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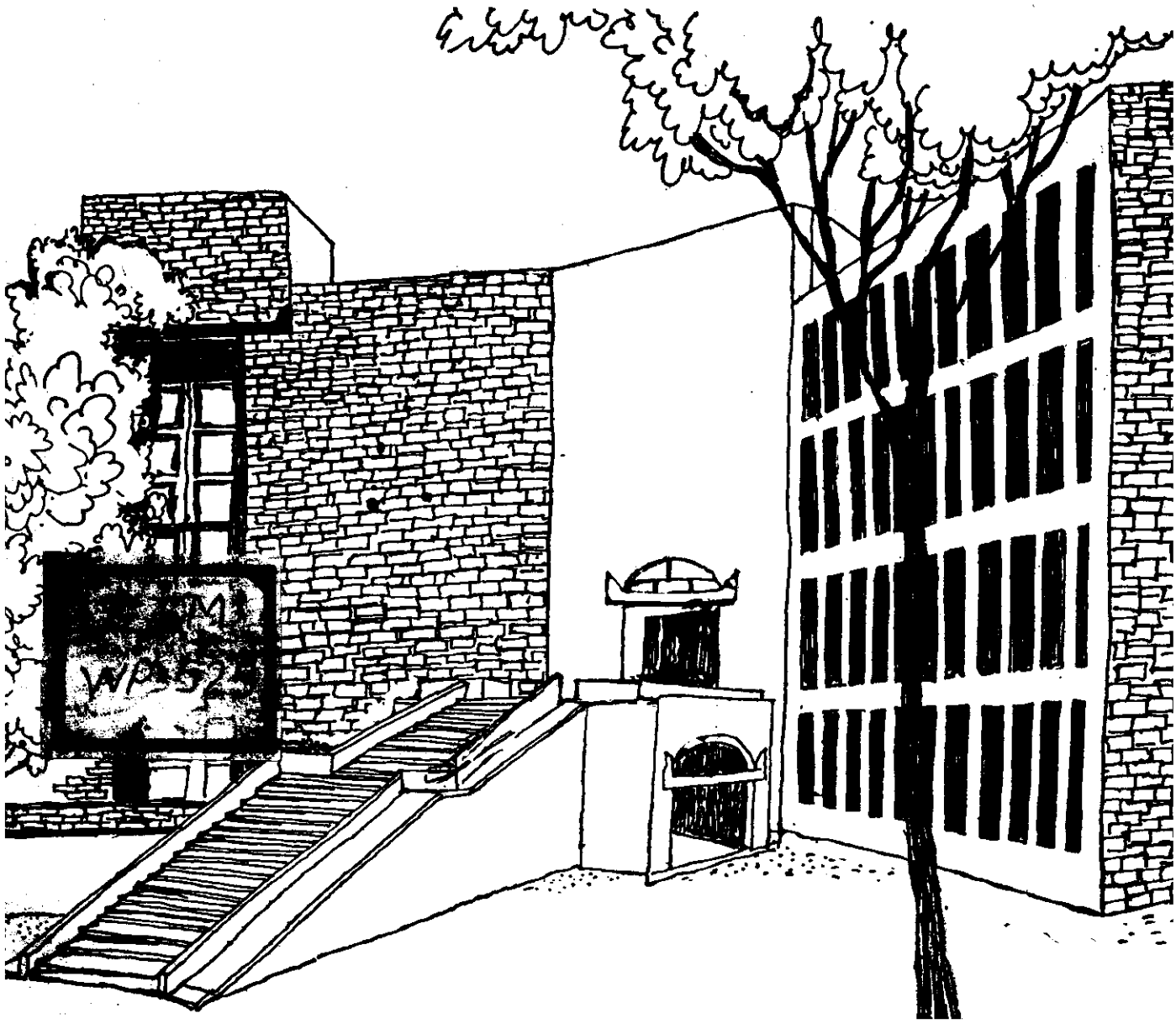

# Attitudes and Social Cognition

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## Abstract

This chapter reviews research in attitudes and social cognition in India during 1975-84. The areas covered are attitudes, impression formation, attribution, and judgment and decision. It is noted that quality of research has improved considerably, and that Indian psychologists are doing not only programatic research but are also concerned with relevance of their research. Experimental rigor and use of theoretical models in the current work suggest that future research is going to be of even better quality.

# Attitudes and Social Cognition

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This chapter presents a review and evaluation of research in attitudes and social cognition in India during the last seven years. While research in attitudes has a long history in India (Rath, 1972), research related to social cognition has been performed only in recent years. This is clear from the fact that the first two surveys of research in psychology (Mitra, 1972; Pareek, 1980, 1981) do not list social cognition in their subject index. This is not surprising, for social cognition came into usage with the establishment of a section on attitudes and social cognition in the Journal of Personality and Social Psychology (April 1980). Since the section on attitudes and social cognition publishes research pertaining to attitudes, impression formation, attribution, and judgment and decision, all the papers pertaining to these areas have been considered in this chapter. This review was supposed to be confined to papers published during 1977-82. Some of the papers published before 1977 and some unpublished manuscripts have, however, been included to present a complete picture of the status of the research in attitudes and social cognition.

In his review of psychological theory and research methods, Mukherjee (1980) noted:

" . . . a general impression that one is likely to get from reviewing published Indian studies on psychological research techniques . . . is that much of it is trival and much of it is methodologically deficient. This is so because most studies do not show much rigor in terms of precision of measurement in drawing appropriate inferences regarding causal factors underlying the phenomenon studies and also in terms of their accuracy of generalization in addition to neglect of a proper conceptualization" (p. 4).

" . . . Indian psychologists, by and large, have not made serious attempt so far to develop mathematical models of behavior. With few exceptions, they have not even made any attempt to apply mathematical models . . . for meaningful interpretation of their data" (pp. 37-38).

The foregoing observations by Mukherjee produced a negative initial opinion of Indian research in the author. As the review progressed, however, the author developed a more optimistic outlook and opinion, for researchers have paid attention not only to method and theory but also to social relevance. Research in the area of attitude, impression formation, attribution, and judgment and decision will be first summarized and then basic contributions by Indian researchers will be highlighted.

# Attitudes

## Attitude Measurement

Much of the research in attitudes has been confined to development of attitude scales and surveys of attitudes and opinions of different group of respondents toward various kinds of social, educational, and job attitudes. Equal appearing interval scales are now available for measurement of attitudes toward dowry system (Chatterjee & Puhan, 1978), sex (Chatterjee & Puhan, 1980), marriage of widows (Chatterjee & Puhan, 1980), workers attitude toward management (Puhan & Mohanty, 1980), and students' attitudes toward nationality groups (Upmanyu & Vasudeva, 1980, 1981). Scalogram analysis (Upmanyu & Singh, 1978), Likert-type scale (Satyarthy, 1979; Hasan, 1981; Singh & Sinha, 1982), and semantic differential scale (Dayal & Kapoor, 1980; Rao, 1978) have all been employed. It is regretable, however, that the users of the Thurstone, Likert, and Osgood scales have not checked whether these scales in fact measured attitudes on interval scales.

## Attitude Surveys

Child-rearing attitudes. Child-rearing attitudes still seem to be interesting to Indian researchers. Srivastava (1981) found that mothers behave with their children in much the same way as their parents has behaved with them, as if education of parents had no impact in their child-rearing attitudes. Mothers of mentally retarded children were found

to be fastering dependency in their children. They were stricter in behaviors with their children, were more irritable emotionally, and had more marital conflicts than mothers of normal children (Srivastava, Saxena, & Saxena, 1978).

S. Singh (1983) found that mothers of children having high and low hostility were also different in their child-rearing attitudes. Mothers of highly hostile school students were stricter than those of low in hostility; they believed more in avoidance of communication and in dependency in their children than mothers of children with low hostility.

Family planning and abortion. A number of researchers have studied attitude toward abortion and family planning, an issue of direct relevance. Sinha and Ansari (1975) reported a favorable attitude toward family planning in population of college students and service holders. Similar result has been reported in other studies as well. Family planning is equally accepted by people of high as well as low socio-economic status (Pratap & Srivastava, 1982), women (Goyal, 1978) and school teachers (Tiwari & Marbhatt, 1980) have also accepted it favorably.

