

## Attitudes and Behavior

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A review of theoretical and empirical contributions to the problem of attitude-behavior relations published in German up to about 1981 is given. Reviewed are (a) theoretical and methodological contributions to the study of attitude-behavior relations, (b) findings from diverse fields of German speaking psychology: studies on ethnic prejudice and minority discrimination, education, work and profession, deviancy, marketing and consumer behavior, traffic behavior, and environmental influences. Finally, problems of determination (attitudes as predictors of behavior, or behavior as influencing attitudes?) and of attitude and behavior as temporal processes are discussed.

The study of the attitude-behavior relationship can be regarded as one of the major topics of experimental and empirical research in social psychology and related fields of psychology. This seems also to be true for research published in German.

By quoting the [fictitious; *The Ed.*] ancient German psychologist E. A. Dölle's dictum "Sage mir, was Du denkst, fühlst und möchtest, und ich sage Dir, was Du tun wirst" (Tell me what you are thinking, feeling, and what you want to do, and I'll tell you what you are going to do), Stapf, (1982) showed that the question of how attitudes and behavior are related has a long tradition in German psychology.

(In German, "Einstellung" usually stands for "attitude" and has only in some cases been replaced by the French "attitude", or its German version "Attitüde". Although "Einstellung" is also the German word for "set", in the context of "attitudes and behavior" it denotes "attitude" in the sense of "social attitude".)

In 1981, the German Research Foundation (Deutsche Forschungsgemeinschaft) established a research program on attitudes and behavior, thus giving special acknowledgement to the empirical investigation of the attitude-behavior relationship. Although the initial results of the research projects supported by this program cannot be expected to be published for the next few years, it will be shown here that there already existed a remarkable number of studies in German-speaking psychology before this new program had started. Most of the investigations seem to be more or less unconnected to each other, and not directly derived from psychological theory, some of them come from closely related or applied fields, such as education, marketing, etc. The present contribution will give a short report of the studies which came out up to 1981/82.

In the first German review article on attitudes and behavior, Benninghaus (1973) completed the 32 studies quoted by Wicker (1969) by adding half a dozen

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studies which showed quite similar results. Wicker had claimed that "it is considerably more likely that attitudes will be unrelated or only slightly related to overt behaviors than that attitudes will be closely related to actions. Product-moment correlation coefficients relating the two kinds of responses are rarely above .30, and often are near zero. Only rarely can as much as 10% of the variance in overt behavioral measures be accounted for by attitudinal data" (1969, p. 65). While there have been reviewers who did not even notice Wicker's research (e.g., Heinrich, 1974), Benninghaus (1976) collected no less than 102 studies of the attitude-behavior relation considering a wide range of subject samples, methods of assessing attitudes and behaviors, and attitude objects, nearly 99% of the studies being of American origin which in total confirmed Wicker's statements.

These analyses of empirical investigations of the attitude-behavior relation led some more authors to formulate critique of the conceptual assumptions underlying the definition of attitude and the concept of behavior, and to ask questions concerning methodological problems of the attitude-behavior relationship (e.g., H.P. Frey, 1972; Six, 1975; Schmidt, Brunner & Schmidt-Mummendey, 1975; Meinefeld, 1976; Bierbrauer, 1976; H.D. Mummendey, 1977; A. Mummendey, 1979). In general, there has been much theoretical and methodological discussion among German speaking psychological and sociological authors concerned with the attitude-behavior problem although there have not always emerged many concrete findings produced by systematic empirical research following theoretical work.

Subsequently, first theoretical and methodological, and then further empirical contributions from different fields of psychology will be reported.

### *Theoretical and methodological contributions to the study of the attitude-behavior relationship*

Roth (1967) attempted a broad phenomenological analysis of the *concept of attitude*; he regarded attitudes as obviously determining behavior. The author pointed out G.W. Allport's statement that attitudes always have an object, and by this differ from (other) traits. Roth's description of the structure of attitudes (e.g., level of generality and universality, individual relevance, complexity and differentiation, internal consistency, degree of ordered structure, etc.) soon fell into oblivion although some of those phenomenologically derived dimensions of attitude could have become important variables in empirical studies of the attitude-behavior relation. Only the personal meaningfulness of an attitude, Hartley & Hartley's (1955) "salience", or "Bedeutsamkeit" in Roth's (1976) translation, which referred to the fact that an attitude can be more or less central or peripheral for an individual, was given attention by some authors. The *centrality* variable has been investigated in the studies of Klapprott (1975), Hennige (1967), and Six (1979). Hennige, e.g., assessed education students' attitudes before and after a role-playing session. She found less attitude change in students whose attitudes were found to be very 'central'. Although the author did not investigate the at-

titude-behavior relation explicitly, there is good reason to assume that her results indicate that centrality of an attitude may be an important moderator variable of the relation between attitudes and behavior.

