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SOZIALPSYCHOLOGIE

-HAFOS-

The extended group situation theory (EGST), social decision schemes, models of the structure of communication in small groups, and specific effects of minority influences and self-categorization: An integration.

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HAFOS 1992, NR. 1

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SUMMARY

Group situation theory has been developed as a general-framework in order to integrate different theoretical approacbes in the area of small group research. Ist development is based on some fundamental assumptions combining normative influences with an information integration process of the individual group member. Under these basic assumptions as guidelines the social impact theory has been integrated into the group situation theory which results in an extended group situation theory.

After this extension of the otherory the similarities of this approach with the social decision schemes has been discussed. The predictions are very similar, but the kind of theories are different: *Social* decision schemes is a family of descriptive models predicting the transformation of a group members' distribution after discussion using qualitative choices; EGST is a family of information integration processes giving an explanation why a given change has happened after discussion using also quantitative choices.

As a next step the BALES' research tradition on interaction frequencies and their influence in group decisions has been integrated in EGST to find their specific place in a broader theoretical concept.

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Introduction

It seems to be a powerful program to find a combination of theoretical approacbes in the area of small group research (Witte1990). The similarities and dissimilarities of leading theories give us an idea how to integrate theoretical concepts in to a more powerful middle range approach. The ideal Of course, is a complex theory to explain behaviour in small groups perhaps at first the individual behaviour and then the behaviour of the group as a whole. Such an attempt is very seldom in social psychology. It is in the tradition of what would be called theoretical in the disciplines. Such intention must not be mixed up with metatheoretical approacbes speculating about how to construct theories or with theoretical generalizations to explain different results from one theory. Both such approacbes are necessary and praiseworthy but the program to be followed is different. Valid theoretical concepts which are able to explain empirical results and which are accepted in the literature as proven concepts are combined into a more complex theory. One further demand is to combine concepts with a mathematical kernel to have both qualitative and quantitative predictions of the otherory.

Of course, such a theoretical program is productive only if we are able to explain fundamental empirical effects in a more penetrating manner than before. For that reason three well known empirical effects of minority influences and an interesting effect of self-categorization should be explained.

This article is divided into the following parts :

O. The basic psychological assumptions of group situation theory (GST);

1. The development of an extended group situation theory (EGST) from the group situation theory combined with the social impact theory;

2. The integration of the otherory of social decision schemes into the EGST;

3. The integration of models describing the structure of communication in small groups ;

4. The explanation of three specific effects observed in minority influences ;

5. self-categorization effects of social influence ; 6. a discussion of the results;

7. some surprising predictions of the therory.

A third step is to explain some well-known empirical effects of minority influences with EGST to get a deeper impression of the empirical processes and to show the quality of the

theory.

Fourthly, the active research on intergroup relations has been used in order to explain empirical effects on self- categorization. All these explanations are given on the basis of quantitative predictions from EGST.

Since a theory is only productive if it is able to give some surprising predictions and explanations, finally different conditions of small group research has been discussed from The otheroretical viewpoint of EGST.

Group situation theory (GST): basic asumptions being in a group means being under the influence of thes. This is reminiscent of the difference made by Deutsch and Gerard (1955) between normative and informational social influence. Deutsch and Gerard (1955) defined informational influence as "influence to accept information obtained from another as evidence about reality"(p. 629) and normative influence as "influence to conform to the positive expectations of another"(p. 629). These two kinds of influence processes have different functions in guiding an individual's behaviour or judgment: the informational influence is directly connected with judgment and behaviour as a hint what is correct, in a broad sense; the normative information instead tells the individual how to use the information in the group situation. The general question is whether the individual should conform to the given information of the other members or to their assumed expectations of his behaviour if be has no direct information from them. One can see normative influence as antecedent conditions upon which the type of informational influence is dependent. The informational influence is understood as a process of information integration broadly in accordance with Anderson's considerations (1971, 1974, 1981, 1982). The combination of these two components leads to a model of individual choice behaviour in group situations (Campbell & Fairey 1989; Witte1987).

A group situation could be defined as follows : a situation in which one as an individual is induced by uniformity pressure to relate ones own judgment (reaction valuation) to the judgments (reactions valuations).

the first problem of GST was to identify the dimensions of the informational and normative influence processes. It was started with an intuitive content analysis of the variables that were experimentally manipulated as normative dimensions and variables measured as a direct influence about the reactions as informational dimensions (Witte1979). The normative dimensions are differentiated into :

(a) Awareness of theory (AT) often introduced as involving more or less experienced subjects and discussed in depth by Habermas(1966) as a learning to behave after knowing The otherory which explains the behaviour.

(b) Group atmosphere(GA) includes liking and cobesion (Shaw, 971).

(c) Distribution of individual choices(DIC) takes the divergence of reactions in the group e. g. a homogeneous majority against a minority of one.

(d) Verifiability of choices(VC) describes the characteristics of the stimulus material. In the most extreme variants it is the difference between the autokinetic effect and the lines used by Asch.

(e) Commitment to a constituency (CC) is measured by the degree of obligation to a given position felt by negotiators.

(f) Uniformity pressure(UP) is the degree of compulsion experienced to consider super-individual values. The last dimension has been differentiated with the help of the original social impact theory (Witte1990) but what is still needed is a theoretical integration of both concepts into an extended group situation theory *(EGST* see below).

The question is, however, how to imagine the interplay between these normative components. We assume an *hierarchical order* as a heuristic to describe the complex perceptual operations.

Thereby the subsequent normative component is only brought in when the subject does not know how to interpret the group situation. This unclear situation is present when the particular component is perceived to be of medium degree. Usually it is assumed that subjects differentiate into three degrees : Positive, medium, negative or small, medium, large. Only the first component -AT: awareness of theory - is differentiated into two degrees, because one can only be aware of a theory or not.

the information integration process is best described by weighting informational elements concerning their relevance in a given group situation.

the *informational elements* are :

1. The *social value* as a general orientation in a group situation; it depends upon the reference group and gives the orientation for the social desirable or prescribed behaviour SV.

2. The *group standard is* the orientation given by the small group in which one has to give a reaction; usually it is the mean of the individual judgments : GS.

3. The *argumentation* usually is the mean of the exchanged arguments during group discussion measured on the reaction scale. Sometimes the arguments are weighted differently by their convincingness so that the argumentation is a weighted average: AR.

4. The *individual value is* a residual category which is introduced as the difference between prediction and observation. It measures the idiosyncratic behavioural intention of the individual : IV.

As a general prediction of the individual reaction (Y) in a group situation we obtain :

$$Y= a*SV+b*(GS-aSV)+c*\{AR-[aSV+b(GS-aSV)]\} + IV$$

the informational components are in a *hierarchical order* concerning their generalizability. On a more subjective side this means that the social support of the position determines the hierarchical order of the informational components. At first there is the social norm what one should do in a specific situation. Then follows the reactions of the group members inclusive ones own. At the end the given arguments are considered. They are often justifications of the individual reactions which means the least relative social support of the three components.

their weights (a, b, c) are modified by the normative components of the group situation.