Opinions, however, vary with respect to reasons for abortions. Women favor abortion on health ground (Goyal,

1978); teachers dislike intentional abortion (Tiwari & Marbhatt, 1980). Dayal and Kapoor (1980) report that meaning of abortion and attitude toward medical termination of pregnancy are different: Abortion elicits negative reactions; medical termination of pregnancy elicits positive reactions.

Educational issues. Attitude toward educational issues have also drawn attention of researchers. Thakur and Thakur (1977) found favorable attitude toward 10 + 2 + 3 pattern of education in educated adults. Satyarthy (1979) reports that Hindu and Muslim students are different in their attitude toward class but not in general attitude toward school.

With respect to religious attitudes, however, Hindu and Muslims differ significantly. Singh, Singh, and Sinha (1981) found that Muslim students from both mixed and segregated schools were more unfavorable in their attitudes toward Hindus than were their Hindu counterparts toward Muslims.

Attitudes of teachers have also been surveyed. Jaleel and Subramania (1979) found that there is a positive but low correlation between bureaucratic orientation of college teachers and their attitudes toward teaching. With increasing experience, the bureaucratic orientation decreased and

favorable attitude toward teaching increased. Reddy (1979) reports that college teachers are in general favorable toward internal assessment of students. Singh and Dash (1980) studied attitude of male and female primary school teachers toward teaching profession, classroom teaching, child-centered practices, educational processes, pupil, and teachers. There was a significant age by sex interaction effect in all the six subscales. Over increasing age, females became more favorable on all the six issues, whereas male became less favorable.

What do educators and trainees think of women? Hasan (1981) studied attitudes of teachers and administrators toward working mothers. She found that attitude toward working mothers is more favorable in males than females. Furthermore, teachers were more favorable towards working mothers than were administrators. Verma and Srivastava (1983) found that males were not in favour of womens' participation in attending clubs and parties. Even females were not in favor of allowing women to dance in the social functions. The authors concluded that people are still bounded by traditional values.

Work-related issues. Attitude toward some issues pertaining to work domain have also been studied. Bhushan (1978) found that job security, promotion, avenues, higher pay, friendly supervision, and less hour of work varying in order

of importance from high to low for industrial workers. Shantamani (1979) noted differences in attitudes of employees and employers towards job incentives. Employees considered "credit for all work done" and counselling and personal problems as important job incentives. But employers thought that employees considered fair pay and job security as important incentives.

The study just mentioned has implication for effectiveness of managers in organisations. This point emerges clearly from the study by Srivastava and Verma (1978). They found that supervisors who perceive greater similarities between their own needs and those of their workmen were more effective in handling their subordinates than those who perceived dissimilarities. In addition, workmen who perceived greater similarities with their supervisors had more unfavorable attitude toward labor union than those who perceived dissimilarities with their supervisors.

Surveys of attitudes in managerial populations have also been done. Agrawal (1980) found that young first-line managers with formal education are in general favorable toward management, supervision as a process, employees as subordinates, and human practices. Awareness of polution problem is, however, moderate in Indian managers and they

are relatively unconcerned about the polution problems. This problem is more serious in public than private sector managers (Jaggi & Westacold, 1975).

Caste and intergroup attitudes. In a society dominated by caste considerations, it is necessary to assess attitude toward caste and other groups periodically. Such attempts have been made. Sidana, Singh, and Srivastava (1976) found that positive attitude toward one's own caste and negative attitude toward other castes develop quite eagly in children. Anant (1977) reported that inter-caste attitude was more liberal in 1972 than 1968. In a subsequent study (Anant, 1978) he found north and south Indian students to be more liberal in their inter-caste attitudes than respondents from the general population. They were, however, opposed to giving special privileges to people of oppressed class.

Upmanyu and Singh (1978) found similar tendency in Punjab students. They were unfavorable toward statutory privileges to scheduled castes. These results were replicated with respondents from other populations (Upmanyu & Singh, 1981). In addition, it was found that favorable and unfavorable attitude toward scheduled castes depend upon how they affect self-interest of the respondents. Attitude toward scheduled castes was favorable in those spheres which do not affect respondents directly than those spheres which affect them directly.

Five studies deal with the question of how ethnic attitudes are formed. Mahanta (1977) found that the relationship between religious and ethnic attitudes is mediated by political ideology. Mohsin (1976) reports that positive evaluation of ingroup and negative evaluation of outgroup are characteristics of people suffering from psychological insecurity. Majeed and Ghose (1981) report that ethnic attitudes depend upon the societal position of the respondents. High caste Hindus hold favorable attitude toward their own groups and unfavorable attitudes toward outgroups; Muslims hold favorable attitudes toward their own group and toward high caste Hindus but unfavorable attitude toward scheduled castes; scheduled castes hold favorable attitude toward people of all groups. Attitude toward equality is thus more prevalent in respondents of scheduled castes than upper caste Hindus and Muslims. The authors have interpreted these results as supportive of Tajfel's (1978) theory of intergroup relations.

Tripathi and Srivastava (1981) tested the hypothesis that Muslims' favorable attitude toward ingroup and unfavorable attitude toward outgroup members is mediated by their relative deprivation. They predicted, therefore, that glorification of ingroup and devaluation of outgroup

would be characteristics of Muslims high in relative deprivation. Results reported by the authors in their Table 2 (p. 316) basically support their prediction. Also, subjects high in relative deprivation felt that Hindus perceived their group negatively. Although Tripathi and Srivastava do not refer to the findings reported by Mohsin (1976), their results are quite similar. Insecurity and deprivation contribute to ethnocentrism and ethnic prejudice.

Bohra (1979) tested prediction from Allport (1958) theory of ethnocentrism and Paranjpe (1970) theory of intergroup attitudes with male undergraduates member of five caste groups. Subjects rated members of their own caste, religious group, and other religious group. Allport's prediction that people define their ingroup on the basis of a narrow criterion was contrasted with Paranjpe's prediction that the position of the respondents within a societal framework determines the criterion of defining ingroup. Results indicated that respondents coming from upper part of social continuum define their ingroup on the basis of caste, as Allport predicts. However, respondents from the lower part of the continuum define ingroup on the basis of religion consistent with the Paranjpe. Bohra concluded, therefore, that the basis of ingroup feelings among members

of society varies with their position within the societal framework. This result agrees with result reported by Majeed and Ghose cited earlier, and calls attention to the importance of testing social theories in different societies.

Attitudes toward nationality groups. Upmanyu and Vasudeva (1980) measured attitudes of students toward Chinese, Pakistanese, and Russians. They found that students are favorable toward Russians but unfavorable toward Chinese and Pakistanese. The magnitude of unfavorability toward Pakistanese was higher than that toward Chinese. These results were replicable (Upmanyu & Vasudeva, 1981).

## Acquisition and Change of Attitudes

Attitudes and behavior. Gupta (1979) studied relationship between attitude toward mathematics and achievement in mathematics. He found very high correlation between the two. Measures of self-confidence were also taken. Partial correlation indicated that achievement correlates both with self-confidence and with attitudes. This study is important, for it shows that achievement can be enhanced by promoting appropriate attitudes.

Two other studies (Kumar & Gairola, 1978, 1983) also indicate that attitudes determine behavior. Women who adopted family planning methods were more favorable toward family planning than those who never used family planning.

It should be noted that the three studies do not establish causal relationship between attitude and behavior. It can be argued that behaviors actually caused attitudes. Students who do well in math develop favorable attitude toward math. Similarly, women who adopt family planning devices form favorable attitude toward family planning.

Acquisition of attitudes. Kanekar (1976) has reviewed literature on observation learning of attitudes. He has argued that classical conditioning mediates relationship between observation of model behavior and the attitude of the observers. A model's positive or negative emotional behavior normally lead to similar arousal of emotion in the observers. Thus, the observers associate emotional reactions to the attitudinal object paired with the model. Kanekar's theorization has an intuitive appeal and so it deserves empirical test.

Kanekar (1977) studied effects of intention, expectancy from actor, and actual behavior of an expert on willingness of subjects to undertake physical pain. A clinical psychologist indicated the level of shock that

he thought the subject could take, and also indicated level of shock for himself. His message was presented in such a manner that made the subjects feel that message was intentional or genuine.

This study obtained effects of expectation and behavior of the source but not of his intention on subjects' chosen level of shock. Although Kanekar had performed this experiment within attribution paradigm, his results seem to be more relevant for how others affect our attitude toward certain capability, ability to absorb physical pain in the present case.