H.P. Frey (1972) explained the usually low consistency between attitude and behavior by several methodological deficiencies of the empirical studies in this field. Among other factors, he pointed out the lack of precision and reliability of *behavioral* measures. Unlike attitudes, behavior is often assessed in situations which are not easily controllable and the observation techniques used are often not reliable. By the same reason, a given behavior should be more influenced by situational factors than this is the case with attitudes measured by paper-pencil techniques. According to Frey, a theory of behavior would be a necessary prerequisite for the use of attitudes as predictors of behavior.

Six (1975) identified a number of different attitude concepts in social psychology (attitude as a probability or a latent process concept, etc.) but like Frey, failed to find useful concepts of behavior. According to him, most of the authors speak of 'overt' behavior as of a concept that needs no further explanation. Not only is, according to Six, a theory of 'behavior' lacking, but there are also differences in the perception of behaviors by different *persons* and in different *situations*. As relatively promising models for the description of the attitude-behavior relationship, the Fishbein model, which predicts behavior intentions, and the consideration of "third party" variables, such as the concept of commitment (Kiesler), are reviewed.

Kraak & Lindenlaub (1973) tried to contribute to the understanding of the attitude-behavior relationship by regarding attitudes towards events, i.e., toward kinds of behavior. Although their theoretical approach does not seem to be completely elaborated, it seems to be interesting that the authors stress the importance of the assumed *availability* of an attitude-conforming behavior of an individual as a possibly important predictor of behavior. (It seems that this proposal has some similarity to Bandura's, 1977, emphasis of self-efficacy variables in the context of behavior modification.)

Schmidt et al. (1975) proposed to prefer the *behavior-attitude perspective* instead of favoring the attitude-behavior direction of determination. Following McGuire (1969), according to whom the *direct experience* with a stimulus object is a crucial determinant of attitude, and Rubinstein's (1972) philosophy of the relationship between being and consciousness, they outlined a 'materialistic' view (behavior determines state of consciousness) as compared with an 'idealistic' one (ideas determine behavior). Classic experimental contributions to a perspective favoring behavior as a determinant of attitude are the studies done by Von Cranach (1965a, b) on attitude-discrepant behavior, and the later studies done by Frey (1975, 1981) on dissonance-reducing attitude change following attitude-discrepant behavior.

Mummendey (1977) criticized the study of attitude-behavior relations as being characterized by several methodological 'sets': cognitive fixation toward the direction 'attitudes cause behavior', negligence of the character of *attitudes and behaviors as temporal processes*, and negligence of research designs which are uncommon

in social psychology, such as single-subject designs or longitudinal designs. In a study of TV spectators' intentions and overt behavior (to consume different TV programs during the soccer worldcup), he tried to realize some of the proposals derived from the methodological critique (Mummendey, 1979b): There were repeated measurements of attitudes and behaviors over a period of five weeks, and unobtrusive measures of behavior were taken. The study resulted in multiple attitude-behavior correlations of about .60, but only for soccer TV programs, i.e., for a topic of increased public salience.

Meinefeld (1977), on the other hand, mainly criticized the social psychological *concepts of attitude* and the respective methods of assessment. According to him, the concept of an attitude as a situation-independent trait would reduce the correlation of that attitude with a specific behavior. Another topic of methodological critique is the assumption that attitudes may have different action-related relevance for different acting individuals. Meinefeld's analysis results in a plea for giving up the concept of attitude; his recommendation is to take over the perspective of interpretative sociology. His claim for a new social scientific methodology which refuses to do empirical research under the conditions set by the researcher, seems to share some of the known disadvantages of the criticism of rigorous research, at least the lack of concrete proposals for procedures, and of results of research.

