Motivational Type	**Description**	**Sample Values**
Self-direction	Independent thought and action – choosing, creating, exploring	Freedom, Creativity, Curious
Stimulation	Excitement, novelty, and challenge in life	Daring, Exciting life, Varied life
Hedonism	Pleasure and sensuous gratification for oneself	Pleasure, Enjoying life
Achievement	Personal success through demonstrating competence according to social standards	Ambitious, Capable, Successful
Power	Social status and prestige, control or dominance over people and resources	Social power, Wealth, Authority
Security	Safety, harmony, and stability of society, of relationships, and of self	National security, Social order, Clean
Conformity	Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms	Obedient, Politeness, Honouring parents and elders
Tradition	Respect, commitment, and acceptance of the customs and ideas that traditional culture or religion provide	Devout, Accepting my portion in life, Humble
Benevolence	Preservation and enhancement of the welfare of people with whom one is in frequent personal contact	Helpful, Forgiving, Honest
Universalism	Understanding, appreciation, tolerance, and protection for the welfare of all people and for nature	Equality, Social justice, Broad-minded, Protecting the environment

The structure of actual values has been modelled by several researchers (see, for example, Braithwaite, 1994; Kerlinger, 1984; Morris, 1968; Rokeach, 1973, 1968b; Schwartz, 1992, 1994; Wicker, Lambert, Richardson, & Kahler, 1984). The most comprehensive of these models, based on a theory of the content and structure of human values, was designed by Schwartz (1992, 1994). Schwartz' research is described below.

Schwartz (1992) grouped values into ten motivational types, each focussed by a different personal, interpersonal, or societal goal. The motivational types, and associated values, are shown in Table 1.

Schwartz (1992) hypothesized that the motivational types could be structured in relation to each other. Some motivational types were thought to be more or less compatible with other motivational types. For example, Self-direction and Stimulation values were thought to be compatible with one another, since they "both involve intrinsic motivation for mastery and openness to change" (Schwartz, 1992, p 14). However, these values, which emphasize change and individual interests, were thought to conflict with Conformity, Tradition, and Security values, which emphasize stability and collective interests. Using this logic, Schwartz developed a two-dimensional model of the structure of the motivational types. In this circular model, the motivational types form wedges joined at the centre of the circle, as is shown in Figure 3.

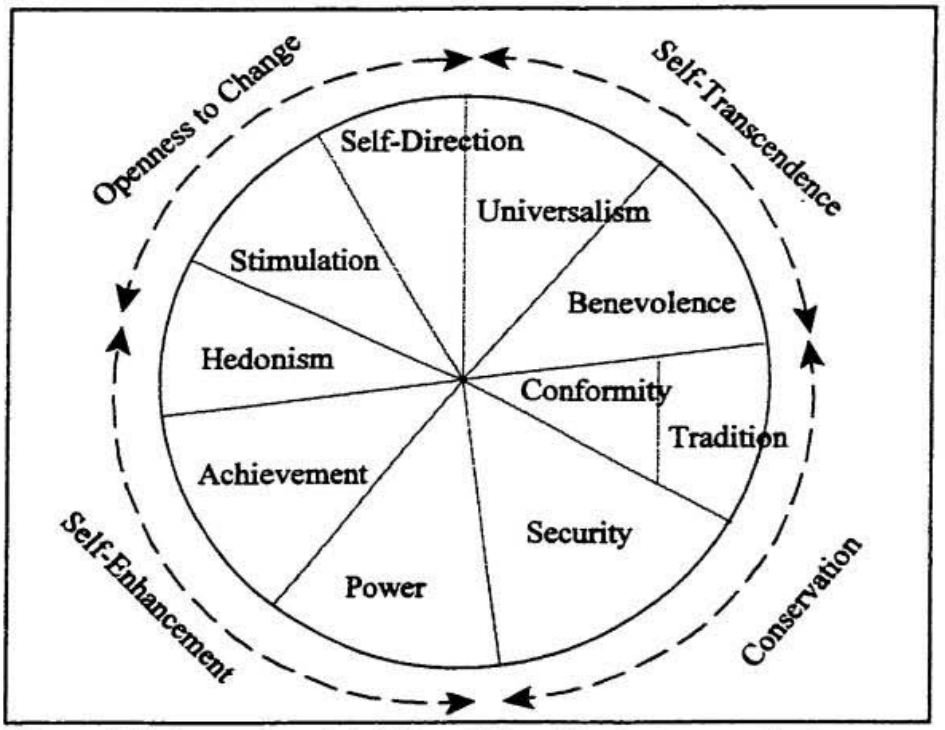

Figure 3: Schwartz' model of the relationships between value types
(From Schwartz, 1994, Figure 1)

The circular structure is explained by two underlying dimensions, which form four higher-order value types. The first dimension, Openness to Change vs. Conservation, opposes values that favour independence and change with those that favour preservation of tradition and stability. The second dimension, Self-Transcendence vs. Self-Enhancement, opposes values that favour acceptance of, and concern for, others with those that emphasize personal success and dominance.

To test his theory, Schwartz (1992) designed a questionnaire including values from all of the postulated value types. The survey contained 56 items, 21 of which were from the Rokeach Value Survey (see Rokeach, 1973). Because of the number of items, having participants rank the values was not feasible. Instead, participants were asked to rate each value "AS A GUIDING PRINCIPLE IN MY LIFE," on a nine-point scale, labelled as follows: "of supreme importance" (7), "very important" (6), unlabeled (5, 4), "important" (3), unlabeled (2, 1), "not important" (0), and "opposed to my values" (-1) [Caps in original]. To reduce order effects, Schwartz had participants anchor the scale by selecting and rating their most important and least important value before rating the rest of the values.

The survey was translated into 13 different languages and administered to 25,863 people in 97 samples from 44 different countries. The resulting data was subjected to a Smallest Space Analysis (SSA). The results provided strong support for Schwartz'

hypothesized structure. The Openness to Change vs. Conservation dimension was evident in all but one sample, and the Self-Transcendence vs. Self-Enhancement dimension was evident in all but three samples (Schwartz, 1994).

As mentioned previously, Schwartz' research concerns the actual structure of values. To date, no research has been conducted on the perceived structure of values. However, the structure of actual values is quite straightforward and consistent across populations. It is therefore reasonable to assume that people could develop an understanding of the structure, and use this understanding to organize information about others' values.

Interestingly, the underlying structure of Schwartz' value dimensions is comparable to that underlying the attitude perception dimensions described by Button et al. (1993). Schwartz' higher-order Openness to Change value type is similar to Button's Radical-Liberal quadrant. Likewise, Self-Transcendence is similar to Traditional-Liberal, Conservation to Traditional-Conservative, and Self-Enhancement to Radical-Conservative. To illustrate these similarities, sample values and attitude statements are shown in Table 2. The structure of (actual) values is thus consistent with the structure of perceived attitudes. This provides further support that the assumptions of the Value-Referent Model are reasonable.

Table 2: Comparison of Schwartz' Higher Order Value Types with Button's Categories of Perceived Attitudes

Sample Values (from Schwartz, 1994)	**Sample Attitude Statements** (from Grant et al., 1995)
Conservation • Accepting my portion in life • Honouring parents and elders • National security • Clean • Obedient • Politeness • Social order	Traditional-Conservative • Premarital sex will spoil the marriage. • Families with a lot of aunts, uncles, cousins, and grandparents produce the happiest children. • Employers are entitled to require their employees to take drug tests. • A person who has used marijuana should not be appointed to the Supreme Court.
Self-Enhancement • Ambitious • Authority • Capable • Social power • Successful • Wealth	Radical-Conservative • A woman who is beaten by her husband probably deserves a lot of what she gets. • If I own an animal, I should be able to treat it any way I want. • It's time to close the door to refugees. • To keep control over a classroom, a teacher needs to be able to physically punish children.
Openness to Change • Creativity • Curious • Daring • Exciting life • Freedom • Varied life	Radical-Liberal • There are times in a person's life when suicide may be a reasonable alternative. • Marriage is outdated and unnecessary. • Legalizing euthanasia would help to ease the crowding in our hospitals and nursing homes. • Religion is mostly superstition
Self-Transcendence • Broad-minded • Equality • Forgiving • Helpful • Honest • Social justice • Protecting the environment	Traditional-Liberal • In speaking and writing, I try to avoid sexist language. • Rock videos exploit women. • Children should be discouraged from playing with toy guns. • The death penalty should never be applied.

Relationship Between Values and Attitudes

The Value-Referent Model assumes that people perceive relationships between values and attitudes. Perceived relationships have not been studied directly, but evidence of them nonetheless exists in the literature: the relationship between values and attitudes has been hypothesized, and sometimes assumed, to exist by many researchers (e.g., Rokeach, 1973; Rosenberg, 1956; Tetlock, 1986). If researchers assume that attitudes and values are linked, it is possible that laypeople do as well.

In addition, the actual relationship between values and attitudes has been strongly established in the research. The first theoretical model to explicitly describe the relationship between values and attitudes was developed by Milton Rosenberg (1956), and has since come to be known as the Expectancy Value Model of Attitudes. Rosenberg's model predicts that the direction and intensity of an attitude varies as a function of the algebraic sum of the products obtained by multiplying the rated importance of each value associated with the attitude object (the value component) by the rated potency of the object for achieving or blocking the realization of the value (the expectancy component). In other words, we hold a positive attitude toward something if we think it will further our progress toward our values, but a negative attitude toward it if we think it will block our progress toward our values.

Mathematically, this can be expressed as:

$$\text{Attitude}_{ij} = \sum_{ij} (\text{Value}_i \; x \; \text{Expectancy}_j)$$

Rosenberg provided empirical support for his model. He divided his participants into four groups: those who extremely opposed, moderately opposed, moderately approved, and extremely approved of allowing members of the Communist Party to address the public. Each participant rated a set of values in terms of a) the value's importance to them, and b) the extent to which the value would be achieved or blocked by allowing members of the Communist Party to address the public. Rosenberg multiplied the value rating by the instrumentality rating and summed across all values to obtain a value-expectancy score for each participant. There were significant differences between the average scores of the four attitude groupings, and these differences were compatible with the differences predicted by the model.

Additional research has also supported Rosenberg's model. For example, Carlson (1956) manipulated his subjects' expectancies in a study of racial integration, and found corresponding changes in attitudes. Likewise, Nelson (1968) emphasized the links between values and attitudes (which Nelson termed "beliefs"), and found that this emphasis made the attitudes more resistant to change.

In other research, moderate but consistent relationships have been found between people's values and their attitudes. These relationships have been found in studies that

investigated different attitude objects, used different methods, and had different research aims. One wide-ranging study linking attitudes and values was performed by Milton Rokeach. Rokeach (1968a) had developed the Value Survey (RVS), a value ranking tool that measures the relative importance of 36 values. Using the RVS, Rokeach (1973) compared the value priorities of people with opposing attitudes toward a variety of attitude objects, including racism, the American presence in Vietnam, the poor, student protest, communism, and religion. He found that people with different attitudes exhibited different patterns of value priorities.

More recently, other researchers have used the RVS to explore relationships between people's values and their attitudes toward various attitude objects. For example, Kristiansen and Zanna (1988) found that people with opposing attitudes toward abortion or nuclear weapons held different value priorities. Taking a different approach, Feather and Newton (1982) found that a combination of 12 values on the RVS accounted for 15% to 39% of the variance in attitudes toward two fictitious social organizations. Feather (1988) also found correlations between certain value scales and attitudes toward mathematics and English.

Braithwaite (1994) developed another values measure, the Social Goals Inventory (SGI), that specifically assesses social values. Conducting a factor analysis on data from the SGI, Braithwaite found two dimensions. Together, these dimensions accounted for

41% of the variance in scores on a political attitude scale that included items on topics such as income redistribution, defence strategies for crime control, and uranium mining.

Tetlock (1986) used a different approach in his study of attitudes toward political policies. For each attitude statement, he preselected two values that were judged to be highly relevant to the attitudes under investigation: one value confirmed the stated attitude, while the other conflicted with it. His respondents completed the RVS along with the attitude items. Tetlock was not interested in the absolute rankings of the selected values, but rather their differential, or relative ranking in relation to one another. The differential score correlated highly with attitudes, with absolute values ranging from .37 to .61.

Katz and Haas (1988) manipulated the salience of values that were relevant to one set of attitude items, but irrelevant to another. Agreement with the experimental attitude items increased relative to comparison items when relevant values were made salient.