The *standard group situation is* characterized by a=1, h=1/2, c=1/3 with the result that the behaviour is predicted as the arithmetic mean of the three components :

$$Y=1/3*(SV+GS+AR).$$

It is a central question why to use a more complicated formula instead of a simple arithmetic mean. The answer is fourfold. At first information integration per se is a process which can be modelled by the more complicated formula. The arithmetic mean is only the end-result. Secondly Occam’s razor seams to be a well-accepted norm in science. Thus, if there is no

modification by the more specific parameters eliminate them. However,, the arithmetic mean always takes into account all three parameters. Thirdly, it is more economic to construct theories by more general parameters. Fourthly, the assumptions about the psychological processes of the information integration : the confirmation for the special values of the weights is not the averaging process the assumption is that the subjects have a preferred rank order and take into consideration the position of the informational element (1/11/21/3...) if there is no the information to modify the weighting process. This results in a standard group situation which is ambiguous and where subjects use all the information they could get. The consequence is the often observed averaging process if one does not forget the SV as a general orientation, e. g. The social values explanation of the choice shift (Witte & Lutz, 1982).

In all the group situations there are deviances from the simple averaging process. Under specific normative conditions there is a different weighting pattern of the three informational elements. Such a pattern describes the way how the group member reaches his decision. This means that the simple hierarchical order of the informational elements is no more valid , because the normative elements of the group situation suggest another weighting process (Witte1987).

the guiding principles of the weighting patterns under different normative conditions are the following :

(a) the sum of the weights must be one, because the informational elements and the reaction should be measured on the same scale without unity transformation : a+b+c = 1. (Remember that sometimes weights are integrated with negative sign.)

(b) the weights should be easy that means bounded on the rational numbers : 0,1,1/2,1/3,1/4... , because the underlying psychological process of information integration is less continous and more categorical.

(c) the weights should qualitatively differentiate between the different information integration processes that means their values should be bounded on 0 and 1, if possible.

In spite of these three restricting assumptions sometimes there are two ways of information integration under specific normative conditions to reach a predicted result Witte1987).
For instance, it is assumed that under a positive group atmosphere the individual reaction Y will be the group standard, because the tension to harmony leads to this compromise : Y = GS. But there are two patterns to reach such a compromise : {a=1, b=1, c=0) and {a=0, b=1, c=0}. The first pattern means that the social orientation SV and the group standard GS together determine the individual reaction the group members feel as a part of their reference group and take this orientation into account. The result is that the group standard and the social value are weighted equally with the maximal weight of one. But the group standard is the representation of the social value so that the small group is well integrated into the reference group.

the second pattern describes an isolated small group which concentrates on the reactions of its members and takes these as the principle for a compromise. In both cases the result of the individual reaction is the group standard. In both cases the argumentation has no modifying influence on the individual reactions but the meaning of the compromise for the individual reaction in future should be different: under the first pattern of information integration their are arguments which use the social value as justification under the second pattern, However,, the group is self-determined without consideration of an external standard. The consequence may be a different degree of commitment concerning the individual reaction without group situation comparable to the differentiation between conversion and compliance (Kelman, 1961).

Thus the process of the information integration - the patterns of the weights - and the result of this integration has to be separated. Sometimes there are more than one way to reach the same result but the different ways have a different meaning for the stability of the individual reaction and the normative dimensions of a future group situation with the same members (Witte. 1987). Thus, the dynamics of the information integration and not only their final result are a necessary future stop of research for the development of group situation theory.

Extended group theory (EGST)

If we now want to combine group situation theory and social impact theory then we have to select the possible informational elements. The concentration will be on the original version (Latane', 1981), because the more dynamical variant needs more systematization of the formulae (Nowak, Szamrej & Latane', 1990) and all other dynamical models, e. g. the interaction sequence model (Stasser & Davis, 1981) and the social transition schemes (Kerr, 1982), should be discussed together in a future article.

Generally the original social impact theory explains the behaviour in a social situation where there is no communication between the group members to influence the individual's directly. Thus there is no group standard (GS) and no argumentation (AR). The only parameter which influences the behaviour is the social value (SV) as the general behavioural orientation in this situation. The question is whether the individual's follow this orientation or react concerning their individual standards (IV). This means in a technical sense that the weight of the SV varies
between one and zero (bounded on rational numbers) under a situation of positive social impact:

$$Y=a*SV \qquad 0<a>1.$$

From this assumption follows a pattern of weights for the informational components : a, 0, 0 (Witte1987). The variation of a is bounded on rational numbers between 0 and 1. (Such a restriction means a better falsification of theoretical predictions and psychologically a restricted differentiation between different emotional states determining the weights as it is known from the research of the number of categories necessary for rating scales (Dawes & Smith, 1985).

It also was observed under the condition of social leafing that the Ss change their behaviour away from the direction of the social value towards their individual purposes,, more than they would have done under the condition of no influence. Then the weighting pattern is : -a, 0, 0.These different weighting processes with a positive and a negative sign are well known in the *assimilation-contrast theory* (Sherif & Sherif,, 1969). But this is a theory mainly about direct informational influences. Another model which explains the resistance against mainly normative influences is *reactance theory (* Brehm, 1966, 1972). If people feel the loss of freedom they will react against the expectations, also if they are socially valued. (For an empirical reconstruction see the self-categorization effect below.)

Two processes have been identified, one is the affective-cognitive influence of the group situation,, the input transformation which leads to social impact (positive weight)or social leafing (negative weight). These internal conditions are intervening variables which lead to a modification of the individual reaction for or against the social value. This affective consequence depending on the normative condition of the group situation has been called the f-function of social impact theory. But, of course,, the emotional state does not lead automatically to a corresponding reaction, as is known from the attitude-behaviour relationship. The normative dimension of the group situation also modifies the transformation of the internal state into an external individual reaction. This transformation has been called the g-function of social impact theory (Witte1990). This corresponds to the differentiation between social facilitation and social inhibition.

Usually. The normative influence and the individual reaction has been observed without the two internal transformations: f- and 9-function. The consequence is that there is a two-by-two table with four different effects. One is the classical *social facilitation* effect which is observed if the social impact is positive in the direction of the social value and the emotional state leads to a corresponding reaction. The *social inhibition* effect is observed if there is a positive social impact but this internal condition leads to an over-activation with negative consequences on the reactions (e. g. The Yerkes-Dodson-law).

Furthermore the normative influence can reduce the individual effort (negative f-function) and this emotional state is positively transformed into a reaction (positive g-function). This is a *social loafing* effect.

Of course, there is logically a fourth effect which looks like social facilitation but which is grounded on a negative f-function and a negative g-funation. For instance, the emotional acceptance of the group means relaxation and this emotion leads to more socially determined answers - e. g. *intrinsic motivation effect.*

With these two transformations in mind we are able to model the intervening processes of social influence concerning the sign of the functional relationship between normative and informational components resulting in an individual reaction.

As the first normative dimension we introduce the input transformation called the social force field (SFF) with reference to Latane' (1981). It contends the emotional relationship (I) between the individual and the social condition as it is differentiated in social impact theory between *immediacy* (IN) *strength (S),* and *number (N).* Now the idea is that the relationship is positive with a maximum value and then inverts into a negative relationship. This inversion process itself is not the content of EGST only the final result. The further assumption is that subjects react in correspondence to their emotional state. They are able and willing to behave in correspondence to their emotions. Thus, as usual in group situation theory the *socia1 force field (SFF)* is differentiated into three categories with a constant positive transformation of the emotional state into behavioural expression:

SFF=1 a positive social force field with a positive relation between the parameters of the group situation and social impact under a positive transformation into behaviour (a classical conformity situation):

$$a= v*I+w = x*\log S+y*\log IN+z*\log N\ (a, 0, 0)$$

x, y, z >0 and S, IN, N measured as intensities with magnitude estimation methods so that the logarithmic transformation is meaningful. I (impact) is measured on an interval scale therefore any linear transformation is allowed.