Perhaps the most systematic study of acquisition of attitudes has been made by Mrinal (1980). He exposed 4-5 year and 10-11-year olds to story models (no model, crow, boy, girl, man and woman) and examined impact of their persistence on a task on subject's persistence. He found that the crow model was the most suitable for younger children. Older children were more influenced by adult human model. Also, boys imitated the same-sex model more than the opposite-sex model, whereas girls responded in the same way to both the male and female models. Attitude toward achievement was thus acquired by exposure to story models. Mrinal discussed theoretical implications of these findings along with their practical implications.

Attitude change. Pandey and Khan (1976) examined impact of persuasive communication on acceptance of a course on population dynamics in an undergraduate engineering program. Subjects indicated their acceptance before and after communication. One group of subjects listened to a 15-minute lecture on population dynamics; another group of subjects listened to a 15-minute lecture on sociological theory. Because of this manipulation, acceptance of the course as a requirement for undergraduate degree increased in the experimental group but not in the control group. However, subjects were not willing to take the course themselves. These results suggest that cognition and self-interest do not have to be always consistant.

In a study of undergraduate female students, Rao (1981) found that exposure to counter attitudinal material does not change attitudes in all domains: Students changed their attitudes toward superstition but not toward science. Rao suggested, therefore, that both cognitive consistency theory and functional theory of attitude change are complimentary. It should be noted that inconsistency over two response measures are identical to that found by Pandey and Khan (1976).

Bhagwat and Rao (1980) studied impact of logical and wishful thinking on attitude change. They found that wishful thinking is more effective than logical thinking when issue is emotionally changed. Logical thinking, on the contrary, is more effective than wishful thinking for neutral issues.

Comments

From the literature presented above, it is clear that researchers have paid attention to survey of attitudes towards issues of social and national importance. Generality of the results of most of these studies is, however, questionable because of small sample size. There is no attempt to trace broad trends in attitudes toward various issues at state and national level. Each investigator seems to have selected a small group of convenient samples for the surveys without much concern for the generality of the results.

Research in caste and intergroup attitudes as well as acquisition and attitude change is rather limited. However, they present an encouraging picture. The major strength of the various studies is use of theory in generating predictions. It would be nicer to see much more research of such type from Indian psychologists.

## Impression Formation

Impression formation refers to the process through which we form opinions of other people and events. This topic has been studied in India. Relevant literature is summarized below.

## Person Perception

Stimulus presentation. Some studies (I.S. Singh, 1980a, 1980b) employed live stimulus persons and asked subjects to judge their personality along standardized instruments (e.g., 16 PF scale). The results that male and female stimulus persons are perceived differently, and that age and sex of subjects make differences in judgment of personality have neither theoretical and practical interest. One would wonder why such studies were performed at all.

Perhaps a better approach was to examine impact of format of stimulus presentation on person perception. Gupta (1980) presented real person, his photograph, or some written sentences. He found that all three formats of presentation yielded comparable impression.

Personality and person cognition. Role of personality of the perceivers in the cognition of other persons has been studied competently by Misra and Kalro (1979). According to Kelley and Stahelski (1970), individuals with competitive orientation with social relationship believe the world to be composed of the competitive individuals. Those with cooperative orientation, on the other hand, believe the world to be heterogeneously composed of both

competitive and cooperative people. Cross-cultural generality of this hypothesis was tested in an experiment, using Prisioners Dilemma Game (Deutsch, 1960).

Results basically supported the triangle hypothesis. The trusting and trustworthy subjects thought that other person would be trusting (58.5%) or suspicious (41.5%). On the contrary, the suspicious subjects thought that the other person would be suspicious (85.5%). Thus, results provided a cross-cultural generality of the triangle hypothesis.

This study obtained two other notable results. First, the trusting and trustworthy subjects described trusting-other as honest, peaceful, and moral. But suspicious and untrustworthy subjects described the trusting-others as passive, weak, cowardly, and foolish. Second, eighty-one per cent of the suspicious subjects thought that the other player was a female. In contrast, the trusting and trustworthy subjects thought that the other person could be either a male (49%) or a female (51%). Considered together, these results indicate that persons having different orientations perceive a same stimulus person differently.

Singh (1976) classified subjects into four groups on the basis of their scores on the affective style scale (Ehrlich & Lipsey, 1969) and asked them to judge likableness

of 20 persons, 10 described by one negative adjective and 10 described by one positive adjective. The 10 adjectives were presented in such a way that they allowed a study of change in impressions over trials of judgments. Results indicated effect of subjects' affective style: Extremity of likableness was linked with affectivity. In other words, affectivity and extremity of responses were positively related. A similar relationship across ten trials of judgments further indicated that affective style of the subjects remained stable across successive judgments.

However, when Singh and Brink (1975) asked general subjects to judge other persons over ten trials, there was a regression effect: The difference between ratings of positive and negative persons decreased systematically over trials. This indicates that the impression formation task can be used to study role of personality in person cognition.

Theoretical controversies. In impression formation research, there has been a controversy on the impact of the number of similar pieces of information on interpersonal judgment. Two persons, one described by one positive adjective and another by two positive adjectives, are rated differently in their likableness. Likableness is greater with two positive traits than one positive trait. At the overt level, it implies that various pieces of information are added

together. Anderson (1965) has, however, argued that the increase in likableness is due to averaging of an initial opinion of the subjects with the external information. In addition, effect of size of descriptive sets on likableness is usually obtained in a within-subjects design but not in a between-subjects design.

Singh (1977) reviewed the various models of impression formation and tried to explain why amount of information produces an effect in a within-subject design but not in a between-subject design. He suggested that the two designs invoke different kinds of psychological processes. The within-subject design widens perspective of the subjects (Upshaw, 1969) and so produces the effect of number of similar pieces of information on impression formation. On the contrary, the between-subject design, does not contribute to the judges' perspective and so fails to evoke set-size effect. Subject variable of perspective thus plays an important role in person cognition.

Bose (1979) has also reviewed the treatment of social perception in various books of psychology. His exposition deals with perception of physical environment by individuals and perception of other individuals. Although his synthetic attempt is praiseworthy, his references are dated. Only 11% of his references are after 1962, when research in impression formation emerged as major area of inquiry.

Perception of Events

The sixth general election for parliament in India has special importance in Indian history, for it was held during the period of national emergency declared by power. Dalal, Bohra, and Tiwari (1980), thus, studied electorates' perception of the 1977 general election 24 days and one day before the election.

As the date of election approached, respondents perceived a greater likelihood of free and fair election. The candidate was the prime consideration in making voting decisions in the first survey; the emphasis shifted to party in second survey. Though most of the respondents were sympathetic to the Janata Party, a coalition of the opposition parties, they were not sure how this party could lead the nation if it came to power. Respondents were also uncertain about the uncertainty of democracy in the country. However, they preferred state of uncertainty over stability maintained through coercive measures. Though this study did not test any theoretical prediction, it indicates that educated electorates in India are quite realistic in their perception of political events in the country.

Singh, Bohra, and Dalal (1979) studied favorableness of leadership situations at four different temporal intervals:

June 1976; January 1977 (first week); January 1977 (second and third week); and April 1977. These periods had different socio-political properties in India. During the first three periods, the country was under an imposed internal emergency, and the sense of descipline in the masses was induced through coersion, suspension of fundamental rights, and other extra-constitutional measures. The fourth period had brought a great sense of relief in Indian people because the congress government was voted out and the internal emergency was lifted in March 1977. As these periods influenced the social, political, and economic life of people in India differently, they provided a unique, naturalistic opportunity for the study of changes in the relative importance of group atmosphere, task structure, and the position power of the leader as determinants of favorableness of leadership situations (Fiedler, 1967).

The most striking result was that a position power was the one dominant factor within the first period of emergency, perhaps a direct reflection of the fact that emergency was imposed by power. With time for recovery, however, the importance of group atmosphere increased to equal that of position power, a result that may reflect the basically democratic orientation of Indian students.

Comments

There is a great heterogeneity in the published literature on impression formation. Papers seem to be of good as well as bad quality. Research is experimental as well as correlational. There were also attempts to study naturalistic situations. The main negative aspect is lack of cumulative research in impression formation.