Not all researchers have found a clear relationship between attitudes and values. In a study of the perceived fairness of affirmative action policies (for University admissions), Peterson (1994) found that values, by themselves, did not predict attitudes toward admission policies. The correlations that he found between individual values and attitudes were small and non-significant. One possible explanation for these results is that the values under investigation were not relevant to the attitude object. Peterson

studied only four values, and these were selected for their relevance to fairness judgements, not affirmative action. However, Peterson argued that this was not an issue. Instead, he hypothesized that people can use the same values to argue both sides of an issue. He provided anecdotal evidence in support of his position:

> For example, although most subjects invoked meritocracy against affirmative action, a few subjects marshaled meritocracy in favor of affirmative action. One subject argued that race is unrelated to academic ability and therefore "true meritocracy" can only be achieved when races receive equivalent outcomes. (p 111)

Peterson is not the only researcher to suggest this possibility. Eiser (1987) has noted that attitude differences are likely even if two people share the same set of values, because they may bring the same values to bear on an issue in different ways.

Peterson and Eiser are not arguing that values are unrelated to attitudes. Instead, they posit that the relationship between a value and an attitude cannot necessarily be predicted for everyone equally. This is the same idea that Rosenberg (1956) proposed with his Expectancy-Value Model. However, the majority of studies have found a consistent, moderate relationship between values and attitudes. This suggests that, in most situations, people share common expectancies about the relationship between a value and a given attitude.

In summary, the research has shown that people with different attitudes hold different patterns of value priorities, that attitudes can be strengthened by making relevant

values salient, and that value importance ratings can be used to predict attitudes. Furthermore, these effects have been demonstrated with attitude objects ranging from mathematics to affirmative action policies. On the basis of this research, it is reasonable to expect that the relationship between values and attitudes may be noticeable to the average person.

The Present Studies

The present studies are intended to test the Value-Referent Model of Attitude Inference. The purpose of Study 1 is to test one of the assumptions of the Value-Referent Model: that people perceive relationships between values and attitudes. A second purpose of Study 1 is to explore common expectancies, or what values people think are associated with a given attitude statement.

The purpose of Study 2 is to test the role of values in inferring one attitude from another. We hypothesize that values mediate the attitude perception process, and that making a relevant value salient will facilitate attitude-to-attitude inferences.

Study One

One purpose of this study was to determine if people perceive relationships between attitudes and values. Specifically, we wanted to explore whether people feel that a) they are able to infer the importance of a given value to a person on the basis of an attitude statement attributed to that person, and b) they are able to infer the degree to which a person would agree with an attitude statement on the basis of a value attributed to that person. A second purpose of this study was to explore common expectancies, or what values people think are associated with a given attitude statement. This information was needed to select appropriate value and attitude items for Study Two.

Method

Participants

Fifty university students (26 male and 24 female) participated in the study. The participants were recruited through the Psychology Subject Pool. Participation was voluntary and participants were paid $2.75 for their time (approximately 30 minutes).

We randomly assigned 25 participants to each of two conditions. Sixteen males and nine females were assigned to the first condition (Attitude-to-Value), in which they were asked to infer values from attitudes. Ten males and 15 females were assigned to the second condition (Value-to-Attitude), in which they were asked to infer attitudes from values.

Item selection

We selected the items with the requirements of Study Two in mind. For study two, we needed to select at least two values and four attitude statements. Each value had to be judged relevant to two of the attitude statements, but not to the other two. In other words, Value X had to be judged relevant to Statements A and B, but not C and D, while Value Y had to be judged relevant to Statements C and D, but not A and B.

To ensure that suitable items were found for Study Two, we would ideally have tested a large number of attitude and value items. Because each attitude item had to be paired with each value item, testing large numbers of items was impractical. To reduce participant fatigue and to keep costs to a minimum, we restricted the number of attitude items to 12 and the number of value items to 14. Participants thus made a total of 168 judgements, which could be completed in about half an hour.

To maximize the likelihood of selecting values and attitudes that met the aforementioned criteria, we selected several attitude statements from each of two categories (Traditional-Liberal and Traditional-Conservative) that were located on orthogonal dimensions in a study of perceived attitudes (Button et al., 1993). Six attitude statements were selected from each category. Specific items were selected from a pool of 106 items developed by Button et al. (1993). All of the attitude statements concerned different attitude objects. The attitude statements are as follows.

Traditional-Liberal attitude items:

1. Rock videos exploit women.
2. Drug abusers deserve help.
3. Any touching a child does not like should not be allowed.
4. Getting involved in politics is a meaningful way to contribute to one's country.
5. Nuclear weapons are a grave threat to our children and future generations.
6. The death penalty should never be applied.

Traditional-Conservative attitude items:

7. No government funds should be awarded to agencies promoting abortion.
8. Birth control medication and devices should be restricted to married couples.
9. Sex education encourages kids to have sex.
10. True fulfilment for a woman comes from raising a family.
11. Most unemployed people are just lazy.
12. Homosexuality is a sickness of our modern society.

We anticipated that the participants would generally think that Self-Transcendence values were relevant to Traditional-Liberal attitudes, but not to Traditional-Conservative attitudes. Likewise, we expected that Conservation values would be seen as relevant to Traditional-Conservative attitudes, but not to Traditional-Liberal attitudes. We selected five of each of these types of values. In addition, we

expected Self-Enhancement values would be relevant (in a negative way) to Traditional-Liberal attitudes, and Openness to Change values were expected to be relevant (in a negative way) to Traditional-Conservative attitudes. That is, people who place high importance on these types of values would be expected to disagree with these types attitudes. Two of each of these types of values were selected. The value items were selected from the 56 values in Schwartz' (1992) value survey. The value items are as follows.

Self-Transcendence value items:

1. A World at Peace (free from war and conflict)
2. Equality (equal opportunity for all)
3. Helpfulness (working for the welfare of others)
4. Responsibility (dependability, reliability)
5. Social Justice (correcting injustice, care for the weak)

Conservation value items:

6. Family Security (safety for loved ones)
7. Moderation (avoiding extremes of feeling and action)
8. Obedience (being dutiful, meeting obligations)
9. Preserving My Public Image (protecting my "face")
10. Social Order (stability of society)

Openness to Change value items:

11. Broad-mindedness (tolerance of different ideas and beliefs)

12. Freedom (freedom of action and thought)

Self-Enhancement value items:

13. Social Power (control over others, dominance)

14. An Exciting Life (stimulating experiences)

Procedure

Upon arrival at the study location, the participants were greeted by the researcher. They read a written description of the study and were given an opportunity to ask questions of the researcher. Written consent was obtained from all participants. The description and consent forms are shown in Appendix A.

The participants were tested individually by computer, and used a mouse to enter their responses. Instructions were displayed on the screen. The researcher did not provide any verbal instructions, but did answer any questions that the participants had.

Participants in the first (Attitude-to-Value) condition were told that they would be asked to judge how important certain values would be to a given person, and that they would be given some information about the person's beliefs to help them decide. Participants in the second (Value-to-Attitude) condition were told that they would be asked to judge how much a given person would agree with certain statements, and that

they would be given some information about the person's values to help them decide. All participants were asked to work as quickly and accurately as possible. The participants completed one or more practice items under the supervision of the researcher before beginning the study. Practice attitude items were:

1. The suicidal person should be restrained until he/she can be helped.
2. A person should not be allowed to drive, even after just one drink.
3. Too many immigrants are being allowed to come into this country.
4. Politicians in Canada are too concerned with the problems of Quebec.

Practice value items were:

1. Inner Harmony (being at peace with myself)
2. Meaning in Life (a purpose in life)
3. National Security (protection of my nation from enemies)
4. Reciprocation of Favours (avoiding indebtedness)

In the Attitude-to-Value Condition, an attitude statement was displayed on the computer screen. The participants were asked to imagine a person who agreed with the statement, and then press the "Next" button. When they pressed the "Next" button, a value item was displayed below the attitude statement. The participants were asked how important the value would be to the person. Six response options were presented: "Of supreme importance," "Very important," "Important," "Not important," "Opposed to this

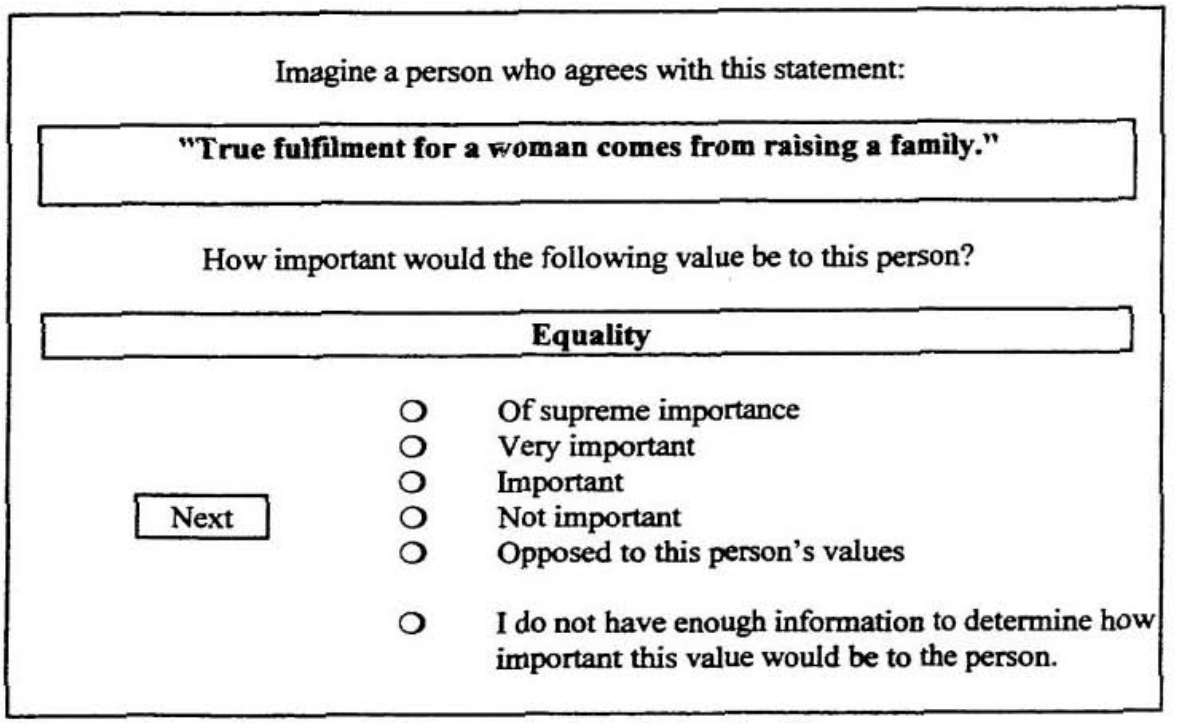

Figure 4: Instructions to participant, Attitude-to-Value Condition

person's values," and "I do not have enough information to determine how important this value would be to the person." A representation of the computer screen is shown in Figure 4.

The participants selected their response by clicking on a button adjacent to one of the response options. Each time they selected a response, the computer recorded the response as well as the time that had elapsed since the value had appeared on the screen. The participants could change their answer by selecting another option. When they were satisfied with their response, they pressed the "Next" button to begin the next item.

The participants were asked to judge the importance of 14 different value items for the target person. The value items were presented in random order. This procedure was repeated for 12 different target people (i.e., for 12 different attitude statements). The attitude items were also presented in random order.