SFF=2, go to BFF (behavioural force field)

SFF=3 a= v*I+w = -(r*logS+s*logIN+t*logN) (-a, 0, 0) r, s, t >0 and S, IN, N measured as intensities.

the second normative dimension coming from social impact theory in its detailed version (Witte1990) has to do with the transformation into a behavioural reaction which now is inverted:

BFF=1
(Behavioural Force Field)
a= (-v)*I+w = x*logS+y*logIN+z*logN (-a, 0, 0)

BFF=2 go to ATI (Awareness of theory in an information exchange situation)

BFF=3 a= (-v)*I+w = -(r*logS+s*logIN+t*logN) (a, 0, 0)

This inversion of the relation between internal emotional state and behavioural reaction or judgment means psychologically on one hand that the subjects are unable to follow their intentions,, because of e. g. over-activation, on the other hand that there is a strong feeling of pressure to react with anti-conformity (see self-categorization below).

The medium categories of the normative components are always arranged in this way that the reaction is not determined one has to look for the next dimension, because the situation is too

ambivalent as is assumed.

these two dimensions newly introduced into group situation theory describe a situation where the influence process is indirect through the presence of the people without discussion.

Afterwards a group situation with information exchange is regarded.

there is one more principle introduced into group situation theory. This is the idea that subjects are able to learn from theories in the social sciences which means that they change their behaviour after the knowledge of the otherory. This principle has to be modelled theoretically also for the newly introduced part.

For this reason the extended group situation theory needs a new dimension of awareness of theory (ATS) in a situation where there is no communication :
ATS = 1, , , Y =IV
(Awareness of a theory in a social impact situation)
ATS = 0, , , go to SFF.
the easiest assumption is that such an awareness leads to the elimination of social conformity or anti-conformity.
Now we have a formal integration of the social impact theory into the group situation theory. The result is the extended group situation theory (EGST)(see Table 1).
What is still missing is The otheroretical explanation of the fundamental parameters in the social impact theory: r, s, t, x, y, z. The logarithmic transformation has been explained by the perception of intensity measures and their relation to a rating scale of impact (Poulton, 1989). The logarithmic transformation is only needed if strength immediacy and number are measured with magnitude estimation methods. If the usual rating scales are used there is no need for a logarithmic transformation. However,, the original social impact theory is in the tradition of the New Psychophysics so that the logarithmic transformation has been introduced to relate a rating scale of social impact to a magnitude estimation of the three dimensions of social impact. Theoretically there are three informational variables of a social situation which determine in combination one internal state of individual's. This is a reduction of complexity from outside to inside. This internal state leads to a reaction of the individual but in two different ways directly or inverted depending upon the social and behavioural force field. These two global dimensions which characterize a group situation are a description of the subjects interpretations. Such interpretations are in the tradition of the cognitive orientation of social psychology especially in *social motivation* (Weiner1980). because of the relevance of these interpretations they should be analysed much more intensively in future. Generally the interpretation should not be an assumption of the experimeter or theoretician but an empirical datum.

But how to explain the variation of the parameters ? Only the sign of the integration rule has been fixed.
If we take number (N) as the normative information of the group situation then we get the following results :

$$Y= a*SV$$
$$a= v*I+w=z*\log N$$
$$a= I =z/v*\log N-w/v.$$

Obviously the weighting of the information is a product term depending upon affective-cognitive (input) transformation and conative (output) expression :

$$Y= (z/v*\log N-w/v)*SV$$

If we concentrate on the relationship between logN and Y which is in the centre of impact theory we get :

$$v*Y/SV = z*\log N-w.$$

Obviously, the interpretation of z is very difficult following that the whole functional relationship depends upon the two weighting parameters, z as the cognitive-affective transformation and v/SV as the behavioural expression.

Theoretically the most interesting part of this equation is the weighting of logN: z*SV/v. This parameter is the most interesting in social impact theory, because there seems to be a systematic variation depending upon the social situation (Witte1990). The following weights were obtained : 1/4, 1/3, 1/2, 2/3.
In general a “normal” social situation might be characterized by a weight of 1/2 (Tanford & Penrod, 1984). What does this mean of the influence process? The direct interpretation of the parameters is only justified if we accept that the SV equals one as in a percentage scale and v is used as the unit transformation of the logN values into the percentage scale. Then it is possible to interpret the coefficient of the regression line between logN and the percentage of conformity as z the wanted parameter which only contains the transformation from group situation into an internal emotional state of impact. What we like to do now is to attribute it to the underlying process of information integration. For simplification we concentrate on number as the parameter of the group situation.
There are two informational elements of the group situation first what I would do personally N=1 -- IF(1) -- second how many people are there --IF(N). Both informational elements are combined into an experience of impact in the following way (f-function) under the assumption that the information integration is the same as usual :

$$I(N)=IF(1)+1/2[IF(N)-IF(1)]\ IF(1)]$$

is a constant only depending on the social situation. It leads to I(l)=-w. And IF(N) is the cognitive base of the affective-cognitive transformation. The parameter is IF(N)= logN-w.
The affective influence is modelled by the parameter z, the evaluation of the information about the group situation. The same number of group members can be more or less influential depending upon the sovereness of the behavioural consequences. Both kinds of parameters together give an expression of social impact. With z=1/2 we obtain the following formula:

$$I(N)=-w +l/2(\log N-w+w)=1/2*\log N-w.$$

It is very interesting that we get this integration rule if we combine the information of normative elements. This rule describes a compromise between no impact, because being alone and impact through the presence of the number of group members. It is only valid if z equals 1/2. However, this compromise started with the individual perspective and then the social influence is taken into account. The information integration combining the informational elements SV GS and AR to predict the reaction begins with the social information and the individual parameter is only a residual category. These different starting paints of the information integration describe the specific comparison lever which is relevant under the specific conditions : modifications of internal or external states. The affective-cognitive transformation (f-function) is a modification of internal processes and the conative transformation (g-function) is an observable reaction with a visihle consequence. Under these conditions the main orientation starts with the social value. In both cases the integration rule might be the same. In future, perhaps there also will be introduced a hierarchical order of the normative informational elements -number immediacy strength - if all three together are manipulated experimentally. Of course, there are the values of z with more or less influence of the group members on the individual reaction (Campbell & Fairey, l989).

This kind of information is different from the informational elements which are direct hints how to behave. The indirect information about impact through immediacy strength and number is the specific normative information of the concrete situation. The global orientation what to do in general depends upon the normative components which are necessary to fix the sign of the integration process and which are called the social and behavioral force field. Under these global normative components (qualitative determination) the situation specific normative information is used for the quantitative determination of the emotional state of impact and its quantitative transformation into behavioural conformity with the social value. Astonishing is that the information integration of the normative information can be modelled in the same way as in the standard experimental condition where the Ss get information more directly what to do.

