

Chapter 13

Social Influence and Threat in Social Comparison between Self and Source's Competence : Relational Factors Affecting the Transmission of Knowledge

*Gabriel Mugny
Fabrizio Butera
Juan M. Falomir*

The Paradoxes of Expertise

Experts are useful in many ways: In addition to the quality of the work they produce on the basis of their competencies, they can serve as models in any situation requiring the transmission of some information, or—more generally—of some knowledge. Among other things, the transmission of knowledge can be the activity of teaching in school or in professional training, a transfer of competencies or know-how in a new job; it can also be the transmission of information by “communication experts” (be they journalists or television personalities), or the transmission of solutions to different problems (e.g. political issues) by the experts of the field.

Experts serve as models by virtue of a set of factors such as the fact that they possess information that is acknowledged to be relevant, that they occupy desirable or dominant social positions, and that therefore they can legitimately exert influence (Jones & Gerard, 1967). Indeed, their position as models should be sufficient to induce imitation, or even internalization (Kelman, 1958), of what they say, do, or propose. For instance, it is presumed that experts have more influence than non experts (*cf.* French & Raven, 1959).

However, the internalization of an expert's point of view is not always guaranteed. Two aspects should be considered. On the one hand, with respect to the influence achieved, there is a large body of work in social psychology showing that high-status sources often have an impact only at a manifest, public, direct level (Moscovici & Mugny, 1987). In other words people yield to experts *because they are experts*, that is, because the source is supposed to guarantee the validity of some information or knowledge, and not because the target has internalized the source's message, proposal, or teaching. For instance, work by Doise and Mugny (1984) on social development of the intellect has shown that when children imitate older

children or adults who have the relevant knowledge or the correct answer, they often only copy a model without any genuine learning. Similarly, Chaiken (1987) has described how, when confronted with an expert, people can engage in heuristic processing and change on the basis of the assumption that experts can be trusted; heuristic processing, however, does not lead to any stable change. On the other hand, from the perspective of the target of influence, it appears that experts achieve a more stable or internalized influence when the target's involvement is moderate (e.g., Heesacker, Petty & Cacioppo, 1983), a less stable impact when the target's involvement in the task is low (*cf.* Chaiken, Liberman & Eagly, 1989), and no influence at all when the target's involvement is high (for a review, see Eagly & Chaiken, 1993). Accordingly, recent work on smoking cessation has shown that smokers are actually very familiar with all the arguments against smoking proposed by the health experts and that they generally agree; but this does not lead to a change in their intention to quit smoking (*cf.* Falomir, Mugny & Pérez, 1999), since they are highly involved in their behavior (see also Chapter 8 in this volume).

In contrast, it has been shown, especially in line with the work on minority influence, that low-status sources can induce internalized, long-lasting changes (De Dreu & De Vries, 2001; Moscovici & Mugny, 1987; Moscovici, Mucchi-Faina & Maass, 1994; Mugny & Pérez, 1991). Additionally, several experiments in developmental social psychology (Doise & Mugny, 1984) showed that confrontation with "incorrect" models at the same operational level (Doise & Mugny, 1979; Mugny & Doise, 1978), or even at a lower level (Mugny, Lévy & Doise, 1978), can nevertheless lead children correctly to elaborate the properties of a problem and to make some progress.

These effects challenge the relation between on the one hand current practices, which rely on the idea that knowledge comes from experts, and on the other research into social influence, which shows that experts generally have an impact at a manifest rather than latent level of influence, or that imitation does not always induce stable changes. In truth, the problem is not really to determine whether or not experts are influential, but rather *what kind of mechanisms and influence* are induced with respect to a source's high or low expertise, and with respect to involvement in the task. The aspect to be considered in this endeavor is therefore the balance between knowledge and identity stakes activated in the influence task. The present contribution offers an approach to this question in terms of the perceived relation between the target's competence and that of the source of influence in aptitude tasks.

Epistemic and Identity Stakes in Influence

Conflict Elaboration Theory (CET) contends that, in order to study social influence, attention must be paid to the meaning individuals attribute to the judgmental divergence, which occurs in most social influence situations (Mugny, Butera, Sanchez-Mazas & Pérez, 1995; Pérez & Mugny, 1993, 1996). At a general level, CET argues that the different effects of social influence (manifest and/or latent)

derive from specific conflicts that are determined on one hand by the representation that the target has of the source's characteristics, and on the other hand by the representation of the specific kind of knowledge involved in the influence relation.