The study of the attitude-behavior relationship in more '*naturalistic*' instead of 'artificial' settings was attempted by Mummendey (1979a) and his coworkers: Bornwasser (1979) investigated the predictability of educational behavior of kindergarten nurses by education attitudes; he obtained multiple R's of about .70 in a small sample. Mielke (1979) found correlations between educational attitudes of school teachers and their reported behavior in the .40 order of magnitude; she got some hints that the behavior could be better predicted when the school setting and the teachers' locus of control scores were considered. Mielke, Schreiber & Schardt (1979) studied industrial workers' attitudes and behavior toward the trade unions; the correlations between, e.g., attitudes and strike participation were about .30. Mummendey's (1979b) TV consumer study has already been quoted. On the whole, the four studies of attitude-behavior consistency in natural settings show that the predictability of behavior from attitudes could be increased to the 25% order of magnitude (as compared with Wicker's 10%) if variables such as relevant aspects of person and/or situation are taken into consideration and if *multiple predictors* are applied.

Six (1980) repeated his critique that elaborated concepts of '*behavior*' are lacking. He therefore tried to differentiate several aspects of 'overt' behavior: the number of *indicators* of a given behavior (behavior can, according to Fishbein & Ajzen, 1975, be observed by one single observation of a single act, repeated observation of a single act, one single observation of multiple acts, and repeated observation of multiple acts); the *realizability* of a certain behavior (some behaviors are easier to realize since they are habitual, some others are not often performed and difficult to exhibit); the *specificity* of a certain behavior (this concerns the problem to select behaviors for investigation that are of a specificity similar to the respective attitudes); the *commitment* toward a certain behavior.

In his 1980 review, Six proposes to classify the '*models*' of *attitude-behavior connections* by describing four types: simple relation models (where, e.g., behavior is a function of attitudes toward the attitude object and toward the situation); interaction models and models of contingent consistency (where further social factors are regarded as influencing the attitude-behavior relationship); the Fishbein model (e.g., Fischbein & Ajzen, 1975); structural models (like path analytical approaches to the prediction of behavior).

Following the last approach, Six (1979) used path analysis to predict behavior intention and behavior from attitudes, measures of attitude centrality, and locus of control of one's own behavior. In a study on seat belt use, 23% of the behavior variance (and 38% of the behavior intention variance) of car drivers could be explained by these variables; attitude was the most powerful predictor of seat belt use. In two further studies, altruistic behavior toward foreign workers' (Turks in Germany) children was found to be predicted in the 40% order of magnitude by altruistic attitude, centrality of attitude, prejudice, and internal/external attribution. Although in most of the studies no overt behavior was assessed, there is good reason to assume that path analysis or similar techniques can successfully be used in the study of the attitude-behavior relationship, especially in the prediction of behavior from attitudes and third party variables.

Among the theory-oriented contributions to be discussed here, there is also at least one (Mees & Kehl, 1979) that tries to cope with the attitude-behavior consistency problem by defining attitude as a pattern of responses, i.e., to use a *behavior-oriented concept of attitude*. But this approach will not be further discussed here because only a traditional, 'cognitivistic' way of defining attitudes as inner states or hypothetical constructs will lead to the problem of attitude-behavior consistency which is reviewed here.

Müller (1981) surmises that the empirical results which postulate an attitude change following a behavior change are methodological artifacts; according to his analysis, all attitude measurements are differentially valid for subpopulations, and what is interpreted as a change in the degree of an attitude could in fact be a subpopulation-specific change of the nature of the attitude itself.

Thus, from the late sixties to the early eighties, there has been considerable discussion among German publishing contributors to the study of the attitude-behavior relationship. There have been many debates on questions about theory, including the concepts of attitude and behavior, and methodology. New models or theories have not been created or elaborated. There are only few attempts to try new approaches. On the whole, most of the studies follow the Fishbein model or related third party variable approaches to predict behavior from attitudes.

### *Findings from diverse fields of psychology*

#### Ethnic prejudice and minority discrimination

A number of studies investigated the connections between attitudes toward ethnic groups and the respective behavior, although there is often some lack of

'real' behavior measures; instead, behavior is frequently inferred from verbal reports. Most of the studies are more or less testing the 'contact hypothesis' (compare Amir, 1969) which postulates change of attitudes toward a group after being in contact with members of that group.