But it is still unclear under what conditions the value of z is different from 1/2. Until now it has been observed a systematic variation of this parameter (Witte1990) but there is no theoretical explanation of this variation. A first stop into the direction of a theoretical explanation was the differentiation into f- and g-function so that two parameters have to be separated and explained differently. At first we have to explain how strong subjects feel impact in different group situations, this is the variation of the z-value which has been exemplarily discussed through the influence of number.

the differentiation of the signs is only the first step. One preliminary idea is to use *characteristics of the group members* to determine the evaluation of the normative information (z-value) as they have been introduced by Kelman (1961): *credibility vs. uncredibility* or better expressed under the given conditions as competence vs. incompetence attractivity vs. rejection, and power vs. powerlessness. These are individual. characteristics of the group members and they have to be seperated from the situational parameters immediacy strength, and number. The latter comprehend the general situational setting. Consequently, the same number of people with a higher status can produce a higher impact that means technically a z-value which is greater than under lower status. Since it is not the intention to discuss this paint more deeply we will stop here. But in future it will be necessary to explain the variation of the z-value theoretically"

Integration of the otherory of social decision schemes.into EGST.

The otherory of social decision schemes allows predictions of reactions after discussion from the distribution of individual reactions before discussion. At best The otherory works under the condition of two reaction alternatives. Under a specific distribution of individual reactions the social decision schemes predict with the assumption of different combination rules the distribution after small group discussion. The application of the model is manifold. It has been used to analyse intellectual tasks (Laughlin & Adamopoulos, 1982). mock jury decisions (Davis, 1980), attitudinal judgments (Kerr, Davis Meek & Rissman, 1975) and choice shifts (Laughlin & Earley, 1982).

On intellectual tasks there is one basic social combination process called “truth supported wins”: two correct members are necessary and sufficient for a correct group response.

On the other hand, research with mock juries is best described by the social combination process called “majority wins”: a majority of the group members determine the group response.

Obviously the social decision schemes are comparable with the group standard in the group situation theory if we accept that there is only a qualitative reaction alternative. Under these conditions the proportionality rule is the same as the group standard in group situation theory. But, because there is a deviation from this rule the introduction of the other informational components, especially the social value as the general orientation have to model the observed reactions under the standard information integration process. The otherory concentrates on the process of information integration so that there are no theoretical parameters which describe the variation of the normative dimensions. And the main question is whether the different decision schemes can be modelled by the combination of the three informational parameters as the underlying process. The prediction under standard conditions is the following if the argumentation does not introduce any new position as it is often observed (Witte & Lutz, 1982):

$$Y = SV + 1/2(GS-SV) \text{ with GS as the arithmetic mean.}$$

We would like to reanalyze the data given by Laughlin and Earley (1982) where they applied The otherory of social decision schemes on the choice shift to give a demonstration of the similarities and dissimilarities of both theoretical concepts. Laughlin & Earley transformed the reaction scale varying from 1 to 10 into a dichotomous reaction with 1-5 as risky and 6-10 as cautious. After this transformation they found two neutral items with individual reactions around 6 that means there is no social value in one direction. With these items they found as a best prediction the proportionality rule. For the other items a decision rule of risky or cautious choice supported wins best describes the individual reactions after discussion.

This decision rule as an average individual reaction could be modelled by the combination of SV and GS where GS is given by the proportionality rule. Depending on the distribution both models give the following predictions for risky items (cautious items are symmetrical):

Distribution risky choice supported information integration wins

r	c	r	c	r	c
5	0	1. 00	0.00	1. 00	0.00
4	1	1. 00	0.00	0.90	0.10
3	2	1. 00	0.00	0.80	0.20
2	3	1. 00	0.00	0.70	0.30
1	4	0.00	1. 00	0.60	0.40
0	5	0.00	1. 00	0.00	1. 00 (specific rule with DIC=1).

There are discrepancies between the two models which should be tested separately. The one is the distribution (2,3) the other the distribution (1, 4).

Generally, the social decision schemes themselves have to be reduced to more fundamental processes and parameters to get a deeper impression of the psychological functioning behind the surface. Also it is necessary to have a theory working on the interval scale lever, because most of our data come from ratingscales. Furthermore, the different decision schemes under various situational and stimuli conditions should be integrated into a middle range theory. The general idea to find a weighting process of the informational components to predict the distribution of the individual reactions after discussion is comparable between the two theories. Thus the group situation theory generalizes the social decision schemes and tries to specify the underlying process as a specific information integration with a social orientation and the consideration of the groups reactions. Thus the different schemes depend upon the group standard as the distribution of the reactions on the stimulus in the small group and the social characteristic of this stimulus. There are only few clearly differential predictions of both concepts. One explanation of such differences

could be the communication structure in the small group, because EGST determines the group standard as the arithmetic mean with equal weights of the group members. Sometimes there are status differences in small groups which can be modelled by different weights of the members determining the group standard. Theoretically such ideas about status differences are introduced by models of communication structure as the observable consequence of these differences.

Models of the structure of communication in small groups.

Group decision schemes give an impression of the weighting process depending upon the characteristics of the stimulus which is determined by the social value and the group standard. But
there is another deeper weighting process observed in natural small groups spontaneously: the different speech rates of the members depending on personal characteristics.

there are several models to describe the structural properties of the distribution of the individual interaction frequencies in small groups (Goetsch & McFarland, 1980). This unequal distribution of the interaction rates among the group members in a group discussion is one cause of the differential influence of group members: If the one person who is dominant in a group prefers a specific reaction alternative then the other members should be influenced more than through a more submissive member. Obviously, the small group standard (GS) should be determined by a weighting process which depends upon the different rates of interaction (Bales, 1970; Stephan & Mishler, 1952; Tsai, 1977). It was found that the following function describes the relationship between rank order (R) and interaction frequency (h) :

$$\log h = -a*R+h$$

h : interaction frequency

R : rank order in the group

a, b: constants

(a is negative , because the higher the interaction frequency
the smaller the rank).

These different ranks depend on personal characteristics and individual resources (Foa & Foa, 1980). This implicit weighting process depending on the members status has to be integrated into the EGST, too, because this informational social influence depending upon personal characteristics of the group members has been neglected until now. It is the specific influence of a concrete distribution of the members status which changes with the combination of new members (Borgatta & Bales, 1953). If the status distribution is known it is sometimes possible to eliminate the informational component AR from the prediction of the individual behaviour through the different weights of the individual influence if the group standard (GS) is determined. The argumentation

during group discussion is determined by the differentiation of the status. If this function between the status and the interaction frequency is valid, it is not necessary to know what is said, but only how often the members have talked. The argumentation itself is a more laborious and less generalizable result of research. This is the reason why the modification of the GS through a weighting process is theoretically more promising than the influence process modelled by the observed argumentation. Furthermore such a status distribution should be more or less independent from the specific content of the discussion. Thus if the status distribution is known the same weightings should be used under different topics without consideration of the specific argumentation during discussion. The personal characteristics of the members - their status - partially determine their influence and therefore the average individual reaction after discussion.

This weighting process, of course, is independent from the social decision schemes which work under the assumption of an equal status of the group members but under different distributions of the individual reactions. Such an assumption seems to be only true, if we observe ad-hoc groups without continuity. Natural groups, however, develop a hierarchy spontaneously so that such a differentiation has to be integrated into a middle range theory of the individual behaviour in small groups. It is one origin of the variations observed in the prediction of the average individual reaction.