Concerning the relations with a more or less expert source, it is mainly in tasks in which *aptitudes* are at stake that targets will be motivated to evaluate the source's competence. In fact, in such tasks (such as, for instance, problem-solving or decision-making), targets know that there is a correct or more adequate answer, but they do not know *a priori* what it is (*cf.* Butera, Maggi, Mugny, Pérez & Roux, 1996). This generates a feeling of uncertainty, motivating the target to evaluate the extent to which the source may constitute an informational support. Moreover, aptitude tasks are socially anchoring: In such tasks a judgment can be wrong, and avoiding error results in being assigned to valued social categories (for instance in terms of status). Therefore people are motivated not only to give a correct answer, but also to give the best image of themselves in terms of competence.

Aptitude tasks can be defined in terms of these two motivations (see also Chapter 11 in this volume). On one hand, they are tasks in which individuals know that a "correct" answer exists. They do not know *a priori* what it is, but they know that it is possible to reach it at the end of the learning process, or of the problem-solving. Following this motivation, targets would be inclined here not just to imitate experts but to internalize their point of view as a way of acquiring the correct answer. On the other hand, these tasks imply a strong social anchoring: Judgments can be erroneous, and avoiding error brings in social evaluations in terms on competence. Activity on these tasks is therefore mediated by the perceived self-image of competence, and by the tendency to present the best image of oneself in terms of competence. Considering the experts' point of view as the correct one results here in recognizing one's own low competence —i.e., in acknowledging a negative image in terms of competence.

The question is then to determine what kind of conflicts will be elaborated in aptitude tasks. In line with developmental social psychology (*cf.* Doise, Mugny & Pérez, 1998), conflicts arising in these tasks can be either of a *socio-cognitive* kind, mainly focusing on the epistemic concern to reach the correct answer, or of a *relational* kind, mainly focusing on the social comparison of performances. What conflict is at work in a specific social influence situation will be determined by the relation between the source's perceived competence and the target's self-perception of competence —i.e. whether the influence relationship with the source makes salient the need to concentrate on task-related aspects or on relational aspects.

These considerations have led to the elaboration of a model intended to account for social influence processes in aptitude tasks. A preliminary version of this model was applied to processes deriving from the social comparison of the source's and of the target's competencies (Butera, Gardair, Maggi & Mugny, 1998). Four processes could be derived by contrasting the low versus high competence of a source and the low versus high competence of a target. However, this model proved to be too simple, since it did not take into account the fact that social comparison can constitute either a drive or a threat (*cf.* Taylor & Lobel, 1989). This chapter presents an upgraded model accounting for differential effects of social comparison. One

important point of this model is the notion that the nature of social comparison in aptitude tasks may introduce an identity threat. This is the case when a certain comparison undermines one's self-esteem; in this case the relational stakes will be the focus of one's activity, leading to self-enhancement rather than self-improvement (Wood & Taylor, 1991).

A second important point is that social comparison with high-status sources can be sometimes threatening for identity, whereas this is not the case for comparison with low-status sources. In fact, a target's attention will be more focused on social comparison when the source has a high rather than a low status (Moscovici, 1980). Maximal threat is reached when individuals are explicitly rated as incompetent (or as failing; Monteil, 1993), and when the social context makes the social comparison of competencies salient (Monteil & Castel, 1989). Even when the individual feels competent, a competent source can be threatening if social comparison is the only goal at stake. This would be the case for what Dweck & Legget (1988, p. 256) have called *performance goals*, "in which individuals are concerned with gaining favorable judgments of their competence", as compared to *learning goals*, "in which individuals are concerned with increasing their competence" (for a meta-analysis, see Utman, 1997). Therefore, high status sources can lose their influence in aptitude tasks when social comparison is related to an identity threat. Conversely, identity threat is lower when evaluation is less salient (Monteil & Castel, 1989), and therefore social comparison is less of a challenge to self-esteem; threat can also be lower when the source has a low degree of competence, and can be considered as another point of view about the task to be solved, rather than as a competitor.