## Attribution

Attribution researchers have considered three types of problems. The first is how ordinary people infer causal relationship between some outcome and an event that may have caused that outcome. Finding answer to questions such as why poor remains poor, why X helped or harmed Y and why authors do not send reprints of their papers when requested are examples of inference of causes from effect. The second is social evaluation of the actor based on some salient cues. Assignment of responsibility for an event from cues about characteristics of the actor and outcome of the event is an example of social evaluation. The third is prediction of events from known causes. Prediction of performance of a student from information about his motivation and ability is an example of this process. In this section, research related to the first two processes will be reviewed. Prediction of events will be considered in the next section on judgment and decision.

## Causal Inference

Attribution of causality to poverty. Pandey and his associates studied attributions of causality to poverty in India. They developed an 8-item Perceived Cause of Poverty Scale which asks respondents to agree/disagree with 2 items pertaining to four causes, namely, self characteristics, fate and luck, government systems, and dominance of a few persons in society.

In the first study (Sinha, Jain, & Pandey, 1980), respondents were classified according to their income (low-high), ownership (owner of means of production or nonowner), and locus of control (internal-external), and were asked to respond to the scale mentioned above. Low income respondents attributed poverty to all the four factors significantly higher than high income subjects. Nonowners perceived contribution of Government and dominance of a few people much more than did owners. Finally, external respondents attributed poverty to fate much more than internal ones.

There were interaction between income and ownership in attribution to self and fate. Nonowner, low income respondents attributed poverty to self as well as fate much more than other three groups of respondents. The interaction

between ownership and locus of control was present in attribution to government systems. This effect was primarily due to higher attribution by nonowner externals than by other three groups. There was also a significant three-way interaction. Thus, the authors concluded that attribution processes are complex and multi-determined.

Pandey, Sinha, Prakash, and Tripathi (1982) followed the work referred earlier (Sinha et al, 1980). They classified subjects according to their political ideology (leftist, rightist, and neutral) and asked them to attribute causes to poverty. Neutrals and right activists attributed poverty more to self and fate than did the left activists. On the contrary, the left activists attributed poverty more to government policies and economics dominance of a few than did the neutrals and right activists. Results thus agreed completely with the authors' hypothesis that attributors' perspective determines attribution of causality to poverty.

Poor people can be of some use to others in the society. For example, poor people can help others by doing their dirty jobs, by utilizing their used consumer goods, or by providing status feeling to rich people. Poverty may thus be functionally important to society. Pandey, Kakkar, and Bohra (1982) developed a scale to measure functional value of poverty and administered it on urban and rural males and females. This study detected that females perceived poverty to be more func-

tional than males. The authors have not made any speculation about why did males and females differ. The difference may be accounted for by lower level of education in women than men or by greater dependence of women than of men on poors in getting household activities done in daily life.

Attribution of causality to behaviors. Dalal, Sharma, and Bist (1983) described helpful or harmful behavior of the stimulus child and asked subjects to infer why did the actor do so. Behaviors were classified as desirable and undesirable on the basis of a prior scaling, and the response measure included two items which held actor responsible and two items which held situation responsible. Subjects of this study are of especial importance, for they were from an ex-criminal tribal school and from a nontribal school. In addition, they varied in age from 8 to 15 years.

Attributions by subjects disclosed interesting trends. The nontribal urban children attributed more responsibility to the stimulus person as they grew older. This was true for desirable as well as undesirable acts. However, the ex-criminal tribal subjects blamed the stimulus persons more often for undesirable acts than held them responsible for desirable acts. As age increased, the ex-criminal tribal children made more person attributions to socially undesirable acts but situational attributions for socially desirable acts.

Findings of Dalal et al fit nicely within the perspective hypothesis proposed by Pandey et al (1982). What is surprising, however, is that researchers from the same department of the same university did not utilize finding of each other in development of the perspective hypothesis.

## Social Evaluation

Assignment of responsibility. Kanekar and his associates (Kanekar & Kolsawalla, 1977a, 1980, 1981a; Kanekar, Kolsawalla & D'Souza, 1981; Kanekar & Vaz, 1983) conducted a series of experiments on assignment of responsibility to rape victims, using students of the University of Bombay as subjects. Victims were described with respect to their social respectability, attractiveness, provocativeness, status, and disability, and subjects were asked to judge fault of the rape victims as well as to recommend number of years of imprisonment to the rapist. The impetus of these studies came from the Lerner's (1965, 1977) hypothesis of just world which makes a startling prediction, pointed by Jones and Aronson (1973), that greater responsibility is assigned to a more respectable than a less respectable victim.

Although the results from the studies by Kanekar and his associates are not highly consistent, three results stand out clearly in assignment of responsibility to rape victims and punishment to rapist. First, neither respectability nor actuality of rape affect judgment of fault of the victims. The just world hypothesis is, thus, not applicable to judgment of fault of the rape victims.

Second, rape may be caused by many factors, for example, physical attractiveness and provocativeness of the victims, but fault is assigned for the behavior under the control of the victims. Kanekar et al. (1981) suggest, therefore, that distinction be made between causal and moral responsibility. They argue that fault is assigned for moral failure such as being sexually provocative and not for being good-looking which is not under the control of the victim.

Finally, attributions of responsibility to rape victims are consistent with defensive attribution or self-protection hypothesis (Chaikin & Darley, 1973). Two lines of evidence presented by Kanekar and his associates favor this hypothesis. One is that male subjects attributed more responsibility to the rape victims than did female subjects. In addition, males recommended less number of years of imprisonment to the rapist than did females. Both judgments provided protection to males, for rape is a crime that could be commited by males only.

Another line of evidence is that females were also defensive in their judgments. A high status victim who was more similar to the female subjects was blamed most when she was dressed provocatively. Also, female subjects thought that physically unattractive women who were dissimilar to them were more likely to be raped than their counterparts.

Kanekar et al (1981) note, " . . . female subjects considered themselves as attractiveness and unprovocative and there seems to be an attempt on the part of female subject to dissociate themselves from the possibility of becoming rape victims" (p. 170).

A greater defensiveness in females in India, argue Kanekar and Kolsawalla (1983), is desirable because there is a double standard for sexuality in males and females. Marriage enhances respectability of a woman much more than that of a man. On the contrary, premarital sex brings greater disrepute to a woman than to a man. In this way, sexual morals are enforced more rigidly to females than to males.

Judgments of nobility and aggressiveness. Kanekar and his associates (Kanekar & Ahluwalia, 1977; Kanekar, Bulsara, Duarte, Kolsawalla, 1981; Kanekar, Duarte, & Kolsawalla, 1981; Kanekar & Kolsawalla, 1977b; Kanekar, Mazumdar, Bulsara, & Kolsawalla, 1979; Kanekar, Mazumdar, Pinto, Bulsara, & Kolsawalla, 1981; Kanekar & Merchant, 1982; Kanekar, Nanji, Kolsawalla, & Mukerji, 1981) studied evaluations of target of aggression and aggressor by students of the University of Bombay. Targets of aggression varied with respects to strength, age, religion, socio-economic status, friendliness, etc., and they retailiated or did not retaliate to the aggressor. Both aggressor and target of aggression were rated

with respects to their morality, adjustment, intelligence, and likability. The atypicality hypothesis of Jones and Davis (1965) served as the theoretical guide. But the practical aspect of this research was by no means less important. In a country where non-violence served as the major method of achieving independence, stereotypes of aggression and non-violence remained unstudied.

The program of research on judgments of target of aggression and aggressor yielded four notable findings. First, the atypicality hypothesis of Jones and Davis received a mixed support. Its major prediction that a non-retaliating strong victim should be rated most positively was not supported. In fact, strength of victim produced no effect at all (Kanekar & Kolsawalla, 1977b). However, the female victim of a male aggressor as well as the male victim of a female aggressor were rated negatively (Kanekar, Nanji, Kolsawalla, & Mukerji, 1981). Also, aggression toward superiors was evaluated positively (Kanekar et al., 1979). These results agree with the atypicality hypothesis.

Second, a non-retaliating victim was always rated more positively than the retaliating one. Aggression toward non-retaliating victim was judged negatively. It appears that non-violence has become a major social value.

Third, there seem to be some norms for aggression. Friends can be aggressive with each other, members of same sex and age can be aggressive with other members, and verbal aggression is more desirable than physical aggression. Also notable is the finding that low status victims are judged more positively than high status victims.