But what is needed are weights to determine the group standard (GS) as a weighted average which means that the weights sum up to one. This constraint is necessary if we measure all informational elements on the reaction scale

the basis is to fix the weights through the observation of the interaction frequencies which is on a low empirical lever. But if there is a linear relationship between the rank order and the logarithmic transformation of the interaction frequencies as intensity measures it is sufficient to know the rank order of the members concerning their interaction frequencies. The real frequencies are not necessary to determine the weights of the single members. But there is still a more abstract fixation of the individual weights if we know the status of the members depending on their social prestige and measure their rank order then we should get a prediction of the interaction frequencies and thus their influence on the group standard (GS). The easiest quantification of the weights and the most abstract is given through the following formula if the rank of the status is known:

wi = iRinv * e
wi: the weight of the group member i
iRinv: inverted rank of group member i that means the highest rank gets the highest number
e : constant depending on the size of the group to fix the sum of the weights on

For a five member group we obtain the following weights :

Ri	*1*	*2*	*3*	*4*	*5*
	iRinv	5	4	3	2	1
	wi	0.33	0.27	0.20	0.13	0.07

e = 1/15 = 1/(1+2+3+4+5)

these weights are used to determine the group standard (GS) if there is a status difference between the group members. It is the linear transformation of the rank order differences into weight differences. Such differences are observed if natural groups are studied or groups with a more continuous interaction than usual in a lab with ad-hoc groups of strangers.

Thus the relationship between the interaction frequencies(h) and the weights (wi) is logarithmic, because such frequencies are intensity measures. This non-linear transformation is meaningful, because the frequencies are measured on a ratio scale :

wi= e/a logh - b*e.

With the help of the last formula it is possible to use the interaction frequencies in the tradition of Hales (1970) as indicators for the weighting process determining the group standard (GS) as a weighted average with a different influence of the group members depending on their status.

Specific effects of minority influences.

These two kinds of theoretical integration seam to be a first stop towards a more and more general theory of behaviour in small groups. However, the value of such an integration process should be demonstrated by the explanation of some empirical effects through such a theoretical concept on one hand and through some surprising predictions on the other hand.

One of the most influential research on small groups is the innovation by minorities. During this research three different effects have been observed : a) the zeitgeist effect. b) the cohesion effect, and c) the *psychologization* effect. My intention is now to give an explanation which is consistent with the EGST, but these effects are also explained by the old version of the group situation theory without the extension to integrate the social impact theory.

First we have the zeitgeist effect which means that a minority is very influential under positive zeitgeist conditions. The idea of group situation theory is that a positive zeitgeist means a social value (SV) which is in favor of the position of the minority. Under these conditions for a six person group with two members against the four member majority and stimulus material with medium verifiability getting the standard information integration process without modification of the arguments we have :

Y = SV +1/2(GS-SV)

GS= 2/3W + 1/3R W means ‘contrary to the zeitgeist and
R means ‘in agreement with the zeitgeist’.
If the argumentation is eliminated as a further element of influence by the assumption that the arguments totally depend on the prior positions then we get the following result :

Y = R +1/2(2/3W+1/3R-R)
Y = 0.67R+0.33W.

This prediction measured on a nominal scale means that the influence of the minority inverted the percentages of the reaction alternatives before discussion from 0.67W to 0.67R under the standard experimental condition and an agreement of the minority with the zeitgeist. (If someone sees a contradiction to the results of the typical Asch-studies where the increasing majority has not an increasing influence on the minority has to look at the earlier articles which have discussed these studies intensively (Witte, 1987, 1990).

the influence of a minority against a zeitgeist is minimal and can be predicted in the following way:

GS=2/3W + 1/3R and SV=W

$$Y = W + 1/2(2/3W + 1/3R - W)$$

$$Y = 0.83\ W + 0.17\ R.$$

Through an experimentally controlled minority of two members we only get 17% reactions of naive Ss which follow the minority. This has to be compared with the 67% above where the minority is in accordance with the zeitgeist. But also this amount of influence is an over-estimation. Usually this amount is halved (see below) and the percentage of change reaches about 8. 5% of an average individual.

If it is accepted that a socially and physically determined reality are not different concerning their influence when their amount of verifiability is the same then we are able to study the blue-green experiments (Moscovici & Faucheux, 1972) as an empirical basis of these above derived results. They reported on a sample of people who give more than two wrong answers and therefore are called influenced subjects. This sample of subjects, we may assume has changed from high verifiability (VC = 3) to medium verifiability (VC = 2). Only for these subjects the prediction of the amount of influence should be correct. Their percentage of change is 18.4 and 19.3 in two experiments. For all subjects together the easiest assumption is that only half of them have changed their certainty with a consequent reduction of the weight from 1/2 to 1/4 which means psychologically that the average naive subject believe more in its perception as a physical reality than in the answers of the group members. The physical determination as it appears to the subjects is stronger than the social determination through the other group members. Only a subsample of influenced subjects follow the predictions, because for them the verifiability of the stimulus has been reduced and the social influence is weighted equally compared with the physical determination.
For the whole sample the assumption is that the average naive subject is inbetween the state of high and medium verifiability. This also explains the results found in the Asch-studies when their was only a majority of two against a minority of one :

$$Y = R + 1/4(2/3W + 1/3R - R) = 0.83R + 0.17W.$$

The empirical result was 12% wrong answers.
At first glance, this change in certainty or as it is called here change in verifiability is a mere speculation. But in an excellent article about social influence Stasser and Davis (1981) distuingished both aspects: opinion or choice change and certainty change. Without going into the details of this model (Witte, 1989, in press) the assumption of a certainty change has a broader empirical base and is theoretical prolific.

The explanation of the zeitgeist effect is given by the general orientation on social values which become relevant in a group situation.
the next point is the cohesion effect (Wolf, 1979, 1985). It was sometimes observed that the more cohesive the group the more individual's changed in the direction of the minority position. The explanation of this effects consistency with group situation theory is as follows : Under a group atmosphere of high positive regard (GA=3) the group tries to find a compromise among the individual standpoints :

Y = GS

GS= 2/3W + 1/3R

$$Y = 0.67\ W + 0.33\ R.$$

The influence of the minority is equivalent to its size.
This is more than the influence against the zeitgeist (0.17) but less than the influence under positive zeitgeist conditions with 0.67 R.

the psychologization effect (Papastamou, 1986) as the third specific effect means a reduction of influence, because "to direct the subjects cognitive activity towards the psychological characteristics of the minority... is enough to reduce its impact considerably " (Papastamou, 1986, p. 166). Thus the deviation among the standpoints is not acceptable to permit a compromise. Under this condition group situation theory assumes that the group falls apart (DIC=3) although The otherory does not explain why. One plausible reason is that the minority will be seen as an ideologically different group with a negative image (Papastamou, 1986). The effect is the building of subgroups. This process of falling apart sometimes begins after a short period of discussion, because the minority has first to be identified. Thus the kind of argumentation produces a change in the normative dimension (DIC). This is a feedback loop from informational to normative components up to now neglected in the group situation theory. This effect and the above given examples of certainty change need a feedback loop from informational influence to normative dimensions. But this has been ignored until now in The otherory.