Table 1 shows the social mechanisms we propose are at work in the confrontation of low- versus high-competence targets with low- versus high-competence sources, as a function of the identity threat involved in social comparison of (in)competencies. Let us begin with the processes involving confrontation with a low competence source. When the target of influence believes him or herself to have a high degree of competence and is confronted with a low-competence source an *absence of conflict* will proceed from the divergence between target and source. Targets will neither follow the source's proposition (cf. Allen, 1965), nor will they engage in a deep processing of the task; in fact, cognitive activity will be unnecessary because of the absence of any doubt concerning self-competence and self-correctness. This possibility thus constitutes the first paradox of expertise: Confidence in self-competence may render individuals less competent than they could otherwise be. It is worth noting that even if social comparison were made salient, no threat would occur since such a comparison contributes to establishing a positive self-concept in terms of competence. This is the reason why the model includes a blank case; it would be very difficult for a low-competence source to induce doubts about self-competence in a high-competence source.

Table 1. Nature of conflict as a function of threatening versus non-threatening social comparison between (in)competencies when aptitude is at stake

| Comparison: | High-competence source | | Low-competence source | |
|------------------------|--------------------------|-------------------------------|-----------------------|----------------------------|
| | Threatening | Non-threatening | Threatening | Non-threatening |
| High-competence target | Conflict of competencies | Informational interdependence | ----- | Absence of conflict |
| Low-competence target | Informational constraint | Informational dependence | Downward comparison | Conflict of incompetencies |

In a task on which they are not competent, individuals who are confronted with the solution when it derives from a supposedly low-competence source experience a *conflict of incompetencies*. Faced with the problem to be solved, they are uncertain (Flament, 1959). To adopt an unlikely solution (that of the low-competence source) may result in fear of invalidity (Kruglanski, 1989; Kruglanski & Maysel, 1987), which leads individuals openly to keep their distance (Butera & Mugny, 1992). Nonetheless, they remain uncertain, because rejecting the source's answer no way guarantees the validity of their own answer. It is the conflict of incompetencies, those of the source and of the targets, that leads to engagement in a process of validation (i.e. a search for the conditions and limits of validity of the answers) resulting in decentration from a unique mode of responding, the evaluation of alternate solutions and the creation of a mental space in which these alternatives may be taken into account. This accurate processing of the elements of the task –but also of the alternative elements– can lead to constructivism, namely to the construction of an adequate answer from two supposedly incompetent answers (Butera *et al.*, 1996). In this situation, individuals would be engaged in what Fazio (1979) has called “construction process”. This is in contrast to what he calls “validation process” (which, contrary to Moscovici's (1980) definition, is the search for information about one's own judgment). The construction process is about obtaining information one lacks concerning the object of judgment. This shows a more epistemic concern, which would be typical of the conflict of incompetencies.

This situation constitutes the second paradox of expertise: Low competence sources are capable of having a constructive influence since they do not introduce any threat to the target's competence. Therefore, as regards social comparison of competencies, low status sources are not threatening to the target's competence, unless the social context introduces a need for distance leading to a *downward comparison* that favours invalidating the source. It is in fact possible that the source and the target are in a competitive relationship; thus, a low-competence source, one that is not threatening *per se*, becomes an opponent, and the target's motivation switches from a search for correctness to the need to prove its superiority (Butera & Mugny, 1995).

Let us now consider the social influence situations that involve a high status source. If the target of influence believes he or she has a high degree of competence

and is confronted with a high-competence source, two possibilities arise. On the one hand, a *conflict of competencies* occurs when individuals fear that someone else's competence can upstage their own. This is particularly likely to happen in situations in which the perception of a competitive relation (cf. Lemaine, 1974; Wicklund & Brehm, 1968), or a success motive, leads to a positive or valued identity. This is frequently the case for aptitude tasks. In this situation people can cope with the threat in two ways. First, they will tend to invalidate the source of influence, basically by trying to discount the validity of its proposition. A similar case has been made by Tetlock (1992) about accountability: When irrevocably committed to a course of action (in a social influence situation this could be a judgment diverging from that of the source), accountable individuals will aim at generating reasons why they are right and why potential critics are wrong. Second, people will try to cope with the threatening comparison essentially by affirming their competence. Indeed, research such as that by Tesser & Cornell's (1991; Martin & Tesser, 1989) has shown that making salient circumstances that maintain negative self-esteem increased subjects' tendency to self-affirm. In a conflict of competencies, social comparison will thus be the principal mechanism activated, in an attempt to establish that one's own competence is higher. In sum, in this competitive situation another paradox of expertise can be observed: Divergence of judgments from those of a high-status source will produce greater social conflict than cognitive conflict when the target also has high competence, and this, of course, will be detrimental to the processing of the task.