Mees (1974) reviewed a study by Heinerth (1968), who reported correlations of the .60 order of magnitude between the degree of stereotyped prejudice of German workers toward Americans, Italians, and other ethnic groups, and a measure of behavior observation. As the best predictors of behavior served measures of the 'conative' component of attitude. Mees (1974) showed that aggressive behavior in an experimental situation could only be poorly predicted by attitudes inferred from trait-descriptive judgments about ethnic groups but, on the whole, there was a tendency to react more aggressively toward members of a disliked than toward a liked ethnic group. The number of significant correlation coefficients, however, could also be explained by chance.

Klein (1972, 1977) asked a small number of young Frenchmen before and after working for a period of one year in West Germany about their attitudes toward their home and guest countries. He demonstrated that indeed attitudes were changed, but in the direction opposite to the naive assumption that international contacts must result in more favorable attitudes: The image of Germany changed unfavorably, and the image of France changed in a favorable direction.

Bergius and his coworkers (Bergius, Werbik & Winter, 1970; Bergius, Werbik, Winter & Schubring, 1970; Bergius & Klein, 1971; Dannenberg & Winter, 1975; Winter & Klein, 1975; Klein & Winter, 1975) attempted to find out whether the judgments of German workers about nations are influenced by the number of contacts or acquaintances from foreign countries. There is a number of differentiated results which cannot be reported here in detail, e.g., the judgments about nations are significantly changed if the contacts take place in Germany, but they remain unchanged if the contacts are in the respective home countries. The connection between behavior (contact) and attitudes is influenced by the kind of ethnic group, age, and level of education of subjects, etc. Although there is no direct test or description of attitude-behavior consistency, these studies show a lot of variables moderating the relation between attitudes and behavior toward ethnic groups. Further reviews concerning the same topic have been given by Winter (1974, 1980).

Hedinger & Cloetta (1970) and Cloetta & Hedinger (1971) studied the judgments of young Swiss people toward Italian immigrant workers, taking contacts as independent and attitudes as dependent variables. The results confirmed the 'contact hypothesis', i.e., attitude change was found to be influenced by the kind of contact. Schmitt (1979) performed a role-playing experiment with five-year-old school children. It was shown that ethnic attitudes were more efficiently changed by role-playing than by verbal influence.

In a study by Sorembe & Westhoff (1978, 1979), some effects of German-French student exchange on attitudes were tested. The participation in the exchange program had, in some instances, positive effects on attitudes toward international cooperation, and resulted in lower nationalism scores.

A social object that attracted much empirical work within the attitude-behavior domain is the group of mentally or physically disabled or handicapped persons.

A thorough review of studies on attitudes toward the disabled was published within a more sociological analysis by Cloerkes (1979). His review comprises some dozen studies mainly of American, partly of German origin. Seventeen of the studies reported are directly concerned with attitude-behavior consistency, 10 of them were found to show no or only weak relations between attitudes and behavior toward disabled persons. An example is the study by Esser (1975), who found generally positive verbal but ambiguous overt behavior in German school children. Positive correlations in this field are in the .20 order of magnitude.

Fifty-eight studies reviewed by Cloerkes (1979) are more or less designed to test the 'contact hypothesis'. An example is the study by Holtmann, Sanders & Sturzebecher (1978), who explored the influence of modeling, participation, and role-playing techniques and found them partially efficient to change attitudes. Thirty-four of the studies reviewed show more positive attitudes toward handicapped or disabled persons after contact with them; typical is the study by Lipka, Jerdsch, Kaluschke & Mader (1973), who found high attitude-intention consistency in a small sample. No substantial correlation between contact with disabled persons and attitudes toward them has been reported by Jansen (1972), whereas a positive connection has been found by Von Bracken (1976) in a representative study on attitudes toward mentally retarded and disabled children. Concerned with the attitude-behavior relation in the same clinical field are some studies by Seifert (e.g., Seifert, 1961; Seifert & Stangl, 1981), but the data are not always in quantitative or correlational format.

In general, it is unfortunate that the studies performed to investigate the attitude-behavior relationship with respect to prejudice or attitudes toward disabled persons are often very weak on the methodological level.

### Education

Attitudes have often been studied as predictors for students' school performance — a German review of such achievement-related research has been given by Wagner (1975).

Attitudes have also been regarded as predictors for social behavior in the social contexts of kindergarten (Bornewasser, 1979), school (Mielke, 1979), or further education (Oppermann, 1976). In all these cases, the Fishbein model or other third party variable approaches have successfully been applied.