The procedure in the Value-to-Attitude Condition was identical to that in the Attitude-to-Value Condition, except that a value item was initially displayed on the computer screen, and participants were asked to rate how much the person would agree with an attitude statement. The response options in the Value-to-Attitude Condition were: "Strongly agree," "Agree," "Neither agree nor disagree," "Disagree," "Strongly disagree," and "I do not have enough information to determine how much the person

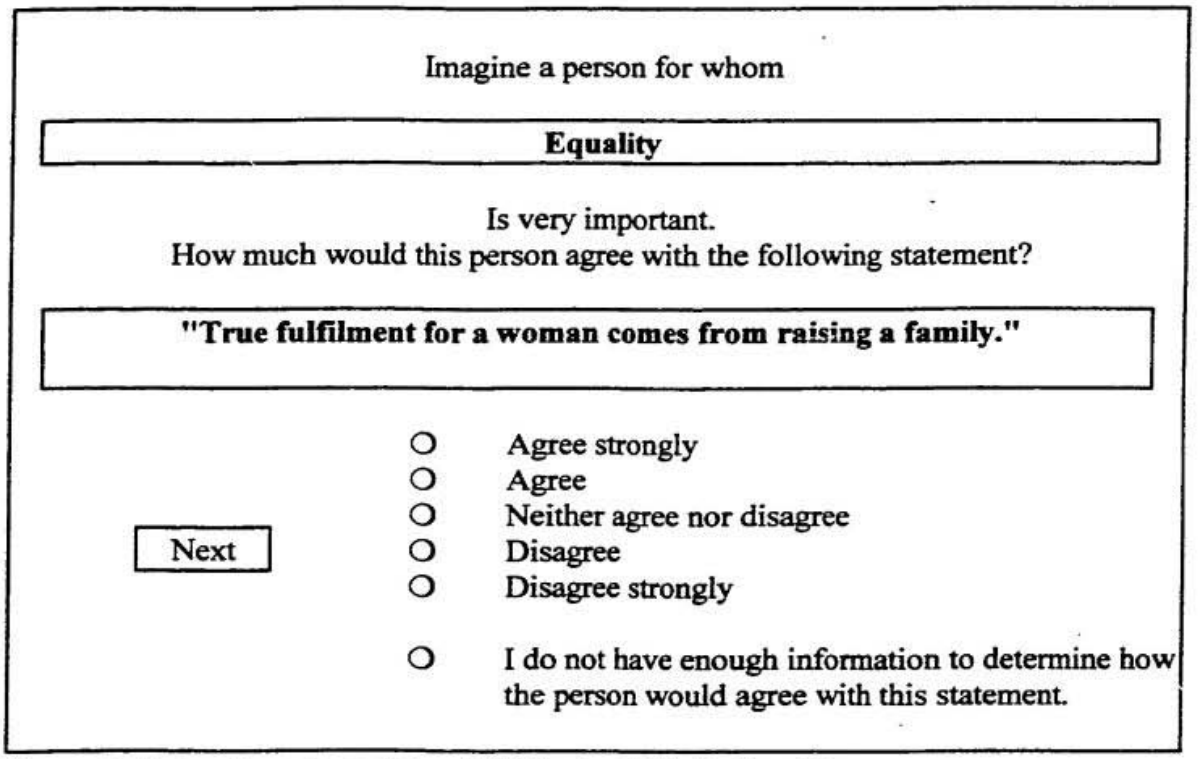

Figure 5: Instructions to participant, Value-to-Attitude Condition

would agree with this statement." A representation of the computer screen is shown in Figure 5.

The participants were asked to rate the target person's agreement with 12 different attitude items. The attitude items were presented in random order. This procedure was repeated for 14 different target people (i.e., for 14 different value items). The value items were also presented in random order.

When the participants had completed the study, the researcher answered questions about the research and gave the participants a payment slip.

Results and Discussion

Predicting Values from Attitudes

One purpose of this study was to explore whether people feel that they are able to infer the importance of a given value to a person on the basis of an attitude statement attributed to that person. To explore this possibility, we analysed only the data from the Attitude-to-Value Condition. The participants' responses were coded as follows: "Of supreme importance" (1), "Very important" (2), "Important" (3), "Not at all important" (4), and "Opposed to this person's values" (5). The final response option, "I do not have enough information to determine how important the value is to the target person" was treated as a non-response.

Scale responses versus non-responses. To determine if the participants felt that they could make value inferences, we counted the number of participants who selected scale responses (as opposed to non-responses) for each attitude-value pair. A pair was considered to have a high response rate if at least 90% of the participants (i.e., all but one or two participants) selected a scale response. A summary of the scale response/non-response data is shown in Table B-1 of Appendix B.

The value and attitude items used in the study were selected so that some were likely to be relevant to each other, while others were likely to be irrelevant. If people are able to infer values from relevant attitudes, then at least some of the attitude-value pairs should evidence high response rates. We expected that every value would have a high response rate when paired with at least one of the attitude statements.

Fifty-two, or 31%, of the attitude-value pairs had high response rates. As expected, almost all of the values had at least one high response rate. The only exception was An Exciting Life, which may not have been relevant to any of the attitude statements used in the study. Together, these findings provide evidence that, given attitudinal information, people are able to infer value importance at least some of the time. However, the response rate findings cannot demonstrate that the inferences were meaningful, or that they were made on the basis of attitudinal information.

Value importance ratings. Based on our review of the literature, we think it is likely that people share common ideas about how certain attitudes and values are related. If so, then an investigation of scale responses can provide insight into whether or not the value inferences were based on attitudinal information. To explore the value importance ratings, we conducted a General Linear Model analysis (GLM) on the scale response data. Both attitude and value were treated as categorical within-subject factors, with 12 and 14 levels respectively. Non-responses were treated as missing data in this analysis.

The main effect of attitude, $F(11, 22) = 3.74$, $p<.05$, and value $F(13,26) = 2.76$, $p<.05$, were both significant. A significant interaction was also found between the value and attitude factors, $F(143, 286) = 1.39$, $p<.05$. Means and standard deviations are shown in Table B-3 of Appendix B. One of the assumptions of the GLM is that the data are distributed normally. The distribution of scores for some of the attitude-value pairs was skewed. To ensure that the results of the overall GLM were not biased, separate GLMs were conducted for each value, omitting attitude statements with skewness greater than 0.5. The main effect for attitude was significant in nine of the 14 analyses (see Table B-5 of Appendix B), which is consistent with the results of the overall GLM.

The findings provide evidence that people feel that they are able to infer values on the basis of attitudes. If the participants had been unable to determine how the attitudes

and values were related, they would have responded on the basis of how important they think the value would be to the average person, or they would have responded randomly.

If the participants responded randomly, we would expect the importance ratings to be the same for all of the attitude-value pairs (i.e., there would not be any significant effects). If they responded on the basis of average importance, we would expect the importance ratings for each value to be the same regardless of what attitude was attributed to the target person, although the ratings could differ between values (i.e., there would be a significant effect for value, but no significant interaction).

Instead, the interaction was significant. When participants rated the importance of a given value to a target person, their responses differed depending on what attitude statement was attributed to the target person. The participants were therefore able to make meaningful value inferences by taking into account specific attitudinal data.

The findings also justify our assumption that people share common ideas about how attitudes and values are related. If each of the participants had his/her own unique idea of how a value related to an attitude, the value importance ratings would have been roughly equivalent across attitude-value pairs (i.e., neither the main effects nor the interaction would have been significant).

Taken together, the results from the Attitude-to-Value Condition provide strong evidence that people feel that they can make meaningful inferences about values on the

basis of attitudes. In addition, the results suggest that people share common ideas about the relationship between a given value and a given attitude.

Predicting Attitudes from Values

A second purpose of this study was to explore whether people feel that they are able to infer a person's agreement with an attitude statement based on a value attributed to that person. To explore this possibility, we analysed only the data from the Value-to-Attitude Condition. The participants' responses were coded as follows: "Agree strongly" (1), "Agree" (2), "Neither agree nor disagree" (3), "Disagree" (4), and "Disagree strongly" (5). The final response option, "I do not have enough information to determine how much the person would agree with this statement." was coded as a non-response.

Scale responses versus non-responses. To determine if the participants felt that they were able to make attitude inferences, we counted the number of participants who selected scale responses (as opposed to non-responses) for each attitude-value pair. A pair was considered to have a high response rate if at least 90% of the participants (i.e., all but one or two participants) selected a scale response. A summary of the scale response/non-response data is shown in Table B-2 of Appendix B.

The attitude and value items used in the study were selected so that some were likely to be relevant to each other, while others were likely to be irrelevant. If people are able to infer attitudes from relevant values, then at least some of the attitude-value pairs

should evidence high response rates. We expected that every attitude statement would have a high response rate when paired with at least one of the values.

One hundred twenty-three, or 73%, of the attitude-value pairs had high response rates. As expected, all of the attitudes had at least one high response rate. Together, these findings provide evidence that, given values information, people are able to infer agreement with attitude statements. However, the response rate findings cannot demonstrate that the inferences were meaningful, or that they were made on the basis of values information.

Attitude agreement ratings. As in the Attitude-to-Value Condition, we conducted a GLM on the scale responses to explore the value importance ratings. Both attitude and value were treated as categorical within-subject factors, with 12 and 14 levels respectively. Non-responses were treated as missing data.

The main effect of attitude, $F(11, 66) = 13.77$, $p<.05$, and value $F(13, 78) = 4.53$, $p<.05$, were both significant. A significant interaction was also found between the value and attitude factors $F(143, 858) = 2.21$, $p<.05$. Means and standard deviations are shown in Table B-4 of Appendix B. One of the assumptions of the GLM is that the data are distributed normally. The distribution of scores for some of the attitude-value pairs was skewed. To ensure that the results of the overall GLM were not biased, separate GLMs were conducted for each attitude statement, omitting values with skewness greater than

0.5. The main effect for value was significant in eight of the 12 analyses (see Table B-6 of Appendix B), which is consistent with the results of the overall GLM.

The findings again justify our assumption that people share common ideas about how attitudes and values are related. They also indicate that people are able to infer attitudes on the basis of values. If the participants had been unable to determine how the attitudes and values were related, there would have been no significant effects. Alternatively, if the participants had based their attitude judgements on how much the average person would agree with the statement, there would have been a significant main effect for attitude, but not a significant interaction. Instead, the interaction effect was significant, which indicates that the importance ratings for a given attitude differed by value, and that the effect of value differed across attitudes. The participants were therefore able to make meaningful attitude inferences by taking into account specific values information.

Taken together, the results from the Value-to-Attitude Condition provide evidence that people feel that they can make meaningful inferences about attitudes on the basis of values. In addition, the results suggest that people share common ideas about the relationship between values and attitudes.

Bidirectionality of Attitude-to-Value and Value-to-Attitude Inferences

If, for a given attitude-value pair, people feel they are able to infer the attitude from the value, but not the value from the attitude (or vise versa), then the perceived relationship between the attitude and the value is unidirectional. The perceived relationship between the attitude and the value is bidirectional if, when people feel that they can predict the value from the attitude, they also feel that they can predict the attitude from the value.

As reported above, participants were able to infer attitudes from values in 73% of the attitude-value pairs, as determined by high response rates. In contrast, they were able to infer values from attitudes in only 31% of the pairs. The difference between these proportions is statistically significant (χ^2=60.12, 1 df, $p<.05$). These results suggest that people find it easier to infer attitudes from values than to infer values from attitudes, and call into question the bidirectional nature of the attitude-value relationship.

We further explored this issue by correlating the response rates for each attitude-value pair (N=168) in the Attitude-to-Value Condition with the response rates in the Value-to-Attitude Condition. The correlation was small but positive and statistically significant ($r = .386$; $p<.01$). In other words, if many people are able to infer attitude "A" from value "V," then many people are probably also able to infer value "V" from attitude "A" (although not quite as many, because inference is more difficult in this direction).

Congruence of Attitude-to-Value and Value-to-Attitude Inferences

When inferring a value from an attitude, people can make positive inferences (the value is very important or of supreme importance to the target person) or negative inferences (the value is not important or is opposed to the target person's values). An "important" response is considered neither positive nor negative, since most values are, by definition, important to most people. Likewise, when inferring attitudes from values, both positive (agree or agree strongly) and negative (disagree or disagree strongly) inferences are possible. If, for a given attitude-value pair, attitude-to-value inferences and value-to-attitude inferences are both positive or both negative, then the inferences are congruent with another. Otherwise, they are incongruent.

We correlated the average ratings for each attitude-value pair (N=168) in the Attitude-to-Value Condition with those in the Value-to-Attitude Condition, treating all non-responses as missing values. The correlation was positive, moderate, and statistically significant ($r = .697$; $p<.01$). In other words, if people believe that a person who agrees with attitude statement "A" will place much importance on value "V," then they will also believe that a person who places much importance on value "V" will agree (rather than disagree) with attitude statement "A." The inferences in the two directions are therefore highly congruent, suggesting that people perceive a stable, bidirectional relationship between the attitude and the value.

Study Two

Study Two used an experimental design to determine if people refer to values when inferring one attitude from another. We hypothesized that making a value salient would facilitate attitude-to-attitude inferences if the value was relevant to both the attributed and the inferred attitude statement.

Method

Participants

One hundred twenty-nine university students (51 male and 78 female) participated in the study. We randomly assigned 43 participants (17 males and 26 females) to each of three conditions. Most of the participants were recruited through the Psychology Subject Pool. A small number of participants were recruited through two upper-year Social Psychology courses. Participation was voluntary and participants were paid $2.75 for their time (approximately 20 minutes).