Self-categorization effects of social influence.
One of the most stimulating approach of social influence research has to do with intergroup relationship and personal and social identity (Turner et al.,1987). In this tradition the classical autokinetic studies have been replicated (Abrams et al., 1990, experiment l). The main results of this study should be predicted by EGST. To do this the fundamental informational parameters have to be specified.
The apparatus and the setting employed for this experiment result in a norm of around 4cm. Thus we get SV = 4. Furthermore there is a mean estimation of the confederates which together with the estimation of naive subjects determines the group standard GS. Since there are three confederates and three naive subjects the estimation of the group standard is the average of the norm as the individual behaviour and the mean estimation of the confederates which means an equal weighting of all members :

SV = 4

GS = 1/2(4 + C) C: the mean estimation of the confederates.

Under usual normative conditions the standard information integration process should predict the mean individual reaction as the dependent variable :

Y = SV + 1/2(GS - SV)
Y = 4 + 1/2(5. 9- 4) = 4. 95
GS= (4 + 7. 8) 1/2 = 5. 9
C = 7. 8 (read from figure 1 p. 103).

the empirical result is Y = 4.8 read from figure 1 p. 103.

The next experimental manipulation introduces the salient classification into two subgroups (‘grouped condition’). The idea now is that such a social situation means a behavioural force field (BFF) where the information of one subgroup is rejected. This is not totally comparable with EGST but will give some more hints when the sign of the information integration is negative, because this is the technical consequence of the psychological process. But now it is the projection of the group standard (GS) and not the social value. This is a further extension of EGST. There is a positive impact and a negative reaction on this impact if it is transformed into behaviour, that means BFF=1.

However, the negative reaction is not on the social value hot on the group standard, because the group standard is the source of the influence. Always this kind of informational element gets a negative sign which is connected with the normative influence process. Under these assumptions the prediction is the following:

Y = SV - 1/2(GS - SV)
SV = 4 C = 8. 6 (read from figure 1. p. 103)
GS = (8. 6 + 4)1/2 = 6. 3
Y = 4 - 1/2(6.3-4) = 2. 85

The empirical result is 2. 50.

the correspondence between the predictions and the empirical data is astonishing. This seams to be a kind of corroboration of the assumptions concerning the change of the sign but at the same time it is a demand for further theoretical developments.

Discussion

the integration of the social impact theory into the group situation theory has led to a substantial modification of the latter to an extended version: EGST. Similarily. this combination has clarified some inconsistencies of the social impact theory. especially the sign of the weights and the differentiation into two processes. Astonishing was the comparable information integration of normative hints into an internal state of impact as it was observed with informational elements and their integration into a measure of reaction. However, the beginning of both integration processes are different: the first starts with the individual lever and the second with the social level.

The next step was a combination of a theory of decision schemes which is concentrad4ed on informational influences with the group situation theory. Here it could be shown that under many conditions the predictions seem to be comparable but group situation theory was able to give a more subtle explanation of the underlying processes. However, the confrontation of these two theoretical concepts has not been ended. Especially, the further developments of the social decision schemes into social transition schemes (Kerr, 1982) and the interaction sequence model (Stasser & Davis, 1981) have to be brought into the EGST.
The often observed variation of individual interaction frequencies in longer lasting groups has to be taken into account because such an influence leads to a modification of the average individual reaction.
Lastly, empirical effects were explained by EGST. These explanations were interesting and could give first hints for an understanding of the processes.
Generally, such a program of theories integration seems to be very promising, although it is very seldom followed. If theories are accepted in the scientific community and are able to explain empirical results in similar areas they are potential candidates for a theoretical integration. The aim must be to construct middle range theories. But how could this be possible without using the theoretical investment of the accepted smaller concepts?
This program of theoretical integration is one important way to bring the group back into social psychology.
Most interesting was the reconstruction of the self-categorization effect because the basis was a classical experimental setting and a clear demonstration of a change of sign before the information was integrated. But this kind of the sign's change was not in combination with the social value but with the group standard. The general idea behind this phenomenon could be explained in such a way that this informational element is negative integrated under BFF=1 because it is the source of the normative influence. Usually there is no other informational element that the social value and the information about the normative conditions under social influence conditions described in social impact theory. Now there is an extension so that the influence is combined with informational elements coming from the small group. Under these conditions the expectation is combined with the GS and therefore this element is rejected. The information integration pattern becomes (1,-1/2,0).
The combination of the different concepts has shown on which emperical effects each approach is grounded and that the concepts are not counterparts explaining individual behaviour in small groups but complements. Social impact theory explains the influence of normative information on the individual reaction without further discussion. But the use of this influence depends on the social and behavioural force field which is a direct extension of this theory in the theory is more specified.
The social decision schemes, on the contrary, are concentrated on informational influence without normative aspects. Different rules mean a different integration of informational elements so that the basis of decision schemes are found in this process.

The research on communication structures has to do with the weighting of the individual reactions to determine the group standard. This research is more specific than the decision schemes which describe the integration of different informational elements, because this concept contains the integration process of individual reactions to build one specific informational element the group standard.

Finally, the explanations of some interesting empirical effects, if they are accepted as such has been a test of the EGST as a connecLion between theory and empirical data. In future many more such reconstructions and, of course, more direct predictions are necessary. EGST is only a theoretical framework to build a middle range theory of individual behaviour in small group situations. Its prediction has been tested on the lever of an average individual so that the individual variation has been eleminated. This corresponds with the usual test of means ignoring the standard deviation. In future the individual reactions themselves have to be reconstructed or predicted. Such a strategy will lead to the introduction of personality variables as necessary predictors of individual reactions to reduce the error variance.

In the whole theory the principle is not to fit theoretical parameters on data but to determine them on theoretical considerations. All weights depend on normative conditions so that they are fixed under specific situations. The research on these normative conditions as an interpretation of a social situation has to be forced in future, because such a specific interpretation implies one or two patterns of information integration (a, b, c).

The research on these patterns of information integration is a necessary complement to the research on the endresult as the mean reaction. Thus EGST demands research on the interpretation of small group situations and on the process of information integration a stimulation of empirical research from theoretical considerations.

Some surprising predictions of EGST

There are at least four criteria to evaluate a theory : a) the potential to reconstruct data of classical studies which are the accepted empirical base of a discipline h) the prediction of new data which corrohorate The otherory, c) the integration of the accepted theoretical concepts into The otherory d) the power for a new understanding of social phenomena.

Some predictions of the otherory have been tested elsewhere (Witte, 1979) especially in combination with choice shift (Witte & Lutz, 1982). Reconstructions and theoretical integrations have been given now and before (Witte, l987, 1990). What is still missing is to give some hints concerning its potential to discover new pbenomena or new results as theoretical predictions from The otherory.

At first some qualitative predictions are discussed.