Most attention and empirical work has been given to the question of how attitudes of student teachers change in the course of their training. Besides the studies by Liebhart (1970), Merz & Madjaric (1976), and Roth (1981), who demonstrated independently of each other that student teachers' attitudes are changed when measured before and after specific phases of their training, there is a multitude of publications done by a research group of the University of Konstanz contributing to this topic. The results of this research group have become well-known under the headline 'Praxis shock' (see Cloetta, Dann, Helmreich, Müller-Fohrbrod & Peifer, 1973; Cloetta, 1975). This catchword denotes a kind of

psychological shock for student teachers who leave college and start to work in schools (compare also Koch, 1972). Dann, Cloetta, Müller-Fohrbrodt & Helmreich (1978) postulated that attitude variables of the 'conservative syndrome', such as conservatism, social engagement, assertiveness, self-uncertainty, etc., would become behavior-relevant in educational settings. In a longitudinal design with four repeated measurements, they tested 1500 teachers twice during their work following school. A second sample of students was drawn shortly before they left high school, and their attitudes were assessed before, during, and after their stay at the teachers' college. In sum, the results demonstrate a clear-cut attitude change in the conservative direction after leaving the university or college and starting with practical work at school (see also Müller-Fohrbrodt, Cloetta & Dann, 1978). To provide an integrative summary of all the single empirical results concerning the determinants of attitude change following behavior change, Dann et al. (1978) used a path analytical model differentiating exogenous and endogenous variables. According to this analysis, attitude change is especially dependent upon teachers' experiences of discrepancy in their new surroundings, but there is also an influence of the degree of general conservatism which modifies the impact of ecological factors (or, according to the reviewer's interpretation, their consequent behavior changes) on variables of the conservative attitude syndrome.

In a follow-up study, Dann, Müller-Fohrbrodt & Cloetta (1981) extended their previous analysis to the further development of their subjects during their professional lives. They could demonstrate that, during the three years following their entrance into school, the teachers regained some of their self-confidence but, nevertheless, their remarkable attitude changes toward increased conservatism continued. This result is interpreted by the authors as being a consequence of teachers' ongoing confrontation with their professional environment. In another study, Hohner & Dann (1979) could demonstrate respective socialization effects of specific ecological (professional) contexts on attitudes. In a recent contribution, Dann (Dann & Wahl, 1982; Dann, 1982) speaks of teachers' 'subjective theories' (instead of attitudes), and discusses methodological conditions under which such cognitions could become manifest in overt behavior.

The research of the Konstanz group can, of course, be interpreted as primarily demonstrating socio-ecological effects; but, if one postulates that student teachers are necessarily forced to change their everyday behavior when entering a new professional context, these findings may also well demonstrate how attitude changes follow behavior changes, or how the attitude-behavior consistency is reinstated when a person's social context is changed.

### Work and profession

Benninghaus (1978) found variables of work satisfaction of German industrial workers positively (about .40) correlated with aspects of the work itself, like complexity or restriction of work. Similar results have been reported for foreign workers by Thunecke (1980). In a study of attitudes toward aspects of professional participation in the Austrian chemical industry, Arminger (1978) reported corre-



lations which in sum support the 'contact hypothesis'. E.g., the strength of contact with superiors was found to be in close correlation with attitudes toward values of working life. Some data have also been collected concerning attitudes and behavior of young workers in the German Democratic Republic (Gerth, 1968), but, unfortunately, no attitude-behavior correlations are reported.

Mielke (in press) applied Fishbein's formulas to predict strike behavior of workers in the West German chemical industry. She found the variables relevant in the Fishbein model more useful to predict strike intention and strike behavior than variables related to concepts of work satisfaction.

Some studies have been concerned with women's attitudes following their being employed or not being employed. Hofstätter (1978) found working women to have more favorable attitudes toward employment; Schmidt-Mummendey, Schmerl & Schmidt (1973) found more conservative attitudes (especially misogyny) in unemployed as compared with working women, and Nord-Rüdiger & Van Ruling (1981) found differences in attitudes toward profession in women with and without children. Although these studies do not result in direct measures of attitude-behavior consistency, they seem to demonstrate a rather close connection between working behavior and attitudes.