On the other hand, the notion of conflict of competencies implies that two competent individuals holding different views can only be in a competitive, disruptive relation with one another. However, there are many situations showing that competent people can work together, can integrate their differing information—even if their respective views are in conflict—and can in some cases elaborate new knowledge. This can be the case when the two competent individuals realize that different views can be complementary and that they can be integrated, via a form of *informational interdependence*. In this case social comparison is not threatening since the relationship is not perceived as a competitive, and the task can be processed in a cooperative activity.

When the source of influence is more competent than the target, the model introduces a difference between informational dependence (not threatening) and informational constraint (threatening). *Informational dependence* refers to the only situation in which expertise influence is not a paradox. This is the situation in which imitation derives from a non-threatening relation with the source, and leads to attention, deep processing and generalization. Imitation will appear here the most clearly, as the source has informational power with respect to the target (Butera, Mugny, Legrenzi & Pérez, 1996; Deutsch & Gerard, 1955). People make use of the source's information and generalize it (cf. French & Raven, 1959; Winnykamen, 1990). This is the case for learning, when people rely upon the judgment of a competent source.

In contrast, *informational constraint* takes place when an identity threat is aroused by considerations about the source's status, as this makes salient the target's low

competence to give a correct answer or at least one that is better than that of the source. In this case, targets yield to the source and rely on the heuristic that the source's status is supposed to be a guarantee of validity. However, no further generalization occurs, since the threat related to the target's perception of his or her own inferior competence hinders any other cognitive activity, resulting in a kind of socio-cognitive disengagement (*cf.* Carver & Scheier, 1981; Monteil, 1993; Monteil & Huguet, 1999). In sum, the salience of social comparison determines whether an asymmetrical relationship in which the source is considered as more competent results in stable influence or learning, or merely in imitation without any subsequent elaboration.

Some lines of research will now be presented to illustrate this model. The first section analyzes conflicts in symmetrical influence relationships. Studies of influence in representations of the centimeter illustrate how conflicts of incompetencies result in a constructive influence. Studies of social influence in an inductive reasoning task also show the circumstances under which confrontation with an expert source can focus the subjects' activity either on relational aspects (conflict of competencies) or on epistemic aspects (informational interdependence). The second section will consider social influence processes in asymmetrical relationships—i.e. when the source has a higher status than the target. Research on social representations will illustrate the circumstances under which high status sources will threaten the identity of low-competence targets (informational constraint), and the circumstances under which they lead instead to learning (informational dependence).

Social Influence in Symmetrical Relationships

The conflict of incompetencies

The following experiment (Maggi, Butera & Mugny, 1996) illustrates the conflict of low competencies described above. In the first part of this study, subjects had to estimate a set of 6 vertical lines (18 cm, 20 cm and 22 cm) and 4 perceptual illusions (Ponzo, Titchener, Müller-Lyer and the reversed T), and to report their estimations in a booklet. This phase was presented as a test of competencies in length estimation, and was the means for manipulating the first independent variable. The estimates recorded in the booklet were collected for analysis that was in fact fictitious, and subjects were given bogus feedback about their competencies on a scale ranging from 0 (no competencies in estimation) to 100 (perfect). Half of the subjects were given scores of 24, corresponding to 'mediocre' competencies, while the other half were given scores of 78 ('excellent').

During the influence phase, subjects had to evaluate the length of a set of 12 lines (mean length: 20 cm). They were confronted with a consistently underestimating

social influence source, asserting that the mean length of the lines was 9 cm. The source was a person whom half the subjects were told had achieved a score of 24, and the other half were informed had achieved a score of 78. In a control group, subjects estimated this set of lines independently, and no feedback was given regarding their competencies. Direct influence was measured through subjects' estimations of the 12 lines: A positive influence was indicated by a shorter estimation of the lines' length, given that the source had underestimated them.

Indirect influence was measured by asking subjects to draw an eight-centimetre-long line. At this level, a positive influence consists in drawing a longer line, on the basis of the following inference: If 20 centimetres are judged to be 9, this implies that the source's representation of what is a centimetre is longer than the subject's own. If it is true that the conflict of incompetencies induces a deeper constructive processing of the task, an increase in the length of the drawing should be apparent, indicating a change in the underlying mental representation of the centimetre. Table 2 shows the effects on direct and indirect influence.

