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Attitudes and Behavior -  
A Review of the German  
Literature

A review of theoretical and empirical contributions to the problem of attitude-behavior relations published in German up to about 1981 is given.

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The study of 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 ancient German psychologist E.A.DÖLLE's "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 tell you what you will be doing), STAPF (1982) showed that the question 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(In German, "Einstellung" usually stands for "attitude" and has only in some cases been replaced by the French "attitude", or its German version "Attitüde".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, by this giving special acknowledgement to the empirical investigation of the attitude-behavior relationship. While some first results of the research projects supported by this program must not be expected to be published before the next years it will be shown here that there is already a remarkable number of studies in German speaking psychology before this new program has been started. Most of the investigations seem to be more or less unconnected among each other, and not directly derived from psychological theory, some of them come from closely related or applied fields like education, marketing, etc. The present contribution will give a short report of the studies which came out up to 1981.

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 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; MUMMENDEY, 1977). 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 attitude-behavior relation

ROTH (1967) tried a broad phenomenological analysis of the concept of attitude; he regarded attitudes as obviously determining behavior. The author pointed at G.W.ALLPORT's statement that attitudes have always 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 in 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 (1954) "salience", or "Bedeutsamkeit" in ROTH's (1967) 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 (1976), and SIX (1979). HENNIGE, e.g., assessed teacher students' attitudes before and after a role-playing session. She found less attitude change in teacher students whose attitudes were found to be very 'central'. Although the author did not investigate the attitude-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 at the lacking precision and reliability of behavior 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. According to H.P.FREY, a theory of behavior would be necessarily a predisposition 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 H.P.FREY, missed 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, after SIX, a theory of 'behavior' lacking but also are there differences in the perception of behaviors by different persons and in different situations. As relatively promising models for the description of the attitude-behavior relation, the

FISHBEIN model which predicts behavior intentions, and the consideration of third-variables like the concept of commitment (KIESLER) are reviewed.

KRAAK & LINDENLAUB (1973) tried to contribute to the understanding of the attitude-behavior relation 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 with 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 favouring 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). Classical experimental contributions to a perspective favouring behavior as a determinant of attitude are the studies of VON CRANACH (1965 a, b) on attitude-discrepant behavior, and the later studies of 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': a cognitive fixation toward the direction 'attitudes cause behavior', a neglect of the character of attitudes and behaviors as temporal processes, and a neglect of research designs which are not common in social psychology, like single-subject designs or longitudinal designs. In a study of TV spectators' intentions and overt behavior (to consume different TV programs during the soccer football worldcup), he tried to realize some of the proposals derived from the methodological critique (MUMMENDEY, 1979 a):

There were repeated measurements of attitudes and behaviors over a period of five weeks, and unobtrusive measures of behavior were performed. The study resulted in multiple attitude-behavior correlations of about .60, but only for football tv programs, i.e., for a topic of increased public salience.

MEINEFELD (1977), on the other hand, criticized mainly 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 but 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 critics of rigorous research, at least the lacking of concrete proposals for procedures, and results of research.

The study of the attitude-behavior relationship in more 'naturalistic' instead of 'artificial' settings was tried by MUMMENDEY (1979) and his coworkers: BORNEWASSER (1979) investigated the predictability of education behavior of kindergarten nurses by education attitudes; he obtained multiple R's of about .70 in a small sample. MIELKE (1979) found correlations between education-related 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 teachers' locus of control was 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 (1979 a) 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 third-variables like 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 habitualized, 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 similar specificity as 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 relation); the FISHBEIN model (e.g., FISHBEIN & AJZEN, 1975); structural models (like path-analytical approaches for 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 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 Turkish guest workers' 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 attitude-behavior relation, especially in the prediction of behavior from

attitudes and third-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 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) suspects the empirical results that postulate an attitude change following a behavior change as 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 be in fact 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 attitude-behavior relation. 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 some approaches to try new ways. On the whole, most of the studies follow the FISHBEIN model or related third-variables 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 of 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 slightly be 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 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 their one year working time in West Germany for 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 favourable attitudes: The image of Germany changed into the unfavourable, and the image of France changed into the favourable 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 known persons 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 homelands. The connection between behavior (contact) and attitudes is influenced by the kind of ethnic group, age, and education level of subjects, etc. Although there is no direct test or description of attitude-behavior consistency these studies show a lot of third-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 guest 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 of 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 implies some dozen studies mainly of American, partly of German origin. 17 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 of 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.