One classical problem in small group research is the reduction of conformity which sometimes produces a loss of problem solving capacity of small groups. Conformity is the orientation of the individual reaction on the social value or the group standard as super-individual points which are given before any discussion. But the idea is that the discussion is able to help the group finding new solutions. innovations etc. Therefore the question is under which conditions the weight for the arguments is maximal and the social value and the group standard are eliminated. The information integration pattern should be (a=0, b=0, c-1). (Remember that a,b,c are the weights for SV,GS,AR and some weights are integrated with a negative sign so that the sum of all weights is one.) There is only one such condition: If the group members know The otherory AT=1. Then they are able to control conformity processes. This control means enlightment in the classical sense. This strategy should be tested experimentally.

the next best condition for the weighting of arguments (a=0, b=1, c=1/2) leads to two normative influences:

VC=1 that means there is no social value of the material to be discussed and the individual reaction has to be formed by social exchange in a group; CC=2 that means there are members of two reference groups with different social values to find a compromise in the small group but the commitment to a constituency is only medium, under this condition the argumentation plays a role. This kind of social situation is a release from more conventional results. It is not necessary that the members of one reference group are in the minority position in the small discussion group. Also if both are equal in number the conventionality of the average individual reaction is potentially reduced, because the argumentation as an informational element plays some role. Now it depends upon the originality of the arguments -their deviance from the group standard - to reach a creative solution (Mucchi-Faina, Maas & Volpato, 1991). This has to do with conversion effects of minority influences (Mass, West & Cialdini, 1987). The confrontation of two different views without a high commitment to the reference group leads potentially to higher creativity. This confrontation eliminates the importance of the two social values but does not determine the originality of the arguments. If they are only justifications of the individual reactions their potential influence is finally neglectable. But if the subjects feel a high commitment (CC=3), because of social pressure there is no individual change except a compromise is demanded from outside. e. g. wage negotiations. The question whether there are one or two processes explaining majority and minority influences will be answered from EGST in this way that under the standard experimental condition the information integration pattern is the following (a=1, b=1/2, c=1/3) and therefore different from the pattern with two subgroups. Thus the information integration processes are different. However,. it is not the number which makes them different. it is the feeling of the commitment to the reference group which produces the difference. Yet both processes can be explained from one theory. Thus we must know more about the interpretation of the normative dimensions when number is manipulated experimentally.

This is a direct demand from EGST looking at the research on minority influences. This interpretation might be qualitatively different if there is a minority or a majority. But this is. Of course, not the only way to get more creative solutions or to convert the reactions of the individual members. From the research of choice shift it is known that two high status leaders are able to find a compromise which is different from the mean of the two positions. But low status representatives of groups are committed totally to a compromise at the middle between both positions.

Thus the group standard determines the individual reaction after the negotiation. This is a situation with high conflict.

A situation with low conflict or a positive group atmosphere (GA=3) leads also to the same result: the individual reaction is determined by the group standard (a=Oh=1c=O). Now it is the tension to harmony which prevent creative solutions. These are results found under the phenomenon of ‘group-think’.

A third situation in which the individual reaction is determined by the group standard is given when all members give the same reaction individually before the group situation is created. Thus the same results are expected under high emotional and cognitive conflict (CC=3), under low emotional conflict (GA=3) and under low cognitive conflict (DIC=1). In all these cases the group is self-sufficient and the result can be predicted from the knowledge of the individual members. There are many group decisions in the political economic and legal area where the result is manipulated in this way that the group composition has been controlled to get the expected results. The group members themselves do not feel manipulated and are well known experts with a high moral. One such area of this kind of manipulation is technology assessment (Witte, 1991).

Under indirect influence through number. immediacy. and strength it is necessary that the influenced subjects have the impression to be free what to do (SFF=1 or SSF=3). Only under this condition the behavioural consequence is in the same direction as the impact. Yet these mechanisms of influence always have to do with the loss of freedom if subjects identify the whole situation as an influencing strategy. Then they will react with anti-conformity. The consequence is that the total amount of impact is limited. Furthermore. The amount of impact of one source seams also to be limited. Thus the highest amount of impact is reached through the combination of all three sources. For example. if we want to have students with a scientific orientation then it is necessary that many professors (N) with high prestige (strength) make them a partner of doing research (immediacy). If science plays only a role in the examination and/or nobody is doing science with the students there will be no influence in this direction. (the general assumption is that university socialization happens in group situations.)
But the necessary condition is that scientific orientation is the behavioural norm. in terms of EGST the social value (SV). Against the social value there is no influence at all in this direction. except the students have to follow the impact in an examination.
Then the individual reaction is controlled from outside.

The clear differentiation into the two states of the social force field (SSF=1 and SFF=3) is a slight deviation from the impact theory, because there is a continuous differentiation into sources and targets so that the result of such an information integration process could lead to more or less impact or release from impact. The assumption above is that subjects at first know which kind of situation this seams to be and then determine the amount of impact. In impact theory the amount of impact is the dependent variable and the signs and weights of the three dimensions combined with sources and targets are the independent variables. In EGST. However, the signs and in a certain way also the weights are the dependent variables which are determined by the social situation. What the basis of a specific interpretation is has to be found and theoretically explicated.

If there is a feeling of loss of freedom of subjects the reaction is contrary to the influence direction (BFF=l). This is a well known phenomenon of reactance. What is interesting is the prediction of the amount of deviation. The amount depends on the impact and the SV as a product that means the higher the impact the greater the anti-conformity reaction and the greater the difference between the uninfluenced reaction to the social value the greater the anti-conformity reaction. In a situation where subjects expected to react more freely they will show a greater amount of anti-conformity under social influence, because the usual behaviour in a control condition without influence is further away from the socially valued behaviour. The greater this difference the greater the change in the direction away from the socially valued behaviour. On the other hand, additional impact in a condition with behaviour near the social value will change the reactions minimally.

One of the most interesting conditions is the dauhle negative relation between impact and behavioural reaction, e. g. The greater the number the smaller the impact and the smaller the impact the greater the conformity with the SV or in the symmetrical formulation the smaller the number the greater the impact and the greater the impact the greater the anti-conformity.

the first relationship has to do with social support of the individual position and the second with greater adjustment to the social value with lesser impact. On the surface this condition looks like a double positive relationship (SFF=1). This could be a kind of therapeutical condition where The otherrapist helps the client to feel free personally and this reduction of impact leads the client to a more adjusted behavioural reaction. Generally this kind of social influence has to do with the internally accepted social value as the norm to behave under condition without social impact to control the behaviour. Then the social norm as the expected behaviour and the personal norm as the individual reaction without external control are identical. This is sometimes called intrinsic motivation. Usually intrinsic motivation can be reached by the reduction of influence. But under the conditions given in BFF=3 there is also a negative relationship between number strength and immediacy with impact. Thus the higher the influence factors the lesser the impact. Under these assumptions it is possible to explain the negative results of the brainstorming conditions(Diehl & Stroebe, 1987). The instruction of the brainstorming means a negative relation between number

strength, and immediacy, because of the ignorance of the other reactions. Furthermore this unknown situation in which subjects have to do two things at the same time, to register what the group members have said and to think about own solutions. The result is that reduction of impact leads to less creative solutions. There are two strategies to increase creativity: firstly find a positive relation between impact and behaviour by reducing the complexity of the social situation, perhaps by the exchange of written propositions; secondly change the negative relationship between influence factors and impact. so that the group situation increases impact through the presence of the other members. But do not change both at the same time. Obviously. one theoretical prediction is to increase creativity through conflict where each subject wants to find its own solution, because of the high impact. The other way is the reduction of impact and this reduction correlates positively with a more individual reaction. The first way is creativity increase through competition and the second through cooperation. Both ways seem to be possible as a prediction from EGST.

these are some hints of qualitative predictions from EGST. But there are also clear quantitative predictions. They are only possible if the normative elements are specified and the informational elements measured.

the first question of the research on minority influences is whether this small empirical effect is more than a random change. Concerning EGST often the influence is established against a majority who is certain about the right reaction so that the minority has to change the certainty first and than the reaction. However,. The cortainty change. which is necessary for any behavioural change only reaches half of the subjects which means that the average individual reactions change is reduced to only 1/4 - half of the usual influence. Thus the following percentage of change is predicted if it is accepted that the arguments have no influence they are necessary to modify the certainty :