Item Selection

Items were considered for inclusion in the study on the basis of Study One results. We hoped to select two values, each of which would be made salient for a different group of participants. The attitude statement attributed to the fictitious target person should be seen as relevant to both of these values. In addition, we needed to select a number of

attitude statements to be inferred from the attributed statement, most of which should be seen as relevant to one or both of the experimental values.

The attitude statement that was attributed to the target person was selected on the basis of data from the Attitude-to-Value Condition. For an attitude-value pair to be considered, at least 22 of the 25 participants must have selected a scale response. In addition, the pair must have met one of the following sets of criteria (note that these criteria were selected arbitrarily):

1. At least 10 of the participants had to have selected positive responses ("Very important" or "Of supreme importance"), and there had to be at least five more positive responses than negative responses ("Not at all important" or "Opposed to this person's values").

Or

2. At least 10 of the participants had to have selected a negative response, and there had to be at least five more negative responses than positive responses.

An "Important" response was considered neither positive nor negative, since most values are, by definition, important to most people.

The attitude statements to be inferred by the participants were selected on the basis of data from the Value-to-Attitude Condition. For an attitude-value pair to be

considered, at least 22 of the 25 participants must have selected a scale response. In addition, the pair must meet one of the following sets of criteria:

1. At least 10 of the participants had to have selected a positive response ("Agree" or "Agree strongly"), and there had to be at least five more positive responses than negative responses ("Disagree" or "Disagree strongly").

Or

2. At least 10 of the participants had to have selected a negative response, and there had to be at least five more negative responses than positive responses.

Tables 1 and 2 in Appendix C contain the lists of attitude-value pairs that met the above criteria. From the lists, we looked for two values (Value A and Value B) that could be inferred from the same attitude statement. We also looked for two attitude statements that could be inferred from Value A but not from Value B, and for two attitude statements that could be inferred by Value B but not by Value A. We avoided attitudes and values that did not discriminate (i.e., that could be predicted by, or that predicted, too many other values or attitudes).

Items. The attitude statement attributed to the target person was "Getting involved in politics is a meaningful way to contribute to one's country." The values Obedience and Social Power were selected for the salience manipulation. Seven attitudes were selected to be inferred by the participants. Based on the criteria used, two

could be inferred from Obedience but not Social Power; two could be inferred from Social Power but not Obedience; two could be inferred from both values; and one could be inferred from neither value. The statements (with relevant values in parentheses) are listed below.

1. Drug abusers deserve help. (Obedience)
2. No government funds should be awarded to agencies promoting abortion. (Obedience)
3. Birth control medication and devices should be restricted to married couples. (Social Power)
4. Homosexuality is a sickness of our modern society. (Social Power)
5. True fulfilment for a woman comes from raising a family. (Both)
6. Most unemployed people are just lazy. (Both)
7. Sex education encourages kids to have sex. (Neither)

Experimental Manipulation

The experimental manipulation was intended to increase the participants' awareness of a particular value. The value of Obedience was made salient for participants in the Obedience condition. The value of Social Power was made salient for those in the Social Power condition. The third group served as a comparison group for which no particular value was made salient.

To manipulate value salience, participants were asked to complete a brief writing task. For participants in the Obedience condition, the instructions were as follows:

> Please think about the value of OBEDIENCE (being dutiful, meeting obligations) **as a guiding principle in your life**. Write a short paragraph about what OBEDIENCE means to you, *taking into consideration both positive and negative aspects* (if any) of the value. [Caps, bold, and italics in original.]

Participants in the Social Power condition received similar instructions, with the value of Social Power (control over others, dominance) substituted for Obedience. For participants in the comparison group, instructions were:

> Please write a short paragraph about what BEING A STUDENT means to you (or to your life). *Take into consideration both positive and negative aspects* (if any) of being a student. [Caps and italics in original.]

It was assumed that reflecting upon "being a student" would not make any particular value salient for the participants.

The manipulation was intended to increase salience without increasing the importance of the value. It was pilot tested on a convenience sample of seven individuals. After completing the paragraph, the individuals were asked if their feelings about the value had changed as they wrote the paragraph. In addition, they were asked if

writing the paragraph had changed how important the value is to them. There were no indications that the value became more or less important to the individuals as a result of writing the paragraph.

Procedure

Upon arrival at the study location, the participants were greeted by the researcher. They read a written description of the study and were given an opportunity to ask questions of the researcher. Written consent was obtained from all participants. The description and consent forms are shown in Appendix A.

The participants were seated in a small room, usually with one or two other participants, where they completed the writing task designed to manipulate value salience. When they had completed the writing task, they were escorted individually to a small room with a computer to complete the attitude inference task.

At the beginning of the attitude inference task, participants were told that they would be asked to rate how much a given person would agree with various statements, and that they would be given some information about the person's beliefs to help them decide. Instructions were given both verbally and in print on the computer screen. The participants completed one or more practice items before beginning the task. For the practice items, the attitude attributed to the target person was "Rock videos exploit

women." The practice items to be inferred from this statement were the same as the practice attitude items in Study One.

Upon completion of the practice items, the computer screen displayed the attitude statement, "Getting involved in politics is a meaningful way to contribute to one's country." Participants were asked to imagine a person who agreed with that statement, and then press the "Next" button. When they pressed the button, another attitude item was displayed below the first statement. The participants were asked how much the person would agree with the second statement. Five response options were presented: "Agree strongly," "Agree," "Neither agree nor disagree," "Disagree," and "Disagree strongly." A representation of the computer screen is shown in Figure 6. The participants were asked to rate the target person's agreement with all seven attitude items. The attitude items were presented in random order.

Participants' responses were recorded, as well as the length of time (in seconds) they took to make the response. To reduce skew in the data, response latencies were converted to speeds using the following formula: speed = 1 / (latency + 1).

After completing the attitude inference task, the participants also rated the importance to them of each of the fourteen values in Study One. Ratings and latencies were again recorded, and latencies were converted to speeds as described above. The

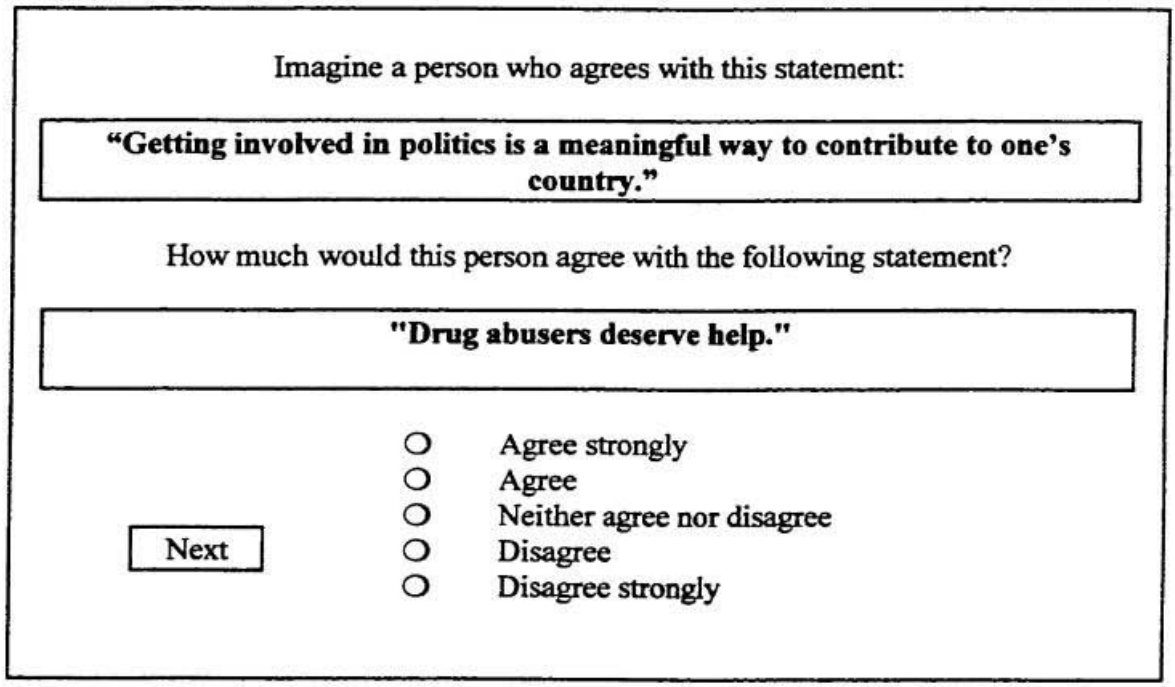

Figure 6: Instructions to participant, Study Two

participants then returned to the writing area, where the researcher asked them the following questions:

1. Think about the first task you did when you were working on the computer. You imagined a person who agreed that getting involved in politics was a meaningful way to contribute to one's country. What did you imagine that person would be like?
2. How did you decide whether the person would agree or disagree that drug abusers deserve help?
3. Did you think about the value of Obedience when you were completing the attitude inference task? (This question was asked only of the participants in the two experimental conditions. The value Social Power was substituted for Obedience for those participants in the Social Power condition.)

The first 58 participants were asked to write their responses to similar questions before discussing them with the researcher (see the instruction form in Appendix A).

When the participants had completed the study, the researcher answered questions about the research and gave the participants a payment slip.

Results and Discussion

Checks on the Value Salience Manipulation

Value rating speeds. If the experimental manipulation made the targeted values salient for the participants, then participants in the Obedience condition should be able to rate the importance of Obedience more quickly than the participants in the Social Power condition. Likewise, participants in the Social Power condition should be able to rate the importance of Social Power more quickly than the participants in Obedience condition. Means and standard deviations of the rating speeds are shown in Table 3.

A repeated measure GLM analysis was conducted on the value rating speeds, with value as a within-subjects factor (Obedience vs. Social Power) and condition as a between-subjects factor. The only statistically significant effect was for value $F(1, 126) = 8.49$, $p<.05$, with all participants rating the importance of Obedience more quickly than the importance of Social Power. The interaction between value and condition was not statistically significant. Having written a paragraph about the targeted value thus did not appear to lead the participants to rate its importance any faster.

These results raise several concerns about the effectiveness of the experimental manipulation and the latency measurements. The following possibilities need to be considered:

Table 3: Means and Standard Deviations for Value Rating Speeds

		Obedience	Social Power
Obedience Condition	M	.1795*	.1547
	SD	.0658	.0623
	n	43	43
Social Power Condition	M	.1629	.1411
	SD	.0565	.0572
	n	43	43
Comparison Group	M	.1592	.1431
	SD	.0607	.0735
	n	43	43

* higher numbers indicate greater speeds

1. The experimental manipulation may not have been effective in increasing value salience.
2. Any increases in value salience may not have carried over into the attitude inference and value rating tasks.
3. The latency measurement may not have been sensitive enough to detect differences between the groups.
4. The experimental design may not have been powerful enough to detect differences between the groups.

These possibilities are considered in turn.

Effectiveness of the experimental manipulation. On average, the participants spent about four to five minutes writing the value paragraphs. As long as the participants focussed on the targeted value for most of that time, it seems reasonable to expect that the value was made salient for them. To determine if the participants actively thought about the targeted values, we analysed the content of the value paragraphs. Up to three values were coded for each participant, using Schwartz' list of values as a reference. We used the following criteria as indications that the participant actively thought about a value:

- the participant further defined the value; or
- the participant gave examples of how the value would guide them or others; or

- the participant wrote about positive and/or negative aspects of the value (except when they focussed exclusively on extrinsic consequences of the value).

If participants used a value label incorrectly (for example, by using the label "Obedience" when their description suggested "Responsibility"), we coded the value according to the intended meaning, rather than the label.

Of the participants in the Obedience condition, 84% were judged to have actively thought about Obedience. Three other values were mentioned frequently: Success (23%). Social Order (19%), and Responsibility (14%). Of the participants in the Social Power condition, 74% were judged to have actively thought about Social Power. Four other values were mentioned frequently: Social Order (16%), Freedom (14%), Social Recognition (12%), and Authority (12%).

Thus most of the participants in the experimental conditions were judged to have thought about the targeted values. Furthermore, none of the participants in the Obedience condition mentioned the value of Social Power, and vise versa. Obedience and Social Power thus should have been made salient for most of the participants in the Obedience and Social Power conditions, respectively.

Generalization of salience effect. There were many differences between the value salience task and the value ratings/attitude inference tasks. The value salience task was completed using pencil and paper, was a different type of task, and was completed in

a different room than the value ratings and attitude inference tasks. Perhaps these differences led participants to dissociate the later tasks from the earlier ones. Even if this were the case, we would have expected the salience to be reactivated when the participants were asked directly about the targeted value.