58 studies reviewed by CLOERKES (1979) are more or less designed to test the 'contact hypothesis'. An example is the study of HOLTMANN, SANDERS, & STURZEBECKER (1978) who explored the influence of modeling, participation, and role-playing techniques and found them partially efficient to change attitudes. 34 of the studies reviewed show more positive attitudes toward handicapped or disabled persons after being in contact with them; typical is the study of LIPKA, JERDSCH, KALUSCHKE, & MADER (1973) who found high attitude-intention consistency in a small sample. No substan-

tial 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 of SEIFERT (e.g., SEIFERT, 1961; SEIFERT & STANGL, 1981) but the data are not always in quantitative or correlational format.

In general it must be regretted that the studies performed to investigate the question of attitude-behavior relations with respect to prejudice or attitudes toward disabled persons are often very weak with respect to their 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-variables approaches have successfully been applied.

Most attention and empirical work has been given to the question how attitudes of teacher students change in the course of teacher education. Besides the studies of LIEBHART (1970), MERZ & MADJARIC (1976), and ROTH (1981) who demonstrated independently of each other that teacher students' attitudes are changed when measured before and after specific phases of their instructions, there is a multitude of publications done by a research group of the University of Konstanz contributing to this topic. The result of this research group have become well-known under the headline 'Praxis shock' (see CLOETTA, DANN, HELMREICH, MÜLLER-FOHRBRODT, & PEIFER, 1973; CLOETTA, 1975). This catchword denotes a kind of psychological shock for teacher students who leave the college and start to work at school (compare also KOCH, 1972). DANN, CLOETTA, MÜLLER-FOHRBRODT, & HELMREICH (1978) postulated that attitude variables of the 'conservative syndrome', like 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 teacher students two times during their following work at school. A second sample was drawn of students shortly before leaving high school, and their attitudes were assessed before, during, and after their time at the teacher 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 integrating 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 on teacher students' experiences of discrepancy in their new surrounding, but there is also an influence of the degree of general conservatism which moderates 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 toward 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 conservatism were continued. This result is interpreted by the authors as being a consequence of teachers' ongoing confrontations 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 teacher students 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 Austrian chemical industry, ARMINGER (1978) reported correlations 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. There have also been collected some data 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 West German chemical industry. She found the variables relevant in the FISHBEIN model more useful to predict strike intention and strike behavior than variables due to concepts of work satisfaction.

Some studies have been concerned with womens' attitudes following their being employed or not being employed. HOFSTÄTTER (1978) found working women to have more favourable attitudes toward employment; SCHMIDT-MUMMENDEY, SCHMERL, & SCHMIDT (1973) found more conservative attitudes (especially misogyny) in not-working as compared with working women, and NORD-RÜDIGER & VAN RÜLING (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.

## Deviancy

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 acting up to the laws. He defined a dozen of variables as predictors, and formulated causal hypotheses. As BRAUER, FREY, & AMELANG (1975) showed those variables that could be called attitudes had only low correlations with overt behavior, i.e., delinquency. Also a path-analytical model could not demonstrate a strong attitudinal influence on the critical behavior. In another test of the OPP model, DIEKMANN (1975) investigated students' traveling without a ticket; although the regression coefficients were generally low the variable 'norm deviation' which was the most attitude-like predictor had 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 on 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 came more and more into fashion. Apparently, its efficacy has not been overwhelming. SOMMER (1973)

recommended the FISHBEIN model for planning processes in advertisement but does not report own data. The same is true for FREITAG (1973) who favours multiple regression models with attitudes as predictors for purchasing disposition. SILBERER (1979) gives a review of dissonance theory applications 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 arises a polarization of the attitudes toward the brands. Finally, consumers' complaining behavior has been related to attitudes; after MEFFERT & BRUHN (1981), complaining behavior is dependent among other factors on 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. Applying the FISHBEIN model to the data, could 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, like rain-showers, could be demonstrated to influence pedestrians' traffic behavior efficiently.

As in the already quoted study of 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) let 80 car drivers report which traffic rules they would sometimes hurt. The correlation between the subjects' evaluations of different traffic rules as predictors, and their reported actual hurting was .49, and the multiple correlation, when some third-variables were added, was .55. In a replication of this study, BOLTEN, MUMMENDEY, ISERMANN-GERKE, & HEMMERT (1982) obtained respective coefficients of .52 and .56.

#### 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 teacher students 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 came by population transfer 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 dwelling environment, TREINEN (1965) found a relation between the duration people live



in a small town in Bavaria, and their liking to live 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 residencies.

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 conclusion about 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 has been dominating 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 as well 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 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', there is more than a half of a total of about 50 that could be counted as behavior-oriented in the above mentioned sense. Taken 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 a role as mediators between action-guiding cognitions and human goal-directed action. Looking at the background of classical attitude-behavior research, however, those action theoretical approaches favour 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 relation 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 a 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 more or less 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. So strong seems to be

psychologists' implicit theory of a parallel development of attitudes and behavior that in many publications no essential difference between both of 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 prevent attitude-behavior research still from effective improvement.

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