### Deviance

Some attention has been given by social psychologists and social scientists toward factors influencing deviant behavior, and toward attitudes and attitude change toward delinquents.

Opp (1971) developed a model to predict obedience to the law. He defined a dozen variables as predictors, and formulated causal hypotheses. As Brauer, Frey & Amelang (1975) showed variables that could be called attitudes had only low correlations with overt behavior, i.e., delinquency. Neither could a path analytical model demonstrate a strong attitudinal influence on the criterion behavior. In another test of the Opp model, Diekmann (1975) investigated students' using public transportation without a ticket; although the regression coefficients were generally low, the variable 'norm deviation', which was the most attitude-like predictor, made the highest contribution to the explanation of overt behavior.

Abele & Nowack (1978) studied the 'experience hypothesis', according to which people who have been in direct contact with delinquents or who have already been themselves victims of delinquency, would show more positive attitudes toward deviant persons than people who had no such contacts or experiences. Their assumption was supported by the data. Abele (in press) gives an extensive review of this kind of research. Among other restrictions of the results reported, she takes into consideration that the correctness of the 'contact hypothesis' may be highly dependent upon the perceived severity of the deviant act in question (compare also Genser-Dittmann, 1977).

### Marketing and consumer behavior

Researchers studying marketing processes and consumer behavior have often been faced with the problem of attitude-behavior consistency. Especially attitudes

toward specific products have been used to predict the probability of buying these products. Since simple attitude-behavior correlations were often found to be low, Fishbein's model became increasingly fashionable. Apparently its efficacy has not been overwhelming. Sommer (1973) recommended the Fishbein model for planning processes in advertisement, but does not report his own data. The same is true for Freitag (1973), who favors multiple regression models with attitudes as predictors for purchasing disposition. Silberer (1979) gives a review of applications of dissonance theory in marketing research. Hammann & Schuchard-Fischer (1980), e.g., found that car buyers changed their attitudes toward the purchased car models in a positive direction after having bought them.

Some studies on the relation between attitudes toward products and behavior are concerned with detergents (Dichtl & Müller-Heumann, 1972) or cleanliness problems (Bergler, 1974). While Bergler does not report any correlations or other measures for the strength of attitude-behavior consistency, Dichtl et al. report a correlation exceeding .80 between the mean attitudes toward seven detergents and their respective market success. Kaas & Dieterich (1979) showed that the longer people buy certain products (baby foods) the more a polarization of the attitudes toward the brands arises. Finally, consumers' complaining behavior has been related to attitudes; according to Meffert & Bruhn (1981), complaining behavior is dependent, among other factors, upon the degree of dissatisfaction with the product in question, and on attitudes toward complaining itself.

### Traffic behavior

Gerber (1978) investigated attitudes and behavior of pedestrians who were either parents or unmarried. The correlations between attitudes and behavior intentions were between .17 and .33 for parents, and between .17 and .43 for unmarried persons. The application of the Fishbein model did not raise the predictability of behavior intention considerably. Pedestrians' behavior at a traffic light was shown to be more dependent on norms (e.g., the norm to be a model for children) than on the presence of children at the traffic light. On the other hand, some strong situational variables, such as weather conditions, could be demonstrated to influence pedestrians' traffic behavior efficiently.

As in the already quoted study by Six (1979), Rösler & Petrossian (1982) found attitudes and behavior related with respect to seat belt use. The authors report correlation coefficients of .47 and .72 when the attitude toward car driving predicted verbally reported seat belt usage, and .32 and .57 when overt behavior was measured. Mummendey & Bolten (1981) asked 80 car drivers to report which traffic rules they might violate. The correlation between the subjects' evaluations of different traffic rules as predictors, and their reported actual violation was .49, and the multiple correlation, when some third party variables were added, was .55. In a replication of this study, Bolten, Mummendey, Isermann-Gerke, & Hemmert (1982) obtained coefficients of .52 and .56, respectively.

*Environmental influences*

Many studies demonstrate how the attitudes of individuals are changed by environmental or ecological influences — such influences seem to be always ecological in a social psychological sense, too. As in the case of student teachers who enter a new environment and subsequently change some of their attitudes, such an adaptation process can also be seen as a reaction to altered behavior because new environments force individuals to behave in new ways.