Sensitivity of the latency measurement. In a study of attitude structures, Judd, Drake, Downing, & Krosnick, (1991) successfully used response time as a measure of salience. However, there were important differences between Judd et al.'s study and this one. In Judd et al.'s study, participants chose one of two opposing options for their responses. In this study, participants chose from a scale of five options, and could change their responses if they wished. They therefore had a more complex decision to make, with more opportunities for random error. The facility with which participants used the mouse to select their responses could also have been a source of random error.

Experimental power. A power analysis demonstrates that the likelihood of detecting a real difference between the groups at $p=.05$ is 71% for a medium effect size, and 16% for a small effect size (Faul & Erdfelder, 1992). Although a medium effect size was anticipated, the actual effect size for the value by condition comparison was very small ($eta^2=.002$), possibly due to the aforementioned potential sources of random error. The observed power for this comparison was only 7%. The study was not powerful enough to detect such a small difference between the groups.

In sum, it is unclear why we failed to find a difference between the groups in the value rating latencies. The lack of an effect is most likely due to problems with the insensitivity of the measure and the resulting low experimental power. Regardless of the source of the problem, its effects are likely to carry over into the attitude inference latencies. Because the manipulation check data were collected and analysed along with the attitude inference data, it was not possible to identify or remedy problems with the measures before administering the attitude inference task.

Value rating scores. After completing the attitude inference task, participants were asked to rate the importance of several values as guiding principles in their lives. Means and standard deviations of the rating scores are shown in Table 4.

A repeated measures GLM analysis was conducted on the value rating scores, with value as a within-subjects factor (Obedience vs. Social Power) and condition as a between-subjects factor. There was a statistically significant effect for value, $F(1, 126) = 250.52$, $p<.05$, with Obedience rated more positively than Social Power.

The interaction between value and condition was also statistically significant, $F(2, 126) = 4.03$, $p<.05$. A Tukey HSD post-hoc test showed that participants in the Social Power condition rated Social Power as more important than did those in the comparison group. The significant interaction effect suggests that the value salience manipulation may have unintentionally altered the meaning of Social Power for those who were in the

Table 4: Means and Standard Deviations for Value Rating Scores			
		Obedience	Social Power
Obedience Condition	M	2.0930*	3.9535
	SD	.7176	.8985
	n	43	43
Social Power Condition	M	2.3288	3.5349
	SD	.7833	.9347
	n	43	43
Comparison Group	M	2.4186	4.0233
	SD	.8233	.9383
	n	43	43

* lower scores indicate greater importance

Social Power condition. Perhaps thinking about this conservative value made students more aware of its positive aspects.

Check on Comparison Group Assumptions

We assumed that participants who wrote about being a student did not focus on any particular value. To test this assumption, we analysed the value content of the paragraphs for comparison group participants. Schwartz' list of values was used as a reference in coding the content of the paragraphs. The value Personal Growth (acquiring new skills and knowledge; self-improvement) was added to the list because it reflected value content in the paragraphs that could not be coded using any of Schwartz' values.

Of the participants in the comparison group, 65% referred to the value Ambition, and 35% referred to the value Personal Growth. Six other values were mentioned frequently: Independence (14%), Inner Harmony (12%), Wealth (12%), True Friendship (12%), Responsibility (12%), and Success (12%).

As expected, the participants in the comparison considered a greater diversity of values than did participants in the two experimental conditions. However, many of them actively thought about the value Ambition. Unfortunately, we do not know if there are any perceived relationships between the value Ambition and the attitude items used in the study. Nonetheless, to be conservative, we have included the comparison group in subsequent analyses.

Attitude Inference Task

Attitude Inference Speeds. If it is true that values mediate the attitude perception process, then increased value salience should make it easier to infer one attitude from another, but only if the value is relevant to both attitude statements. This increased ease of inference should be reflected in reduced response time on an attitude inference task (Judd, Drake, Downing, & Krosnick, 1991).

We expected that, when Obedience was relevant to the target attitude statement, participants in the Obedience condition would be able to make attitude inferences more quickly than those in the Social Power or comparison conditions. Likewise, we expected that, when Social Power was relevant to the target attitude statement, participants in the Social Power condition would be able to make inferences more quickly than those in the Obedience or comparison conditions.

Two target items were thought to be related only to Obedience: "Drug abusers deserve help," and "No government funds should be awarded to agencies promoting abortion." The speeds for these two items were averaged to yield a speed score for Obedience-related items. Two target items were thought to be related only to Social Power: "Birth control medication and devices should be restricted to married couples," and "Homosexuality is a sickness of our modern society." The speeds for these two items were averaged to yield a speed score for Social Power-related items. Means and standard

Table 5: Means and Standard Deviations for Attitude Inference Speeds

		Obedience-related items	Social Power-related items
Obedience Condition	M	.1077*	.1072
	SD	.0316	.0372
	n	43	43
Social Power Condition	M	.1137	.1159
	SD	.0535	.0474
	n	43	43
Comparison Group	M	.0990	.1077
	SD	.0412	.0383
	n	43	43

* higher numbers indicate greater speeds

deviations of the inference speeds for Obedience- and Social Power-related items are shown in Table 5.

A repeated measure GLM analysis was conducted on the attitude inference speeds, with value relevance as a within-subjects factor (Obedience-related vs. Social Power-related) and condition as a between-subjects factor. There were no statistically significant effects. Making a relevant value salient thus did not appear to lead participants to make attitude inferences more quickly.

Because the manipulation check indicated problems with the response time measure or the value salience manipulation, these results are difficult to interpret. It is possible that values do not mediate the attitude inference process. Alternatively, it is possible that values do mediate the attitude inference process, but that the effect was not detected in this study because of inadequate manipulation or insensitive measures.

Attitude inference scores. A repeated measure GLM analysis was conducted on the attitude inference scores, with value relevance as a within-subjects factors (Obedience-related vs. Social Power-related) and condition as a between-subjects factor. Means and standard deviations of the rating scores are shown in Table 6.

There was a statistically significant effect for value relevance $F(1, 126) = 167.59$, $p<.05$. Overall, the target person was perceived to agree less with Social Power items than with Obedience items.

Table 6: Means and Standard Deviations for Attitude Inference Scores

		Obedience-related items	Social Power-related items
Obedience Condition	M	2.5814*	3.8140
	SD	.4992	.8866
	n	43	43
Social Power Condition	M	2.4419	3.3837
	SD	.6656	.8580
	n	43	43
Comparison Group	M	2.5116	3.8023
	SD	.7278	.7648
	n	43	43

* lower scores indicate greater importance

There was also a statistically significant effect for condition $F(2, 126) = 3.43$, $p<.05$. Participants in the Social Power condition rated the target person as agreeing more with the attitude items than did participants in the Obedience or comparison conditions. Social Power is a conservative value that university students might not rate as important. Perhaps thinking objectively about this value helped the participants to consider different perspectives, making it easier for them to envision a target person who would agree with more conservative statements (three of the four statements can be considered conservative).

Participant Reflections

After completing the attitude inference task and the value ratings, participants were asked to reflect upon their decisions during the attitude inference task. Specifically, they were asked to describe how they decided if the target person would agree that "Drug abusers deserve help" on the basis of an attitude attributed to the target person (Getting involved in politics is a meaningful way to contribute to one's country). Ten participants (8%) did not participate in this part of the study because of time constraints. The remaining participants' responses were recorded, and the primary method of inference was coded using the following key:

1. The participant used the target person's (inferred) values to infer their attitudinal position. Values were only coded as the primary method of inference if the

participant made reference to specific values (e.g., caring, open-minded, equality, helpfulness). This code was not used if the participant said only that the person would have "good" values.

2. The participant thought that the target person's opinion would be based on what is best for society. This method involves the general value (not on Schwartz' list) of "A better society." However, as this value is explicitly mentioned in the attributed statement, it was treated as distinct from other values.

3. The participant used the target person's (inferred) ideology (liberal/conservative) to infer their attitudinal position.

4. The participant used a stereotype to infer the target person's attitudinal position (e.g., "because that's what a politician would think").

5. The participant used his/her own opinions to infer the target person's attitudinal position (e.g., because they personally agreed with the attributed statement). This code was also used if the participant said that the target person would agree/disagree because they seemed like a "good" person, or they had "good values," because we assumed that people tend to think that their own attitudes and values are "good."

6. The participant used the opinions of an acquaintance to infer the target person's attitudinal position because the acquaintance agreed with the attributed statement.

7. The participant thought that the target person would respond in a socially-desirable or moderate way (e.g., because a politician would want to benefit or appeal to the majority.)

8. The participant used another method for inferring the target person's attitudinal position.

9. The participant could not decide on the target person's attitudinal position.

10. The participant did not answer the question, or provided an irrelevant answer.

In the event that the participant appeared to rely equally on two strategies, a coin was tossed to determine which strategy would be coded. This was necessary for 4% of the cases. The percent of participants reporting the use of each method is shown in Table 7.

As can be seen in Table 7, the most common method of attitude inference was to use inferred values to infer the target person's attitudinal position. Three values were mentioned frequently by participants who said they used this method: Helpfulness (42%), Caring (30%), and Broad-mindedness (24%). Influence, Equality, and Social Order were also mentioned by some participants. None of the participants mentioned Obedience or Social Power, suggesting that these values were not relevant to the inference between these two attitude statements.

Another common method of inference was to assume that the target person would agree with what is best for society. As mentioned above, this method is based on values,

Table 7: Self-reported Methods of Attitude Inference	
Inference Strategy	% Respondents (N=119)
Value	28%
Best for society	17%
Ideology	4%
Stereotype	4%
Own opinion	10%
Acquaintance's opinion	8%
Socially desirable	11%
Unable to decide	5%
Other method	3%
No response	10%

but is treated separately because it is mentioned explicitly in the attributed attitude statement. Participants' use of this method may reflect a logical relationship between the two attitude statements, rather than a referral to values.

A substantial portion of respondents selected politically correct responses because they assumed that the target person was a politician and would need to please his/her constituents. These participants tried to determine the most popular position, rather than the target person's actual attitude. This may have been a source of error in the response time measurements.

Several participants used their own opinion. Another sizeable group thought about other people they knew who agreed with the attributed statement, or with the types of people who would agree with the attributed statement (e.g., politicians), and tried to guess how they would feel about the target statement. Only 5% of the participants said that they referred to ideology.

Confounding influences on participant reflections. The number of references to values in the participants' reflections may have been artificially inflated due to demand characteristics in the study. Because they wrote paragraphs about values and rated the importance of 14 values prior to their self-reflection, the participants may have perceived that values were an important part of the study, and may have been trying to please the experimenter by referring to them in their reflections. However, there are several reasons

to believe that this is not a concern. First of all, several participants referred to the values Caring and Influence, which were not included in the value rating list. Secondly, participants generally used the language of characteristics, not values. For example, they said that the target person would be open-minded, would be caring, or would want to help out, rather than saying that the target person would value broad-mindedness, caring, or helpfulness. Finally, none of the participants mentioned the values Obedience or Social Power, which would be expected if demand characteristics were influencing the participants' responses. We can thus be reasonably confident that the participants were being candid when reflecting upon their thought processes.

In sum, the content of the participants' reflections suggests that people use a variety of different methods in inferring attitudes. Reference to inferred values appears to be a very common method, but not the only one used by participants.

Item selection considerations. Only 50% of the participants in the Obedience Condition reported thinking about the value of Obedience while completing the attitude inference task, and only 37% of the participants in the Social Power Condition reported thinking about Social Power. These percentages may be artificially inflated due to demand characteristics.

Taken together with the fact that none of the participants referred to Obedience or Social Power in their reflections, these results suggests that participants did not consider

either of these values to be relevant when making attitude inferences. The results call into question the appropriateness of the items selected for the study.

It is possible that the values that are seen as relevant to two items together are a subset of the values that are seen as relevant to each item in isolation. In other words, when we consider two attitude statements, we may find that many values are perceived to be relevant to both statements. However, when one attitude is to be inferred from the other, it is possible that people focus only on two or three values that most obviously connect the two attitudes. Therefore, even though a value is considered to be relevant to both attitude statements in isolation, it may not be a value that people see as a "connector" between the two attitude statements.

General Discussion

The purpose of this research was to test the Value-Referent Model of attitude inference. Specifically, we had hoped to determine whether or not people refer to values when inferring one attitude from another.

Findings from Study One confirmed an important assumption of the model: that people perceive relationships between values and attitudes. The participants in the study were able to infer values on the basis of attitudes, and attitudes on the basis of values. The inferences made by the participants appeared to be meaningful, and suggested that people share common beliefs about how certain attitudes and values are related.