Finally, Muslim subjects rated aggressors more negatively than did Hindu subjects (Kanekar & Merchant, 1982). This result invalidates the common belief about Muslims and Hindus. Although not much weight can be given to this one shot finding, its practical relevance to the sensitive issue of communal violence is considerable.

Comments

Research in attribution processes has considered both theoretical and practical problems. The major virtue of this line of research is its programatic nature and hence solid evidence on the reliability of findings. It is also notable that attribution researchers employed factorial designs, analysis of variance, theoretical models, and clever manipulation. This allowed unambiguous tests of the hypotheses.

## Judgment and Decision

Many situations require us to make judgment and decision on the basis of different pieces of information. Each piece of information carries some meaning along the dimension of judgment. It also carries relative importance in relation to other pieces of information entering into the judgmental task. The theoretical question that emerges, therefore, is how do judges integrate information in their judgment and decision.

Anderson (1981, 1982) has advanced a theory of information integration. According to this theory, much of human judgment and decision obeys the laws of algebra. People follow adding, substracting, multiplying, dividing, and averaging rules in rendering their judgments. Diagnosis of integration rule is important not only in detecting the psychological processes underlying judgment but also in determination of value and meaning of the inputs of judgment.

Over a decade, the author and his colleagues have studied judgment and decisions within the framework of information integration theory. This section presents an overview of the research done so far.

### Averaging Model

Within integration theory, each piece of information has a certain valence or scale value, *s*, and a certain

importance or weight, $\underline{w}$. The $\underline{s}$ represents location of the information along the dimension of the judgment; $\underline{w}$ reflects the importance of the information in the judgment. According to the averaging model (Anderson, 1981), any judgment is a weighted average of all the pieces of external information and the initial opinion of the judges. Mathematically, judgment is

$$J = \sum_{i=0}^{n} \underline{s}_i \, \underline{w}_i . \qquad (1)$$

If two pieces of information are varied as row and column factors in design, then the averaging model predicts a pattern of parallelism in the factorial plot of Row x Column effect. This holds true under the condition of equal weighting of row and column stimuli.

Support for this parallelism pattern has been obtained in judgments of job attractiveness (Dalal, 1978; Singh, 1975), disciplinary judgment (Singh, 1978), judgment of attractiveness of playgroups (Singh, Sidana, & Saluja, 1978a) as well as family groups (Singh, Sidana, & Srivastava, 1978), and favorableness of leadership situations (Singh et al., 1979). Parallelism pattern is consistent with both the adding and averaging rules. In these studies, therefore, authors performed distinguishing test between adding and averaging, and obtained support for averaging model. These results provide cross-cultural generality of information integration processes.

It deserves mention that the experiments referred above were performed not only to diagnose the cognitive algebra underlying judgment and decision per se but also to answer some substantive questions. For example, 6-7-year-olds are considered to be pre-operational children within Piagetian theory (Piaget, 1941/1965; 1970). Evidence for averaging model with children of this group, therefore, raised serious doubt on Piagetian theory of cognitive development (Gupta, 1979; Singh, 1982; Singh, Sidana, & Saluja, 1978b).

Similarly, Fiedler (1977) assumes that favorableness of leadership situations is a sum of group atmosphere, task structure, and position power (Nebekar, 1975). Singh et al (1979), however, obtained evidence for averaging of the three components in judgment of favorableness of leadership situation. Validity of the averaging analysis can be adjudged by the fact that the spacing of leadership situations on the horizontal axis according to the average values yielded a considerably better support for the relationship between leadership style and effectiveness predicted by Fiedler than was obtained with his original spacing system.

Cognitive Algebra in Prediction of Performance

How do people integrate information about motivation and ability when they predict performance of a person. Heider (1958) suggested a multiplying rule, Performance = Motivation x Ability. In Anderson's (1981, 1982) theory of information integration, such a multiplying rule implies a linear fan pattern in the factorial plot of Motivation x Ability effect. Evidence for such a fan pattern was reported by Anderson and Butzin (1974) and by Kun, Parson, and Ruble (1974).

In a study of college students in India, Singh, Gupta, and Dalal (1979) failed to replicate the linear fan pattern found in American studies cited above. In all three experiments, the factorial plot of Motivation x Ability effect had a pattern of near-parallelism. The authors, therefore, proposed a hypothesis of cultural difference. American follow a multiplying rule because of their cultural belief that effort or trying will be more effective with a person of high than low ability. In contrast, Indian follow an equal weight averaging because of the belief that effort or trying will be equally effective with a person of high and low ability.

Two other findings of this work are important. First, test of cultural difference hypothesis was made at the level of individual subjects. Second, the conventional distinguishing tests between adding and averaging which rely on judgment

based on information about one of the two factors were found to be ambiguous. Subjects had a tendency to make inferences about missing information. The authors proposed, therefore, a new distinguishing test.

Gupta and Singh (1981) provided a more thorough test of cultural difference hypothesis, using subjects from five age group. As predicted, subjects averaged information about past performance, motivation, and ability of stimulus students in prediction of their academic performance. Analysis of data of individual child disclosed some differences in integrational capacity. All the 6-7-year-olds had not utilized information about past performance, motivation, and ability of the stimulus students in prediction of their performance. However, most of the children of other age groups had utilized all the three pieces of information.

Singh and Bhargava (1984a) tested the plausibility of the cultural difference hypothesis in a series of six experiments. Stimulus students were described with respect to their motivation as well as ability or with respect to ability alone or motivation alone. Factorial plot of Motivation x Ability effect always yielded parallelism pattern with subjects from both the student and nonstudent populations. Manipulation of difficulty of task did not alter the parallelism pattern at all. Thus, results agreed with the cultural difference

hypothesis between India and America but disagreed with the alternative hypothesis of the task difficulty (Surber, 1981a, 1981b). Distinguishing tests between the adding and constant-weight averaging rule disclosed a developmental trend; high school and undergraduate students follow an averaging rule but graduate students of management follow an adding rule.

Another notable cross-cultural difference was detected in this research. According to the averaging model, judgment of performance should be

$$\text{Performance} = \frac{\underline{w}_M M + \underline{w}_A A + \underline{w}_O I_O}{\underline{w}_M + \underline{w}_A + \underline{w}_O} \qquad (2)$$

where M, A, and $I_O$ are the scale value of motivation, ability and initial opinion and $\underline{w}_M$, $\underline{w}_A$, and $\underline{w}_O$ are their respectable weights. If motivation and ability are multiplied, however, then

$$\text{Performance} = \underline{w}_M M \times \underline{w}_A A. \qquad (3)$$

Surber (1981a) reasoned that reliability of information effect weight parameters. It is possible, therefore, to distinguish averaging rule from multiplying one by manipulating reliability of information. According to the averaging model, the greater the reliability of one type of information, less the effect of other type of information. If the multiplying

rule is, however, correct, then increasing in $\underline{w}_M$ will also increase the effect of ability information. The two models thus made sharply contradictory predictions.

Manipulation of reliability of motivation and ability information by Singh and Bhargava (Experiment 3) yielded evidence for a new model for prediction of exam performance,

$$\text{Performance} = \left[\frac{\underline{w}_o M_o + \underline{w} M}{\underline{w}_o + \underline{w}}\right] + \left[\frac{\underline{u}_o A_o + \underline{u} A}{\underline{u}_o + \underline{u}}\right]. \qquad (4)$$

The M and A refer to the scale value of motivation and ability information, $M_o$ and $A_o$ refer to the initial opinion of Motivation and ability, and $\underline{w}$ and $\underline{u}$ are weights for information about motivation and ability. According to this model, reliability of an information affects initial opinion about that very component at the first stage of integration, and information about motivation and ability are integrated by an adding rule at second stage of integration.

This model makes four precise predictions. First, prediction of exam performance involves subjective initial opinion of the judges. Second, there are separate initial opinion of motivation and ability. Third, although the relationship between scale value and weight is multiplicative in Equation 3, integration of source and information may follow either a multiplying or semilinear rule, depending upon the value of initial opinion. If $M_o = 0$, then the multiplicative relationship between scale value and weight will hold true. But if

$M_o \neq 0$, then a semilinear rule would hold true. Finally, Motivation x Ability effect should have parallelism pattern. These predictions were completely verified. This indicates that Indian and American students also differ in their processing flow of information.