$Y = SV + 1/4(GS - SV)$
SV: a reaction against the minority R
GS: group standard with a minority against R

Now there are several experimentally manipulated minorities:

1 in 3. 1 in 4, 2 in 5, 2 in 6. As a quantitative prediction we get:

$GS = (2R + lW)\ 1/3 = 2/3\ R + 1/3\ W$
$GS = (3R + lW)\ 1/4 = 3/4\ R + 1/4\ W$
$GS = (3R + 2W)1/5 = 3/5\ R + 2/5\ W$
$GS = (4R + 2W)1/6 = 2/3\ R + 1/3\ W.$

The average individual reactions under these conditions are:
$Y = 0.92\ R + 0.08\ W$; $Y = 0.94\ R + 0.06\ W$; $Y = 0.90\ R + 0.10\ W$; $Y = 0.92\ R + 0.08\ W$. Obviously, the expected change - as predicted from EGST - is small under usual experimental conditions. Why is it interesting to study such small effects?

The answer is that under natural conditions such a small change can lead to a big change if time is taken into consideration and this small effect is only a first stop of an innovation process (Coleman, Katz & Menzel, 1966; Witte1989a; 1991). But it is very difficult for a minority of one to change the certainty of the other members, therefore the influence of such minorities can be less than predicted. One needs a minority of two as a social force to change certainty. Under these circumstances the predicted amount of change has been observed.
There is another strategy to increase the change, one has to choose high status members as a minority. Under this condition when the two members of a six person group with the highest status are in the minority position the GS is the following :

$$GS = 0.47\ R + 0.53\ W$$
$$Y = 0.87\ R + 0.13\ W.$$

There is a difference between the expected change of the majority ; it increases from 8% to 13% if the highest status members are in favor of the change. On The other hand the reduction of the influence if the two lowest members are in favor of the minority's position is neglectable :

$$GS = 0.93\ R + 0.075\ W.$$

With the manipulation of the status there might be an additional effect which reduces the certainty of the lower status members so that the weight of GS increases from 1/4 to 1/2. Then the change increases from 13% to 27% which is remarkable. These are quantitative predictions from EGST if the minority induces change against the social value.

If, on The other hand, a minority is in accordance with the social value the amount of change is different. There are two reasons, at first the majority against a social value is uncertain about the reaction secondly the socially valued or objective response is very convincing. Under the assumption that the majority is uncertain (VC=2) the usual information integration is assumed :

$$Y = SV + 1/2(GS - SV).$$

The following group standards are assumed:

$$GS = (2W + lR)1/3 = 2/3\ W + 1/3\ R$$
$$GS = (3W + lR)1/4 = 3/4\ W + 1/4\ R$$
$$GS = (3W + 2R)1/5 = 3/5\ W + 2/5\ R$$
$$GS = (4W + 2R)1/6 = 2/3\ W + 1/3\ R.$$

the average individual reactions are the following:
$Y = 0.66\ R + 0.33\ W$; $Y = 0.62\ R + 0.38\ W$; $0.70\ R + 0.30\ W$;
$Y = 0.66\ R + 0.33\ W$. Under the same relationship in the small group the minority influence is overwhelming if the minority is in accordance with the general social orientation (SV).
This dramatic differences of the minority's influence has been observed in six person mock juries decisions. A preshift distribution of 2 (guilty) to 4 (not guilty) yields only a 13% change to conviction. In The other distribution of 4 (guilty) and 2 (not guilty) there is a 58% change in the minority's direction. The explanation is that there is an effective social orientation helping the minority to influence the majority in the direction of acquittal: "in dubeo pro reo" (Kerr & MacCoun, 1985). The predictions of EGST are 8% and 66%. They are in the range what has been observed without fitting parameters on the empirical results.

Until now a *boomerang effect* has not been studied intensively. This effect means that the position of the arguments are rejected. It has been discussed under the self-categorization effect but now we would like to demonstrate the similarity to the influence situation in which arguments are given to change the reaction of people. If the content of these arguments has the meaning of strength, because they are well known so that the subjects feel under pressure the prediction is that the global normative orientation is BFF=l. If SV is 1 as on a percentage scale and if a normal situation is assumed then we get: Y = -1/2 SV.

There is a study by Fishbein, Ajzen and McArdle (1980) changing the behaviour of alcoholics which is interesting, because it shows a boomerang effect under the traditional influence strategy. Subjects who are willing to take part in an alcoholic treatment program are given a traditional appeal and urged to take part. After this appeal only 50% signed up for the program. The quantitative prediction is under a normal impact condition with

a=-l/2 Y = -1/2 SV. This means a reduction of the willingness to sign up of 50%, because the individual value is not to sign.

there is another group of subjects who are unwilling to take part in the program which are not influenced by the traditional appeal (5%). The explanation is that impact is non-existent, because they know what is said and ignore the influence. There are two the appeals with a mean change of 25%. The prediction of EGST could be that these subjects have learnt to ignore such appeals but these specific formulations are able to reach their belief system and change their behaviour but only in a reduced amount. The easiest assumption is that the weight must be halved so that the prediction is : Y = 1/4 SV. Thus 25% change would be predicted.

In both cases the correspondence between quantitative predictions and empirical results is surprising. Of course. we have made some assumptions to reinterpret the study from the viewpoint of EGST. But no parameters are fitted to the data. Only the interpretation might be doubtful but who knows what is going on in the subjects.

Generally it seams possible to predict the quantitative results of the average individual reaction. This will give us a feeling of the amount of change which could be expected under different conditions.

These qualitative and quantitative predictions give some hints of the productiveness of EGST. Its major scope is combining old theoretical and empirical evidence to make the prediction of new results more precise and to deepen the explanation with a more complex model.

Table 1
the extended group situation theory (EGST)

	‘if...	then...
Awareness of theory in a social impact situation	ATS=1	Y=IV
	ATS=0	go to SFF
social force field	SFF=1	Y=a*SV a=vI+w=x*logS+y*logIN+z*logN
	SFF=	2 go to BFF
	SFF=3	Y=a*SV a=v*I+w=-(r*logS+s*logIN+t*logN)
behavioural force field	BFF=1	Y=a*SV a=(-v)I+w=x*logS+y*logIN+z*logN)
	BFF=2	go to ATI
	BFF=3	Y=a*SV a=(-v)*I+w=-(r*logS+slogIN+t*logN)
Awareness of theory in an information exchange situation	ATI=1	Y=AR
	ATI=0	go to GA
group atmosphere	GA=1	no social interaction
	GA=2	go to DIC
	GA=3	Y=GS
distribution of individual choices	DIC=1	Y=GS
	DIC=2	go to VC
	DIC=3	group falls apart
verifiability of choices	VC=1	Y=GS+1/2*(AR-GS)
	VC=2	go to CC
	VC=3	Y=SV
commitment to a constituency	CC=1	Y=SV+1/2(GS-SV)+1/3rAR-[SV+1/2(GS-SV)]}
	CC=2	$Y=(SV_1+GS_1+AR_1+SV_2+GS_2+AR_2)/6$
	CC=3	$Y=1/2*DEMAND_1+1/2*DEMAND_2$ $= DEMAND_l+l/2(DEMAND_2-DEMAND_1)$

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