Study One results also suggested that it is more difficult to infer values from attitudes than it is to infer attitudes from values. This finding seems reasonable because values are, by definition, very general and central to the individual. We each have a relatively small number of values. Therefore, knowing even one of a person's values may provide a great deal of information about that person. In contrast, we have thousands of attitudes, all of which are quite specific to an object and/or a situation. Knowing a single attitude thus would not provide very much information about a person, which would make it more difficult to infer how important a given value is to the person.

These results from Study One suggest a problem with the Value-Referent Model. If it is too difficult for people to infer a value from the initial attitude statement, then the entire

process collapses. The model may be more applicable in real-world situations, where people normally have information about several of the person's attitudes, because people may find it easier to infer values on the basis of several attitudes than on the basis of a single attitude. Further research should be conducted to determine if people are better able to infer values on the basis of multiple attitude statements.

The experiment conducted in Study Two did not provide any evidence to support the Value-Referent Model of attitude inference. Participants for whom a relevant value was made salient did not appear to make attitude-to-attitude inferences more quickly. There are several possible explanations for this finding. First of all, there is the aforementioned problem that people may have difficulties inferring a value from a single attitude, even when the value has previously been made salient.

A second possible explanation is that the items selected for the study may have been inappropriate. When explaining how they inferred one attitude from another, participants made no mention of the values of Obedience and Social Power, even though they did mention other values. This suggests that the participants did not perceive the experimental values to be relevant when the two attitude statements were considered in combination.

If this study is repeated in the future, we suggest that a different item selection process be used. In particular, we suggest that participants complete attitude-to-attitude inference tasks, and that they provide verbal explanations about how they made the inference.

The researcher can code the explanations for value content and select values that are mentioned occasionally by participants. Values that are mentioned too frequently should be avoided because they may be salient even in the absence of the manipulation.

A third possible explanation for our negative findings is that the rating speed measure was not sufficiently sensitive. This possibility was raised when a manipulation check for the study indicated that our value salience manipulation did not enable participants to rate the targeted value any faster than those for whom the value was not salient. This finding was surprising; we had expected that thinking in advance about the value would make it easier for participants to rate the value, resulting in faster responses.

We suspect that the manipulation difficulties stemmed from problems with the sensitivity of the rating speed measure. The rating speeds in this study may have been influenced to a large extent by random error, thus reducing the experimental power of the study. If response times are used in future studies, we suggest the use of a dichotomous measure similar to that used by Judd et al. (1991) rather than a five-point scale. This would simplify the decision that participants would have to make, thereby reducing random error. In addition, participants should use push-buttons to register their responses rather than selecting responses using a mouse.

It would be better still to avoid the use of response speeds altogether, and to rely instead on agreement ratings. One way of doing this would be to manipulate participants'

beliefs about how a certain attitude and value are related. For example, one of our findings in Study One was that people who agree that drug abusers deserve help are perceived to place a high priority on the value Equality. It may be possible to convince participants that helping drug abusers actually leads to inequality, rather than equality. In a separate session, we could then attribute the statement "Drug abusers deserve help" to the target person, and ask participants to determine how much the target person would agree with additional attitude statements. If the manipulation is effective and the model is correct, agreement ratings should change for any statements that are perceived to be related to Equality. Comparisons could thus be conducted using agreement ratings, rather than response speeds.

A final possible explanation for the negative findings is that the model is incorrect. In light of the difficulties we experienced with the response speed measurement, we cannot draw this conclusion with any confidence, especially since the qualitative data that we collected provided some preliminary support for the model. Many participants spontaneously referred to values when they explained how they inferred one attitude statement from another. These findings suggest that this line of research is worth continuing.

We suggest that Study Two be conducted again, with the modifications suggested above. In addition, future research could further investigate the assumptions underlying the model. In particular, it is necessary to examine the structure of perceived values. Once this structure is mapped, more research options may emerge. For example, it may be possible to

change people's beliefs about how different values relate to each other, and then to investigate how that manipulation affects attitude-to-attitude inference.

References

Alwin, D.F., & Krosnick, J.A. (1985). The measurement of values in surveys: A comparison of ratings and rankings. Public Opinion Quarterly, 49, 535-552.

Braithwaite, V. (1994). Rokeach's equality freedom model: Two dimensional values in a one dimensional world. Journal of Social Issues, 50 (4), 67 94.

Button, C.M., Grant, M.J., Hannah, T.E., & Ross, A.S. (1993). The dimensions underlying perceived attitudes: Liberalism and concern for traditional values. Canadian Journal of Behavioral Science, 25, 230-252.

Carlson, E.R. (1956). Attitude change through modification of attitude structure. Journal of Abnormal and Social Psychology, 52, 256-261.

Converse, P.E. (1964). The nature of belief systems in mass publics. In D.E. Apter (Ed.), Ideology and discontent. New York: The Free Press.

Eagly, A.H., & Chaiken, S. (1993). The psychology of attitudes. Toronto: Harcourt Brace Jovanovich.

Eiser, J.R. (1987). The expression of attitude. New York: Springer Verlag.

Faul, F., & Erdfelder, E. (1992). GPOWER: A Priori, Post-hoc, and Compromise Power Analyses [Computer program]. Bonn, FRG: Bonn University, Department of Psychology.

Feather, N.T. (1988). Values, valences, and course enrollment: Testing the role of personal values within an expectancy-valence framework. Journal of Educational Psychology, 80, 381-391.

Feather, N.T. & Newton, J. W. (1982). Values, expectations, and the prediction of social action: An expectancy-valence analysis. Motivation and Emotion, 6, 217-244.

Fleishman, J.A. (1988). Attitude organization in the general public: Evidence for a bidimensional structure. Social Forces, 67, 159-184.

Grant, M.J., Hannah, T.E., Ross, A.S., & Button, C.M. (1995). Structure and processing of the perceived attitudes of others: Beyond "liberal" and "conservative." Social Behavior and Personality, 23, 1-22.

Judd, C.M., Drake, R.A., Downing, J.W., & Krosnick, J.A. (1991). Some dynamic properties of attitude structures: Context-induced response facilitation and polarization. Journal of Personality and Social Psychology, 60, 193-202.

Judd, C.M., & Milburn, M.A. (1980). The structure of attitude systems in the general public: Comparisons of a structural equation model. American Sociological Review, 45, 627-643.

Katz, I., & Hass, G.R. (1988). Racial ambivalence and American value conflict: Correlational and priming studies of dual cognitive structures. Journal of Personality and Social Psychology, 55, 893-905.

Kerlinger, F. (1984). Liberalism and conservatism: The nature and structure of social attitudes. Hillsdale, N.J.: Erlbaum.

Kinder, D.R., & Sears, D.O. (1985). Public opinion and political action. In G. Lindzey & E. Aronson (Eds.), Handbook of social psychology, 3rd Edition. New York: Random House.

Kristiansen, C.M. & Zanna, M.P. (1988). Justifying attitudes by appealing to values: A functional perspective. British Journal of Social Psychology, 27, 247-256.

McGuire, W.J. (1985). Attitudes and attitude change. In G. Lindzey and E. Aronson (Eds.), Handbook of social psychology, 3rd Edition. New York: Random House.

Morris, C. (1968). Varieties of human values. Chicago: University of Chicago Press.

Nelson, C.E. (1968). Anchoring to accepted values as a technique for immunizing beliefs against persuasion. Journal of Personality and Social Psychology, 9, 329-334.

Peterson, R.S. (1994). The role of values in predicting fairness judgements and support of affirmative action. Journal of Social Issues, 50 (4), 95-115.

Rankin, W.L. & Grube, J.W. (1980). A comparison of ranking and rating procedures for value system measurement. European Journal of Social Psychology, 10, 233-246.

Rokeach, M. (1973). The nature of human values. New York: Free Press.

Rokeach, M. (1968a). The role of values in public opinion research. Public Opinion Quarterly, 32, 547-559.

Rokeach, M. (1968b). Beliefs, attitudes, and values: A theory of organization and change. San Francisco: Jossey-Bass.

Rosenberg, M.J. (1956). Cognitive structure and attitudinal affect. Journal of Abnormal and Social Psychology, 53, 367-372.

Schwartz, S.H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M. Zanna (Ed.), Advances in experimental social psychology (Vol. 25, pp. 1-65). Orlando, FL: Academic.

Schwartz, S.H. (1994). Are there universal aspects in the structure and contents of human values? Journal of Social Issues, 50 (4), 19-45.

SPSS Inc. (1997). SPSS for Windows version 8.0 [Computer program]. Chicago, IL: SPSS Inc.

Tetlock, P.E. (1986). A value pluralism model of ideological reasoning. Journal of Personality and Social Psychology, 50, 819-827.

Wicker, F.W., Lambert, F.B., Richardson, F.C., & Kahler, J. (1984). Categorical goal hierarchies and classification of human motives. Journal of Personality, 52, 285-305.

Appendix A

Study Descriptions and Participant Forms

Appendix A

VALUES AS MEDIATING VARIABLES IN ATTITUDE PERCEPTION

INFORMATION FOR PARTICIPANTS

The purpose of this study is to investigate how people form impressions of other people. The study is being conducted by Ms. Rochelle Zorzi under the supervision of Dr. Abraham Ross at the Memorial University of Newfoundland. The information collected by Ms. Zorzi will be used to complete the requirements for a Master of Science degree in Applied Social Psychology.

If you participate in the study, you will be asked to complete a number of short tasks. You will write a brief paragraph, judge the attitudes of a fictitious person, and rate the importance of several values. Altogether, the study should take approximately half an hour. There are no anticipated risks associated with participation. All of your responses will be anonymous. You will be paid $2.75 for your participation.

Participation in the study is voluntary. There is no obligation to complete any or all of it. At any time during the study, you may refuse to answer any question, or ask to have your responses removed from the database.

Your assistance is appreciated.

This study has been reviewed and approved by the Faculty of Science Ethics Committee. Please report any concerns to Dr. John Evans, Chairperson, Department of Psychology.

Appendix A

VALUES AS MEDIATING VARIABLES IN ATTITUDE PERCEPTION

Consent to Participate

The nature of this study has been explained to me. I understand that participation in this study is voluntary, and that I am free to withdraw from the study at any time.

Name (please print): _____

_____ _____

Date Signature

To be signed by the investigator:

I have fully explained the nature of this study to the participant. I have invited questions and provided answers. I believe that the subject fully understands the implications and voluntary nature of the study.

_____ _____

Date Signature, Rochelle Zorzi

Appendix A

Participant ID # _____

Please think about the value of OBEDIENCE (being dutiful, meeting obligations) **as a guiding principle in your life.** Write a short paragraph about what OBEDIENCE means to you, *taking into consideration both positive and negative aspects* (if any) of the value.

Appendix A

Participant ID # _____

Please think about the value of SOCIAL POWER (control over others, dominance) **as a guiding principle in your life.** Write a short paragraph about what SOCIAL POWER means to you, *taking into consideration both positive and negative aspects* (if any) of the value.

Appendix A

Participant ID # _____

Please write a short paragraph about what BEING A STUDENT means to you (or to your life). ***Take into consideration both positive and negative aspects*** **(if any) of being a student.**

Appendix A

Participant ID # _____

Think back to when you were trying to decide whether or not the fictitious target person would agree with the attitude statement. How did you arrive at your decision?

Some things to consider: What did you think of when you were trying to decide? Did you make any other decisions about what the person would be like? If so, what were they?

Did you think about the value of OBEDIENCE when you were deciding whether the person would agree/disagree with the statement? ☐ YES ☐ NO

Please explain:

Appendix A

Participant ID # _____

Think back to when you were trying to decide whether or not the fictitious target person would agree with the attitude statement. How did you arrive at your decision?

Some things to consider: What did you think of when you were trying to decide? Did you make any other decisions about what the person would be like? If so, what were they?

Did you think about the value of SOCIAL POWER when you were deciding whether the person would agree/disagree with the statement? ☐ YES ☐ NO

Please explain:

Appendix A

Participant ID # _____

Think back to when you were trying to decide whether or not the fictitious target person would agree with the attitude statement. How did you arrive at your decision?

Some things to consider: What did you think of when you were trying to decide? Did you make any other decisions about what the person would be like? If so, what were they?