Singh and Bhargava (1984b) changed the nature of task from exam performance to life performance, and asked post-graduate students of management to predict life performance of stimulus persons on the basis of their motivation and ability as well as external opportunity available to them. Results from this series of 4 experiments also obtained evidence for the presence of two initial opinions in the subjects. Prediction of life performance obeyed the following model:

$$\text{Life Performance} = \left[\frac{\underline{w}_o M_o + \underline{w} M}{\underline{w}_o + \underline{w}}\right] \times \left[\frac{\underline{m}_o A_o + \underline{u} A}{\underline{u}_o + \underline{u}}\right]. \quad (5)$$

Since the distinguishing tests based on information reliability did not diagnose the cognitive algebra underlying prediction of life performance, a new test based on the logic of two-operation, averaging-multiplying model (Singh, in press) was employed. Subjects predicted life performance on the basis of one piece of motivation and one piece of ability information as well as three pieces of motivation information and one piece of ability information: In the first case, judgments were made on the basis

of two pieces of information. In the second case, there were four pieces of information. The prediction of averaging model that the two-cue curves should cross over the four-cue curve did not hold true. Instead, the combined factorial plot of Motivation x Ability effect from four and two-cue description conformed to the common linear fan pattern. The results thus supported the multiplying rule, eliminated the averaging rule.

It is also notable that the same linear fan pattern was present across all levels of opportunity available to the stimulus persons. According to Surber's hypothesis of task difficulty (1981a, 1981b), linear fan should have been present when opportunity was low. This result also questions applicability of task difficulty hypothesis in India.

Bhargava (1983) traced developmental changes in prediction of life performance. He found that multiplying rule is used by postgraduate students of management. All subjects below 20 years of age predicted life performance in accord with averaging model. Bhargava suggested, therefore, that nature of task makes difference in prediction of performance after the age of twenty.

Srivastava (1984) tested the hypothesis of nature of task with children. She studied prediction of performance in examination, puzzle competition, and music competition. She obtained evidence for multiplying rule with younger children and adding

rule with older children in prediction of performance in singing competition. Other tasks did not show any developmental difference.

After a careful review of results obtained from the study of examination performance, life performance, and competition performance, Srivastava noted,

> . . . all these three tasks were handled in much the same way by high school and undergraduate college students. All the three tasks yield a pattern of parallelism. This means that this is perhaps a period of optimism and idealism in India, for these students believe that effort or trying will be equally effective with persons of high and low ability. In other words, each person regardless of his or her ability has equal opportunity to improve upon his or her lot. This outlook certainly reflects on the egalitarian attitude of this young group of people in India" (p. 109).

Srivastava was also interested in cognitive development in children. She questioned Piagetian conception of limited cognitive capacity in children, and argued that evidence for adding and multiplying rules in children's judgments portrays young children as a "highly adaptive information processor" (Leon, 1980, p. 94). This conception of children as highly adaptive information processor emerged primarily because of the penetrating approach provided by information integration theory.

Imputations about Missing Information

Most studies of information integration present specific pieces of information and ask judges to take decisions. It is commonly assumed that the given information controls the judgment. The wide success of cognitive algebra (Anderson, 1981) testifies to the usefulness of this tactic. In some situations, however, need information may be missing. Subjects may then impute some value to the missing information to arrive at their judgments. Such imputations are important in cognitive analysis, if, as may be expected, they play a substantial role of processing information.

The problem of imputations about missing information was illustrated with the cognitive algebra of equation, Gift Size = Genarosity x Income (Singh, in press). Given information about person's generosity and income, subjects readily judged how much the person might give to the charitable cause. Judged size of gift obeyed the hypothesized multiplying rule. But when subjects received information about only one variable either generosity or income, they still gave their judgment of gift size. The given information was logically insufficient for making a judgment. Since subjects did make judgment about gift size, that suggests that they might have imputed some value to the missing information.

This possibility of imputations about missing information was raised in two experiments. Subjects predicted gift size on the basis of information about both generosity and income of donars as well as about the generosity alone of the donar. The factorial plot of the Generosity x Income effect yielded the hypothesized linear fan pattern. Generosity-only curve, however, crossed over one of the income curves, as if subjects followed differential-weight averaging and not the multiplying rule.

The above interpretation ignored the possibility that subjects might have made imputations about missing information. There are two natural patterns of imputation. First, subjects may impute a single fixed value, presumably around the average value of specified values in the experiment but then generosity-only condition is essentially the same as the other condition; the imputed income information operates just like the explicitly specified information. In this case, the generosity-only should form part of a linear fan pattern.

The imputation may, however, depend upon the value of given information. An ungenerous person would be assumed to have lower income than a generous person. Similarly, a rich person would be assumed to be more generous than poor person. In this case, the generosity-only curve should cross over the income curves, for the imputed values of income is not constant, but increases as generosity increases.

These possibilities for imputations about missing information and correctness of the multiplying rule, Gift Size = Generosity x Income, (Graesser & Anderson, 1974) were checked in a series of eight experiments (Singh, in press). In all experiments, the factorial plot of Generosity x Income effect had the linear fan pattern and the generosity-only curve crossed over one of the income curves. On the contrary, income-only curve formed part of a linear fan pattern. Findings from generosity alone and income alone descriptions thus did not clearly discriminate multiplying from averaging.

To discriminate the rules, subjects were asked to predict gift size by persons described with respect to three generosity cues and income as well as with one generosity cue and income. According to the two-operation, averaging-multiplying model, the three generosity cues should be first averaged and then multiplied by the income information. Thus, judgment of gift size would be

$$\text{Gift Size} = (\text{Generosity-1} + \text{Generosity-2} + \text{Generosity-3}) \times \text{Income}. \quad (6)$$

According to this model, factorial plot of Generosity-1 x Income, Generosity-2 x Income, and Generosity-3 x Income would all have the linear fan pattern. In addition, the

combined factorial plot from the 4-cue and the 2-cue designs would also conform to the very linear fan pattern. Singh's (in press) results of this experiment are presented in Figure 1.

Insert Figure 1 about here

The critical discrimination between multiplying and averaging rules came from the comparison of filled-circle and open-circle curves. If the multiplying rule is true, then each curve should be a straight line function of income with slope equal to the value of generosity. Hence, the filled-circle and open-circle curves of Figure 1 should form a common linear fan--as indeed they do.

The averaging rule, in contrast, requires that the filled-circle curves should cross over the open-circle curves in each panel. Little or no sign of such crossover can be seen. These results demonstrate, therefore, that the averaging rule is not applicable, and that the multiplying is.

In this research, subjects had also rendered judgment on the basis of information about generosity and income alone. Because the multiplying rule was established, it became possible to show that subjects made imputations about missing information. Two rules for imputations were followed. When

only information about income was given, subjects imputed a fixed value to generosity and multiplied that into given income information. A different imputation rule was applied when only generosity information was given. In this case, subjects imputed an income value that was a direct function of the given generosity information.

Imputations about missing information do not appear to be restricted to the judgment of gift size alone. Prediction of performance from information about motivation and ability of the stimulus persons also disclosed operation of imputations (Gupta & Singh, 1981; Singh & Bhargava, 1984a, 1984b). It is, however, clear that imputations are made by adults only (Bhargava, 1983; Gupta & Singh, 1981).

One methodological implication of the finding of imputations in cognitive algebra is that the studies which employed the conventional distinguishing tests between rules are ambiguous about the operative rule. This applies to tests between adding and averaging rules (e.g., Lane & Anderson, 1976; Yamagishi & Hill, 1981) as well as between multiplying and differential-weight averaging rules (e.g., Lampel & Anderson, 1968; Surber 1980, 1981b). In the diagnosis of integration rules and imputation rules, the design and approach developed by Singh (in press) and tested by Singh and Bhargava (1984a, 1984b) may be more useful.

In our everyday life, we made inferences about many social variables, including motivation, ability, integrity, and sincerity. Information available for these inferences is seldom complete. Imputations about missing information are inherent in all day-to-day attributions; they cannot simply be ignored merely because they are not known. Singh (in press) has argued that imputations about missing information can be studied through cognitive algebra, and that the methods of the theory of information integration provide a penetrating analysis of information processing in social cognition.