Rosch, Frey, Möntmann, Irle & Dickenberger (1981) showed in a longitudinal study how Polish people who immigrated to the Federal Republic of Germany changed their attitudes toward Germans, toward technical progress, aspects of conservatism, etc. Similar results have been presented by Ipsen (1977), who studied the integration of Greek, Italian, and Turkish workers in Germany.

Some studies in social psychology, sociology, and architecture have been concerned with the relation between the settings people live in and their psychological impacts (e.g., Klockhaus, 1975). In an analysis of identification with one's home town environment, Treinen (1965) found a relation between the duration people live in a small town in Bavaria and how much they enjoy living there. Closs & Kempe (1981) related the evaluation of the social climate in a home for aged persons to the aged persons' behavior. Kubinger (1978) reported that Austrian residents of new buildings were somewhat more satisfied with their dwellings if they were able to participate in the planning of their residences.

*Predicting behavior from attitudes, or attitudes from behavior?*

Although the designs of most of the empirical and experimental studies of the attitude-behavior relation do not allow causal inferences, the question of whether attitudes should be used as predictors of behavior, or vice versa, seems to be of theoretical interest. In many cases, the answer to this question allows some conclusions as to whether a researcher's orientation with respect to the attitude-behavior problem is more in the cognitivist or behaviorist tradition.

If we look at the above review of attitude-behavior studies published in German language up to about 1981, i.e., during an epoch where cognitivism prevailed at least in social psychology, there is a considerable number of behavior-oriented studies in the sense that overt behaviors are taken as predictors of attitudes. This seems to be true for the most important studies from different fields of psychology (e.g., Bergius et al., 1970; Dann et al., 1978; Rosch et al., 1981; and many minor studies) as well as for many of the contributions regarded as theoretically and methodologically interesting (e.g., Mees & Kehl, 1979; Schmidt et al., 1975; Bierbrauer, 1976). Of the references discussed in some detail under the headline 'Findings from diverse fields in psychology' more than half of a total of about 50 could be counted as behavior-oriented in the above mentioned sense. Taking some possible reviewer's selection bias into consideration, it can be concluded that there is a strong portion of studies that start, as in the framework of the 'contact hypothesis', with behavior, and regard attitudes as dependent variables.

It should be admitted that the problem of the attitude-behavior relationship becomes more or less suspended if a comprehensive action-theoretical approach could be realized where, as in the work of Von Cranach, Kalbermatten, Indermühle & Gugler (1980), attitudes play only the role of mediators between action-guiding cognitions and human goal-directed action. Looking at the background of classic attitude-behavior research, however, those action theoretical approaches favor the concept of attitudes as predictors of behavior (of 'actions').

### *Attitude change and behavior change*

The designs and results of most of the studies reported here show that it would probably be a too narrow perspective to restrict the question of the attitude-behavior relationship to one-shot correlational studies according to which the amount of correlation between a certain attitude and a specific behavior is indicated. (Consequently it would not be useful to report, in conclusion, a mean or range of correlation coefficients for a comprehensive description of the strength of attitude-behavior consistency.) Instead, many of the studies published in German try to demonstrate attitude-behavior relations by showing how behavioral changes are consequences of attitude changes, or attitude changes are consequences of changes of behavior (as is often the case in research related to Festinger's theory of cognitive dissonance). All studies referring to the 'contact hypothesis' or to role-playing methods follow this paradigm.

Clinical psychologists (whose studies on therapy effects have been omitted here) often seem to assume that attitude and behavior change are coincident processes, thus any efficient intervention or therapeutic influence would cause attitude and behavior changes simultaneously. Following Rosenberg's component model of attitude, e.g., Hennige & Preiser (1979) try to give a systematic description of a set of different types of simultaneous attitude and behavior changes. It seems that psychologists' implicit theory of a parallel development of attitudes and behavior is so strong that, in many publications, no essential difference between them is made, and 'attitude and behavior', side-by-side, is used as a fixed idiom in psychology.

Nevertheless, the perspective of attitudes and behavior as temporal processes instead of one-shot variables has started to become promising, and there is good reason to assume that there is increasing research referring to this perspective. Strictly speaking, the relation between attitudes and behavior must be regarded as a permanently ongoing interaction between behavioral and attitudinal variables. It seems that it will not be the lack of insight into this paradigm, but rather shortcomings of feasible psychological methods and research designs that still prevent attitude-behavior research from effective improvement.

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