Appendix B

Details of Study One Results

The tables in this appendix use key words to refer to attitude and value items. The complete wording for the items is as follows:

Attitudes

Rock videos exploit women.
Drug abusers deserve help.
Any touching a child does not like should not be allowed.
Getting involved in politics is a meaningful way to contribute to one's country.
Nuclear weapons are a grave threat to our children and future generations.
The death penalty should never be applied.
No government funds should be awarded to agencies promoting abortion.
Birth control medication and devices should be restricted to married couples.
Sex education encourages kids to have sex.
True fulfilment for a woman comes from raising a family.
Most unemployed people are just lazy.
Homosexuality is a sickness of our modern society.

Values

A World at Peace (free from war and conflict)
Equality (equal opportunity for all)
Helpfulness (working for the welfare of others)
Responsibility (dependability, reliability)
Social Justice (correcting injustice, care for the weak)
Family Security (safety for loved ones)
Moderation (avoiding extremes of feeling and action)
Obedience (being dutiful, meeting obligations)
Preserving my Public Image (protecting my "face")
Social Order (stability of society)
Broad-mindedness (tolerance of different ideas and beliefs)
Freedom (freedom of action and thought)
Social Power (control over others, dominance)
An Exciting Life (stimulating experiences)

Appendix B

Table B-1: Response Rates for Attitude-Value Pairs, *Attitude-to-Value Condition*

n = 25 for all cells		Attitudes					
		Rock Videos	Drug Abuse	Child Abuse	Politics	Nuclear Weapons	Death Penalty
Values	Peace	80%	84%	68%	96%	100%	88%
	Equality	80%	96%	72%	88%	76%	96%
	Helpfulness	80%	100%	96%	96%	88%	88%
	Responsibility	84%	92%	80%	96%	92%	72%
	Social Justice	92%	100%	96%	88%	84%	100%
	Family	88%	100%	100%	84%	100%	80%
	Moderation	72%	80%	68%	72%	76%	96%
	Obedience	72%	84%	80%	92%	80%	84%
	Public Image	84%	76%	68%	92%	80%	72%
	Social Order	88%	100%	92%	88%	92%	96%
	Broad-minded	88%	96%	84%	72%	68%	84%
	Freedom	88%	80%	88%	92%	84%	96%
	Social Power	84%	84%	92%	96%	100%	96%
	Exciting Life	76%	52%	36%	76%	60%	56%

Table B-1 (Cont.): Response Rates for Attitude-Value Pairs, *Attitude-to-Value Condition*

	n = 25 for all cells	Attitudes					
		Abortion	Birth Control	Sex Education	Women's Liberation	Unem-ployment	Homo-sexuality
Values	Peace	72%	52%	52%	60%	56%	64%
	Equality	92%	84%	76%	80%	88%	96%
	Helpfulness	88%	80%	64%	88%	92%	84%
	Responsibility	80%	88%	92%	92%	92%	76%
	Social Justice	84%	80%	64%	76%	88%	88%
	Family	80%	84%	96%	96%	84%	72%
	Moderation	72%	76%	80%	72%	84%	84%
	Obedience	76%	92%	84%	92%	84%	72%
	Public Image	84%	80%	80%	64%	80%	92%
	Social Order	84%	88%	92%	88%	92%	96%
	Broad-minded	96%	100%	88%	84%	84%	100%
	Freedom	100%	100%	84%	76%	84%	100%
	Social Power	84%	88%	84%	88%	80%	96%
	Exciting Life	60%	84%	72%	80%	72%	52%

Appendix B

Table B-2: Response Rates for Attitude-Value Pairs, *Value-to-Attitude Condition*

	n = 25 for all cells	Attitudes					
		Rock Videos	Drug Abuse	Child Abuse	Politics	Nuclear Weapons	Death Penalty
Values	Peace	80%	100%	100%	96%	100%	92%
	Equality	88%	100%	92%	96%	88%	96%
	Helpfulness	84%	96%	100%	96%	100%	96%
	Responsibility	80%	96%	100%	96%	88%	84%
	Social Justice	96%	100%	100%	100%	100%	100%
	Family	100%	100%	100%	80%	100%	96%
	Moderation	92%	96%	100%	96%	96%	96%
	Obedience	80%	88%	92%	100%	88%	88%
	Public Image	84%	96%	96%	96%	92%	88%
	Social Order	84%	96%	96%	100%	100%	100%
	Broad-minded	96%	100%	92%	92%	100%	96%
	Freedom	92%	96%	92%	100%	92%	88%
	Social Power	88%	96%	88%	96%	100%	100%
	Exciting Life	96%	88%	92%	96%	88%	96%

Table B-2 (Cont.): Response Rates for Attitude-Value Pairs, *Value-to-Attitude Condition*

n=25 for all cells		Attitudes					
		Abortion	Birth Control	Sex Education	Women's Liberation	Unem-ployment	Homo-sexuality
Values	Peace	96%	84%	80%	84%	84%	96%
	Equality	92%	96%	96%	92%	88%	100%
	Helpfulness	92%	96%	96%	84%	92%	100%
	Responsibility	84%	92%	96%	88%	92%	84%
	Social Justice	92%	100%	96%	88%	100%	92%
	Family	92%	100%	92%	92%	84%	96%
	Moderation	100%	100%	96%	88%	96%	96%
	Obedience	88%	96%	76%	96%	96%	84%
	Public Image	96%	96%	88%	92%	96%	96%
	Social Order	96%	92%	96%	88%	100%	100%
	Broad-minded	96%	100%	100%	84%	92%	100%
	Freedom	92%	100%	92%	88%	84%	100%
	Social Power	84%	96%	84%	92%	96%	100%
	Exciting Life	84%	96%	96%	100%	88%	88%

Table B-3: Means and Standard Deviations of Importance Ratings

Values		Attitudes					
		Rock Videos	Drug Abuse	Child Abuse	Politics	Nuclear Weapons	Death Penalty
Peace	M	2.80*	2.52	2.35	2.17	1.20	2.50
	SD	0.83	0.81	0.93	1.00	0.50	1.10
	n	20	21	17	24	25	22
Equality	M	2.15	1.88	2.28	2.41	2.47	1.92
	SD	1.23	0.80	0.89	0.80	0.77	0.78
	n	20	24	18	22	19	24
Helpfulness	M	2.75	1.68	2.17	2.17	1.81	2.41
	SD	0.85	0.70	0.82	0.76	0.80	0.80
	n	20	25	24	24	22	22
Responsibility	M	2.52	2.39	2.25	1.96	2.13	2.56
	SD	0.75	0.89	0.91	0.81	0.87	0.62
	n	21	23	20	24	23	18
Social Justice	M	2.13	1.84	1.75	2.18	1.95	2.32
	SD	0.87	0.85	0.79	0.80	1.02	1.03
	n	23	25	24	22	21	25
Family	M	2.32	2.12	1.24	2.43	1.36	2.85
	SD	0.78	0.67	0.52	0.87	0.76	1.42
	n	22	25	25	21	25	20
Moderation	M	3.50	3.20	3.24	3.28	3.16	3.17
	SD	0.79	0.77	0.90	0.83	1.01	0.96
	n	18	20	17	18	19	24
Obedience	M	2.94	2.76	2.75	2.22	2.90	2.86
	SD	0.87	0.83	0.72	0.80	1.02	0.65
	n	18	21	20	23	20	21
Public Image	M	3.05	3.79	3.00	2.22	3.55	3.50
	SD	1.07	0.71	1.00	1.00	1.05	1.04
	n	21	19	17	23	20	18

*lower scores indicate higher agreement

Table B-3 (Cont.): Means and Standard Deviations of Importance Ratings

Values		Attitudes					
		Abortion	Birth Control	Sex Education	Women's Liberation	Unem-ployment	Homo-sexuality
Peace	M	3.06	3.08	3.23	2.60	3.29	3.38
	SD	*0.80*	*0.76*	*0.72*	*1.12*	*0.61*	*1.15*
	n	18	13	13	15	14	16
Equality	M	3.83	4.14	3.53	3.65	3.45	4.46
	SD	*1.40*	*0.79*	*0.61*	*0.93*	*1.01*	*0.93*
	n	23	21	19	20	22	24
Helpfulness	M	3.09	3.40	3.13	2.73	3.91	3.67
	SD	*1.06*	*0.88*	*0.72*	*1.07*	*0.90*	*0.73*
	n	22	20	16	22	23	21
Responsibility	M	2.35	2.86	2.26	1.91	2.13	2.74
	SD	*1.14*	*1.04*	*0.92*	*0.90*	*0.87*	*0.81*
	n	20	22	23	23	23	19
Social Justice	M	2.38	3.00	2.88	3.21	3.64	3.55
	SD	*0.97*	*0.86*	*0.81*	*0.98*	*1.14*	*0.96*
	n	21	20	16	19	22	22
Family	M	2.30	2.38	1.92	1.71	2.71	2.22
	SD	*1.08*	*1.20*	*0.88*	*1.00*	*0.96*	*1.06*
	n	20	21	24	24	21	18
Moderation	M	3.61	3.05	3.00	3.50	3.62	3.48
	SD	*0.92*	*1.03*	*0.86*	*0.79*	*0.74*	*1.03*
	n	18	19	20	18	21	21
Obedience	M	2.42	2.61	2.43	2.22	2.24	2.56
	SD	*0.90*	*0.84*	*0.81*	*0.74*	*1.09*	*0.92*
	n	19	23	21	23	21	18
Public Image	M	3.14	2.95	2.75	3.19	2.85	2.30
	SD	*1.01*	*1.00*	*0.85*	*0.91*	*0.99*	*1.06*
	n	21	20	20	16	20	23

Table B-3 (Cont.): Means and Standard Deviations of Importance Ratings

Values		Attitudes					
		Rock Videos	Drug Abuse	Child Abuse	Politics	Nuclear Weapons	Death Penalty
Social Order	M	2.36	2.36	2.35	1.73	1.87	2.88
	SD	0.85	0.81	0.71	0.83	0.81	0.90
	n	22	25	23	22	23	24
Broad-minded	M	3.91	2.58	3.62	2.67	3.35	2.86
	SD	0.87	1.02	0.97	1.03	0.93	1.20
	n	22	24	21	18	17	21
Freedom	M	3.68	2.95	3.18	2.48	2.48	2.50
	SD	1.46	0.83	1.40	0.99	1.12	1.25
	n	22	20	22	23	21	24
Social Power	M	3.05	3.86	4.00	2.71	4.04	3.88
	SD	1.20	0.65	1.04	1.20	0.98	1.15
	n	21	21	23	24	25	24
Exciting Life	M	3.95	3.23	3.80	3.26	3.40	3.14
	SD	0.71	0.93	1.03	0.73	0.74	1.10
	n	19	13	10	19	15	14

Table B-3 (Cont.): Means and Standard Deviations of Importance Ratings

Values		Attitudes					
		Abortion	Birth Control	Sex Education	Women's Liberation	Unem-ployment	Homo-sexuality
Social Order	M	2.19	2.45	2.39	2.68	2.35	2.08
	SD	*0.81*	*1.10*	*0.58*	*0.84*	*0.93*	*0.93*
	n	21	22	23	22	23	24
Broad-minded	M	4.50	4.40	4.23	3.67	3.81	4.40
	SD	*0.66*	*0.65*	*0.69*	*0.91*	*0.87*	*0.76*
	n	24	25	22	21	21	25
Freedom	M	4.16	4.12	3.71	3.37	3.29	4.20
	SD	*0.90*	*0.88*	*1.01*	*0.83*	*0.56*	*0.91*
	n	25	25	21	19	21	25
Social Power	M	2.52	2.64	2.71	2.91	2.60	2.13
	SD	*0.98*	*1.05*	*1.01*	*1.11*	*1.10*	*0.90*
	n	21	22	21	22	20	24
Exciting Life	M	3.60	4.05	4.00	3.50	3.17	3.77
	SD	*0.91*	*0.74*	*0.69*	*0.95*	*0.71*	*0.83*
	n	15	21	18	20	18	13