## Reward Division

Ratio and subtracting models. Singh (1981b, 1983, in press) studied what people consider equitable distribution of rewards. Because some variant of the ratio rule has been adopted by almost all researchers on equity (Anderson, 1981, pp. 77-80), Singh (1984) tested the ratio model with students and managers. Subjects received information about inputs of Workers A and B and divided a fixed sum of rupees between the two. According to the ratio model, the fair share for B is

$$R_B = \left[ I_B / (I_A + I_B) \right] T, \qquad (7)$$

where $R_B$ is reward for B, $I_A$ and $I_B$ are inputs of Worker A and B, and T is the total amount. Psychologically, the essence of this equation lies in the ratio in the brackets, which defines

B's fair proportion of the total input. This ratio seems fair on rational grounds, for it embodies the percept that what B gets should be proportional to what he contributes relative to A.

According to the ratio model, factorial plot of $I_A$ x $I_B$ effect should exhibit the pattern of slanted barrel. That is, the difference between the top and bottom curves should be greater in the middle than at either end (Anderson, 1976). No sign of such a slanted barrel-shape was found in any of the three experiments with students. Instead, the factorial plot had a pattern of near-parallelism. The author thus suggested an alternative subtracting model,

$$R_B = T/2 + \underline{w} (I_B - I_A), \qquad (8)$$

in which the fair share for B is half the total, T/2, plus an adjustment that depends on the difference in inputs, $(I_B - I_A)$, weighted by the factor, $\underline{w}$. The term, T/2, represents an <u>equality</u> or <u>parity</u> norm, for both workers are treated alike; the adjustment represents an eqity norm, for the workers are treated in relation to their contributions. This difference rule embodies both equality and equity norms.

Subsequent experiments indicated that managers invariably obeyed the ratio rule in their decision on fair share.

But students sometimes followed the difference rule and sometimes the ratio rule. These results conformed precisely with the author's favored hypothesis of allocators' maturity-experience.

Equity integration versus input integration. Two hypotheses have been advanced about how people process information about more than one dimension of input. According to Adams (1965), the input values should simply be added across the several dimensions to yield a single, overall input value. The ratio rule should then be employed to divide reward. This rule of input integration has been widely adopted (e.g., Leventhal, 1976; Walster, Berscheid, & Walster, 1973).

However, Farkas and Anderson (1979) suggested that people may have difficulty adding heterogeneous dimensions of input. How, they asked, can a person add seniority or physical attractiveness to job performance? It might be easier to calculate an equity ratio for each separate dimension. Since these ratios are comparable in quality, they could be easily added. This rule is called rule of equity integration.

Singh (1983) varied effort and performance/attitude and performance of the two workers and asked subjects to

divide money between them. Findings supported the rule of equity integration, eliminated the rule of input integration.

Singh (1981b) also considered the possibility that the rule of input integration may apply when inputs are homogeneous. He varied performance over two years of the two workers and asked students, managers, and union leaders to decide appropriate share for Worker B. Managers followed the rule of input integration; union leaders followed the rule of equity integration; and students failed to obey the rule of input integration due to stronger recency effect of inputs. Students gave greater importance to performance in the recent than in the previous year. Results thus indicated evidence for not only the rule of input integration but also for possible reason for failure of this rule with students. It is also notable that managers and union leaders processed information differently, a finding supportive of perspective or role hypothesis of social cognition.

Effects of team-building instructions. Singh (1981b, 1984) considered the effect of motivating instructions on reward allocation. Subjects were asked to divide money fairly or in a way which they thought would prevent conflict between members. Such motivating instructions affected valuation of input, not the rule of reward division.

The author noted that such distinction between input valuation and rule of reward division was possible because of the methods of information integration theory.

Comments

Much of the research on judgment and decision has been done by the author and his students. The approach is primarily descriptive, that is, how do people make decision. No claim can be made about how people ought to make judgment and decision. This is natural, for emphasis was on description and understanding and not on prediction.

It should be emphasized, however, that research reviewed in this section is not only cumulative but also quantitative. Mathematical model has always been employed to structure judgment and decision by children as well as adults. This yielded interesting cultural and developmental differences in social cognition.

## Basic Contributions

In reviewing the literature presented in the preceding sections, I felt that Indian researchers have made some basic methodological and theoretical contributions. This section presents a brief description of those contributions.

## Methodological Contributions

Experimental approach. Most of the studies reviewed in the sections of impression formation, attribution, and judgment and decision employed experimental method. Treatment combinations were prepared according to factorial designs; subjects were assigned randomly to treatment conditions; and data were analyzed through analysis of variance. This shows that tests of causal hypotheses have become more popular among researchers than the "I-wonder-what-would-happen" research. Moreover, social psychology is not just a "questionnaire psychology" (Sinha, 1981).

Treatment combinations of factorial design can be given to different groups of subjects (i.e., between-subjects design or to the same group of subjects (i.e., within-subjects design). Attribution researchers employed the between-subjects design; judgment and decision researchers employed within-subjects design. One advantage with the within-subjects design is that it allows separate estimate for error variance of each source of variance (Anderson, 1982). Another advantage is that it allows analysis of data at the level of single subject (Singh et al, 1979).

Dalal (1978), Gupta (1979), Singh (1982), Bhargava (1983), and Srivastava (1984) used single subject analysis. Dalal and

Bhargava were interested in the generality of model to individual subjects; Gupta, Singh, and Srivastava used this method to study cognitive capacity in children. A notable methodological aspect of these developmental studies is that the individual child was studied for 2 to 12 days. Thus, these studies illustrate beginning of a through study of individual subject in Indian research.

Criterion for cross-cultural comparison. In cross-cultural research, groups are usually compared with respect to mean differences in the response measure. Singh et al (1979) have argued that comparison of groups with respect to integration rule is more unambiguous because it bypasses the problem of prior differences in response scale. As Gupta and Singh (1981) note,

> An important advantage with the integration rule is that they deal with pattern of responses and not with numerical value of single responses. This aspect is vital for comparison between different ages or cultures. No a priori knowledge of value of stimuli or origin and unit of personal response scale is required. Groups as well as individuals are readily comparable with respect to the pattern in their judgments of stimuli constructed from factorial design. The integration rule also permits comparison of groups along the criteria of information utilization and information valuation (p. 824).

Programatic approach. There seems to be a growing concern for cumulative work in the area of research. In a good

number of cases, the same investigators followed the problem over a series of studies, using the same method and measures. This yielded not only reliable findings but also greater generality of results across subject groups. It deserves mention that researchers have employed nonpsychology students and managers as subjects in their research.

The programatic approach seem to be confined to one researcher or place. There is very little interaction among researchers in the same area. There were cases in which authors did not utilize findings of other researchers in formulation of the problem or in interpretation of the data. Programatic research would be more fruitful when researchers of different places would attack the same problem. This will enable emergence of "paradigm" (Byrne, 1971).

## Theoretical Contributions

Perspective/orientation hypothesis. It is widely held that our perspective or orientation which emerges from prior experience shapes our cognition. Findings of researchers in attribution (Sinha et al, 1980; Pandey et al, 1982; Dalal et al, 1983; Kanekar et al, 1981) and reward allocation (Singh, 1981b, 1984) favor this perspective hypothesis. Since this hypothesis specifies how individual difference variable operates in social cognition, it deserves more systematic study.

Cultural-difference hypothesis. The cultural difference hypothesis of Singh et al (1979) which states that Americans and Indians differ in their outlook on how motivation and ability determine exam performance is also consistent with the perspective hypothesis referred above. Further work on this hypothesis by Singh and Bhargava (1984a, 1984b), Bhargava (1983), and Srivastava (1984) suggest that cultural variable is needed to account for the near-parallelism pattern is prediction of performance by high school and undergraduate college students. In addition, this hypothesis has led to the development of hypotheses of task difficulty (Surber, 1981a, 1981b and nature of task (Bhargava, 1983; Srivastava, 1984).

Evidence for two initial opinions. Much of the research in information integration (Anderson, 1981, 1982) considered one generalized initial opinion of the judges. Findings of Singh and Bhargava (1984a, 1984b) have, however, disclosed that subjects have two initial opinions, one about motivation and one about ability. Furthermore, information pertaining to each factor alters the initial opinion about the very factor. This result reflects on a basic difference in the processing flow of Indian and American subjects.