Appendix B

Table B-4: Means and Standard Deviations of Agreement Ratings

Values		Attitudes					
		Rock Videos	Drug Abuse	Child Abuse	Politics	Nuclear Weapons	Death Penalty
Peace	M	2.50*	1.64	1.56	2.17	1.12	2.26
	SD	0.83	0.57	0.77	1.05	0.33	1.32
	n	20	25	25	24	25	23
Equality	M	3.09	1.44	1.52	2.25	1.68	2.96
	SD	1.19	0.51	0.67	0.85	0.65	1.12
	n	22	25	23	24	22	24
Helpfulness	M	2.38	1.33	1.52	2.13	1.36	2.29
	SD	0.80	0.48	0.87	1.08	0.49	1.16
	n	21	24	25	24	25	24
Responsibility	M	2.35	2.13	1.52	1.79	1.55	3.33
	SD	0.81	0.74	0.65	0.66	0.74	1.15
	n	20	24	25	24	22	21
Social Justice	M	2.13	1.48	1.16	1.96	1.48	3.48
	SD	0.90	0.71	0.37	0.84	0.59	1.33
	n	24	25	25	25	25	25
Family	M	2.16	1.84	1.32	2.50	1.36	3.42
	SD	0.90	0.99	0.90	0.69	0.86	1.32
	n	25	25	25	20	25	24
Moderation	M	2.83	2.67	2.08	2.83	2.54	3.00
	SD	0.72	0.87	0.64	0.82	0.66	0.72
	n	23	24	25	24	24	24
Obedience	M	2.65	2.27	1.70	2.08	1.86	3.68
	SD	0.75	0.88	0.70	0.64	0.89	0.95
	n	20	22	23	25	22	22
Public Image	M	2.52	2.42	1.50	2.33	1.78	3.32
	SD	0.81	1.02	0.51	0.92	0.67	0.89
	n	21	24	24	24	23	22

*lower scores indicate greater importance

Table B-4 (Cont.): Means and Standard Deviations of Agreement Ratings

Values		Attitudes					
		Abortion	Birth Control	Sex Education	Women's Liberation	Unem-ployment	Homo-sexuality
Peace	M	2.96	3.86	3.60	3.09	3.76	3.67
	SD	1.16	0.85	0.94	0.83	0.89	1.20
	n	24	21	20	21	21	24
Equality	M	3.83	4.63	3.75	4.26	3.82	4.48
	SD	1.19	0.58	0.79	0.96	0.91	0.92
	n	23	24	24	23	22	25
Helpfulness	M	3.70	4.21	3.96	2.90	4.13	4.20
	SD	1.29	0.78	0.75	0.94	0.81	0.87
	n	23	24	24	21	23	25
Responsibility	M	2.90	3.56	3.54	2.59	2.43	3.00
	SD	1.14	1.41	1.10	0.85	1.04	1.10
	n	21	23	24	22	23	21
Social Justice	M	3.22	4.24	3.79	3.73	3.88	4.30
	SD	1.35	0.78	0.83	0.88	1.05	0.88
	n	23	25	24	22	25	23
Family	M	3.04	3.48	3.26	2.43	3.29	2.92
	SD	1.26	1.23	1.36	1.12	0.90	0.88
	n	23	25	23	23	21	24
Moderation	M	3.16	3.52	3.29	3.04	3.04	3.17
	SD	0.80	0.71	0.86	0.72	0.55	0.92
	n	25	25	24	22	24	24
Obedience	M	2.50	2.96	3.05	2.17	2.33	2.71
	SD	1.06	1.04	1.08	0.87	0.76	1.01
	n	22	24	19	24	24	21
Public Image	M	2.83	3.46	3.32	3.13	2.75	2.75
	SD	1.01	1.06	0.89	0.92	0.99	1.33
	n	24	24	22	23	24	24

Table B-4 (Cont.): Means and Standard Deviations of Agreement Ratings

Values		Attitudes					
		Rock Videos	Drug Abuse	Child Abuse	Politics	Nuclear Weapons	Death Penalty
Social Order	M	2.29	2.33	1.54	1.80	1.80	3.68
	SD	0.85	1.40	0.59	0.76	0.91	1.07
	n	21	24	24	25	25	25
Broad-minded	M	3.21	1.68	2.30	2.26	2.52	3.25
	SD	0.98	0.63	1.26	0.81	1.01	0.99
	n	24	25	23	23	25	24
Freedom	M	3.35	1.96	1.74	2.36	2.13	2.95
	SD	0.98	0.81	1.10	1.04	0.87	1.25
	n	23	24	23	25	23	22
Social Power	M	3.59	3.13	2.50	1.63	3.20	4.20
	SD	0.91	1.08	1.19	0.77	1.15	0.82
	n	22	24	22	24	25	25
Exciting Life	M	4.00	2.36	1.87	2.71	2.59	3.38
	SD	0.83	0.90	1.01	1.04	1.14	0.97
	n	24	22	23	24	22	24

Table B-4 (Cont.): Means and Standard Deviations of Agreement Ratings

Values		Attitudes					
		Abortion	Birth Control	Sex Education	Women's Liberation	Unem-ployment	Homo-sexuality
Social Order	M	2.63	3.26	2.96	2.73	2.32	2.36
	SD	1.35	1.21	1.12	0.88	0.90	1.19
	n	24	23	24	22	25	25
Broad-minded	M	3.79	4.16	4.04	3.00	3.83	4.40
	SD	1.06	0.75	0.68	1.10	0.83	1.04
	n	24	25	25	21	23	25
Freedom	M	4.09	4.48	4.09	3.82	3.77	4.36
	SD	0.79	0.77	0.73	1.01	0.83	0.95
	n	23	25	23	22	21	25
Social Power	M	3.00	2.54	3.00	2.39	1.96	2.04
	SD	1.26	1.10	1.00	1.12	0.91	1.02
	n	21	24	21	23	24	25
Exciting Life	M	3.71	4.38	3.88	3.92	2.59	3.55
	SD	1.19	0.77	0.99	1.19	1.10	1.10
	n	21	24	24	25	22	22

Table B-5: GLM Results for Individual Values, *Attitude-to-Value Condition*				
Value	Omitted Attitude(s)	F	df	sig
Peace	Nuclear weapons	3.44	10, 80	p<.05
Equality	Videos, Drug abuse, Nuclear weapons, Abortion, Birth control, Sex education Homosexuality	9.01	4, 52	p<.05
Helpfulness	Videos, Nuclear weapons, Death penalty, Birth control, Drug abuse, Unemployment	7.27	5, 70	p<.05
Responsibility	Death penalty, Women's liberation	2.27	9, 108	p<.05
Social Justice	Drug abuse, Death penalty, Birth control, Unemployment, Homosexuality	5.63	6, 72	p<.05
Family	Child abuse, Nuclear weapons, Abortion, Sex education, Women's liberation, Homosexuality	0.62	5, 55	n.s.
Moderation	Child abuse, Politics, Death penalty, Abortion, Sex education, Homosexuality	1.56	5, 55	n.s.
Obedience	Child abuse, Unemployment	1.24	9, 99	n.s.
Public Image	Drug abuse, Child abuse, Nuclear weapons, Death penalty, Homosexuality	3.28	6, 54	p<.05
Social Order	Politics, Birth control, Sex education, Homosexuality	2.56	7, 133	p<.05
Broad-minded	Child abuse, Abortion, Birth control, Women's liberation, Unemployment, Homosexuality	4.61	5, 50	p<.05
Freedom	Videos, Death penalty, Abortion, Birth control, Sex education, Homosexuality	4.13	5, 65	p<.05
Social Power	Drug abuse, Child abuse, Politics, Nuclear weapons, Death penalty	2.15	6, 90	n.s.
Exciting Life	Videos, Nuclear weapons, Abortion, Women's liberation, Homosexuality	1.11	6, 36	n.s.

Table B-6: GLM Results for Individual Attitudes, *Value-to-Attitude Condition*				
Attitude	Omitted Values	F	df	sig
Rock Videos	Equality, Helpfulness, Freedom, Exciting life	3.72	9, 99	p<.05
Drug Abuse	Equality, Helpfulness, Social justice, Public image, Social power	1.92	8,.64	n.s.
Child Abuse	Family, Moderation, Obedience, Public image, Broad-minded, Social power	9.83	7, 42	p<.05
Politics	Moderation, Social order, Social power	3.34	10, 130	p<.05
Nuclear Weapons	Peace, Equality, Helpfulness, Family, Public image, Social power, Exciting life	4.62	6, 60	p<.05
Death Penalty	Helpfulness, Responsibility, Social justice, Moderation, Public image, Freedom, Social power	1.52	6, 66	n.s.
Abortion	Equality, Family, Moderation, Broad-minded, Freedom, Exciting life	1.67	7, 77	n.s.
Birth Control	Equality, Helpfulness, Social justice, Social order, Broad-minded, Freedom	1.91	7, 63	n.s.
Sex Education	Equality, Family, Moderation, Social order, Freedom	3.28	8, 56	p<.05
Women's Liberation	Responsibility, Family, Broad-minded, Exciting life	2.83	9, 81	p<.05
Unemployment	Helpfulness, Social justice, Obedience, Broad-minded	4.07	9, 90	p<.05
Homosexuality	Equality, Social justice, Family, Moderation, Public image, Social order, Broad-minded, Freedom, Exciting life	2.82	4, 44	p<.05

Appendix C

Details of Study Two Item Selection

The tables in this appendix use key words to refer to attitude and value items. See the beginning of Appendix B for the complete wording for the items.

Table C-1: Items Meeting Selection Criteria, *Attitude-to-Value Condition*

		Attitudes					
		Rock Videos	Drug Abuse	Child Abuse	Politics	Nuclear Weapons	Death Penalty
Values	Peace				✓	✓	✓
	Equality		✓		✓		✓
	Helpfulness		✓	✓	✓	✓	✓
	Responsibility		✓		✓	✓	
	SocialJustice	✓	✓	✓	✓		✓
	Family	✓	✓	✓		✓	
	Moderation						
	Obedience				✓		
	Public Image				✓		
	Social Order	✓	✓	✓	✓	✓	
	Broad-minded	(✓)*	✓				
	Freedom	(✓)			✓		
	Social Power			(✓)	✓	(✓)	(✓)
	Exciting Life						

*Note: bracketed checks indicate that the value and attitude were perceived to be related, but in a negative way (i.e., someone who agrees with the attitude statement would not place much importance on the value).

Table C-1 (Cont.): Items Meeting Selection Criteria, *Attitude-to-Value Condition*

		Attitudes					
		Abortion	Birth Control	Sex Education	Women's Liberation	Unem-ployment	Homo-sexuality
Values	Peace						
	Equality	(✓)				(✓)	(✓)
	Helpfulness					(✓)	
	Responsibility			✓	✓	✓	
	Social Justice					(✓)	(✓)
	Family			✓	✓		
	Moderation						
	Obedience		✓		✓		
	Public Image						✓
	Social Order		✓	✓	✓	✓	✓
	Broad-minded	(✓)	(✓)	(✓)			(✓)
	Freedom	(✓)	(✓)				(✓)
	Social Power		✓				✓
	Exciting Life						

Table C-2: Items Meeting Selection Criteria, *Value-to-Attitude Condition*

		Attitudes					
		Rock Videos	Drug Abuse	Child Abuse	Politics	Nuclear Weapons	Death Penalty
Values	Peace		✓	✓	✓	✓	✓
	Equality		✓	✓	✓	✓	
	Helpfulness		✓	✓	✓	✓	✓
	Responsibility		✓	✓	✓	✓	
	Social Justice	✓	✓	✓	✓	✓	(✓)*
	Family	✓	✓	✓		✓	(✓)
	Moderation		✓	✓		✓	
	Obedience		✓	✓	✓	✓	(✓)
	Public Image		✓	✓	✓	✓	(✓)
	Social Order		✓	✓	✓	✓	(✓)
	Broad-minded		✓	✓	✓	✓	(✓)
	Freedom		✓	✓	✓	✓	
	Social Power	(✓)			✓		(✓)
	Exciting Life	(✓)	✓	✓	✓	✓	(✓)

*Note: bracketed checks indicate that the value and attitude were perceived to be related, but in a negative way (i.e., someone who thinks the value is important would disagree with the attitude statement).

Table C-2 (Cont.): Items Meeting Selection Criteria, *Value-to-Attitude Condition*

		Attitudes					
		Abortion	Birth Control	Sex Education	Women's Liberation	Unem-ployment	Homo-sexuality
Values	Peace						(✓)
	Equality	(✓)	(✓)	(✓)	(✓)	(✓)	(✓)
	Helpfulness	(✓)	(✓)	(✓)		(✓)	(✓)
	Responsibility		(✓)	(✓)	✓	✓	
	Social Justice		(✓)	(✓)	(✓)	(✓)	(✓)
	Family		(✓)				
	Moderation		(✓)	(✓)			
	Obedience	✓			✓	✓	
	Public Image		(✓)	(✓)		✓	
	Social Order	✓				✓	✓
	Broad-minded	(✓)	(✓)	(✓)		(✓)	(✓)
	Freedom	(✓)	(✓)	(✓)	(✓)		(✓)
	Social Power		✓		✓	✓	✓
	Exciting Life		(✓)	(✓)	(✓)	✓	(✓)