Imputations about missing information. One of the assumptions in the research in information integration is that judgment is controlled by only the given information. Subjects do

not make any inference about the missing information. Research by Singh et al (1979), Gupta and Singh (1981), and Singh and Bhargava (1984a, 1984b) questioned this assumption, and Singh's (in press) detailed study of imputations suggested that subjects make inferences about missing information. These studies not only demonstrated pervasiveness of imputations in social cognition but also offered a new method for diagnosis of imputation and integration rules.

Separation of causal from moral responsibility. The study of assignment of responsibility to rape victims by Kanekar et al (1981) made a conceptual distinction between causal responsibility and moral responsibility. A physically attractive woman is more likely to be raped than a physically unattractive one, but she cannot be blamed because she has no control over her look. Kanekar et al argue that blame will be assigned if there is a moral failure on the part of the woman. This conceptual distinction may be useful in organizing the conflicting literature on assignment of responsibility to rape victims.

Prejudice as internal variable. It is commonly believed that we hold positive opinion of our own ingroup and negative opinion of outgroups. Results of Mohsin (1976) and Tripathi and Srivastava (1981) question this belief. Ethnocentrism and ethnic prejudice are manifested more by insecure and deprived persons than by secure and priviledged persons. This finding has practical implication for Hindu-Muslim relations in India.

## Concluding Comments

Indian psychologists have been making basic, though sporadic, contributions to attitude and social cognition since 1935. Studies of rumours by Prasad (1935, 1950) and by D. Sinha (1952) not only appeared in a prestigeous journal, British Journal of Psychology, but also served as one of the starting points for Festinger's (1957) theory of cognitive dissonance. Adinarayan studied prejudice and racial attitudes over years and published his findings in the British Journal of Psychology (1941, 1953) and the Journal of Social Psychology (1957; Adinarayan & Rajamanickam, 1962; Adinarayan & Swaminathan, 1964). Studies of problem solving (Mohsin, 1954), perception of event (Ray Choudhury, 1947), and attitudes and opinions (Chowdhry & Newcomb, 1952; Das, 1960; Das & Nanda, 1963; Patel & Gordon, 1960) appeared in the Journal of Abnormal and Social Psychology. Studies of stereotypes and attitudes by Rath (1958, 1959, 1961; Rath & Das, 1959; Rath & Mishra, 1963a, 1963b; Rath & Sircar, 1960a, 1960b, 1960c) and by A.K.P. Sinha and his associates (Sinha & Ojha, 1963; Sinha & Upadhyay, 1960a, 1960b, 1962) were published in the Journal of Social Psychology. Applied research in attitudes appeared in prime journals such as Journal of Applied Psychology (Misra & Jain, 1971; Misra & Kalro, 1972) and Journal of Educational Psychology (Das, 1973; Rath, 1957). An experi-

mental study of decision making in the limited and unlimited resource conditions by J.B.P. Sinha (1968) was published in the Journal of Experimental Social Psychology. All these clearly indicate that research involvement of social psychologists has always been high, and that quality papers have come out from time to time.

If we look at the list of references of this chapter, we find that the recent research (1975-1984) in attitudes and social cognition has appeared in the British Journal of Social Psychology, Developmental Psychology, European Journal of Social Psychology, Journal of Applied Psychology, Journal of Experimental Child Psychology, Journal of Personality and Social Psychology, Journal of Social Psychology, and Organizational Behavior and Human Performance. Publications in these prestigeous journals testify the high quality of Indian research in attitude and social cognition, and illustrate that the professional standard set in the past is well maintained in the present. Experimental rigor, programatic approach, theoretical model, and concern for relevance in the current work further suggest that even future is going to be brighter.

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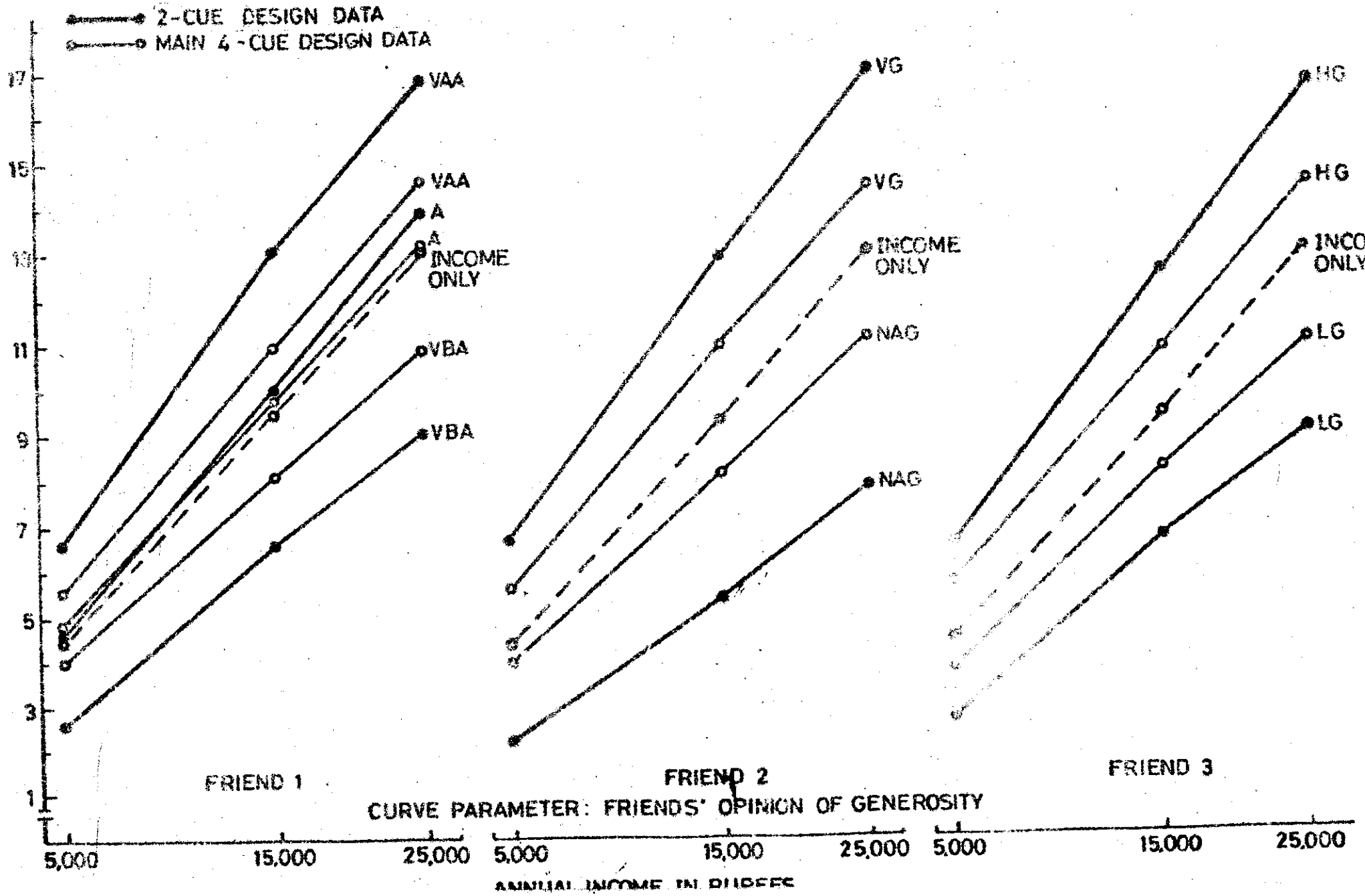
## Figure Caption

Figure 1. Factorial plots of Generosity-1 x Income, Generosity-2 x Income, and Generosity-3 x Income effects from the main four-cue design (solid curves with open-circles) and from the corresponding two-cue designs (solid curves with filled circles). The dashed curve represents judgments based on information about income only. 


2-CUE DESIGN DATA
MAIN 4-CUE DESIGN DATA
17
15
13
11
9
7
5
3
1
VAA
VAA
A
A
INCOME ONLY
VBA
VBA
VG
VG
INCOME ONLY
NAG
NAG
HG
HG
INCOME ONLY
LG
LG
FRIEND 1
FRIEND 2
FRIEND 3
CURVE PARAMETER: FRIENDS' OPINION OF GENEROSITY
5,000
15,000
25,000
5,000
15,000
25,000
5,000
15,000
25,000
ANNUAL INCOME IN RUPEES