Table 2. Mean length estimations (in cm) of the 20 cm lines during the influence phase (direct influence) and mean length of drawings of the 8 cm line (indirect influence).

| Subjects: | Incompetent | | Competent | | Control |
|---------------------------------|-------------|-----------|-------------|-----------|---------|
| Source: | Incompetent | Competent | Incompetent | Competent | group |
| Direct influence ^a | 21.92 | 17.70* | 25.42 | 21.59 | 24.96 |
| Indirect influence ^b | 7.90* | 6.72 | 6.91 | 7.31 | 6.76 |
| Direct/indirect pattern | 0 + | + 0 | 0 0 | 0 0 | ----- |

^a Lower scores indicate more direct influence

^b Higher scores indicate more indirect influence

* Difference from control group, $p < .05$

The analysis of variance of direct influence reveals two main effects. First of all, subjects who were led to think they had a low degree of competence were more influenced than those who believed themselves to have a high degree of competence. Secondly, the high-competence source had more influence than the low-competence source. Comparison between the experimental and the control conditions shows a robust direct influence of the high-competence source over the low-competence subjects, whereas competent subjects are not influenced by the incompetent source. The two other experimental conditions elicit only marginal direct influence effects. As for indirect influence, analysis of variance showed an interaction: the condition in which low-competence subjects are confronted with a low-competence source induced more latent influence than the other conditions. This condition is also the only one that differs significantly from the control condition.

This experiment provides two sets of results, one more classic, the other newer. At the direct level, a classic effect of informational influence occurs (Deutsch & Gerard,

1955). A high-competence source is more influential than a low-competence source (*cf.* French & Raven, 1959; Hovland, Janis & Kelley, 1953), and is primarily influential with respect to low-competence subjects (Allen, 1965; Kelman, 1950; Rosenberg, 1963). As for the drawing (indirect influence) only low-competence subjects confronted with a low-competence source actually elaborated the source's information. Why are these subjects less influenced on this measure by high- than by low-competence sources? In this condition, the fear of invalidity arising from the subject's own low level of competence can be resolved in the face of a high-competence source by 'imitating' the source's response without actually integrating it. Confronted with a low competence source, it is not therefore possible to rely on the source's validity and this leads to a thorough validation (Moscovici, 1980) of the source's answer. As is shown by the increase in length of the drawing of the 8 cm line, the very representation of the centimeter was affected.

To sum up, the comparison between the experimental conditions and the control has revealed three different influence patterns that can be considered typical of the processes that generally take place when aptitude tasks are involved (*cf.* Mugny & Butera, 1995). First of all, subjects who believe themselves to be competent (and manipulation checks show that they actually do) and are confronted with the low competence source are affected neither at the direct, nor at the indirect level (absence of conflict). When the source is highly competent, however, a conflict between competencies can be expected when high-competence subjects are confronted with a high-competence source. But in this experiment competition was not directly induced; the next experiment will show that such a conflict occurs when the source's competence threatens that of the subject.

As regards low-competence subjects, when the source has a high degree of competence, influence is only apparent at the direct level (informational dependence), whereas a low-competence source induces an indirect elaboration (conflict of incompetencies). In the latter case the conflict is defined by the fact that the low reliability of the source's answers does not affect the validity of subjects' own answers; in fact this renders them neither more nor less valid (Butera & Mugny, 1995). It is the motivation to solve the problem that engages individuals in the processes of validation (Moscovici, 1980) and divergent thinking (Nemeth, 1986).

The conflict of competencies

More support for the model comes from a paradigm in which social influence occurs in an inductive reasoning task: Wason's 2-4-6 task (1960; see also chapter 11 in this volume). This is a task in which subjects are asked to formulate a hypothesis and to test it. What is particular to this task is that, although disconfirmation would be the most diagnostic hypothesis testing strategy, confirmation appears to be the strategy most often used. This effect has been found so many times since 1960, and in so many domains of reasoning, that it is generally known as the "confirmation bias".

This task was adapted and framed in a social influence situation: Before they could propose and test their own hypothesis, subjects were given the hypothesis and test of a

source. In a first series of experiments it was found that a high-status source (in these experiments it was a majority) induced adoption of the source's hypothesis and a high rate of confirmation bias. It was also found that a low-status source (namely, a minority) induced newer hypotheses and a higher rate of disconfirmation, which in this paradigm are constructivist effects (Legrenzi, Butera, Mugny & Pérez, 1991; Butera & Mugny, 1992 ; Butera *et al.*, 1996).

In the following experiment (Butera *et al.*, 1998) we attempted a deeper investigation of the dynamics of conflict involved in hypothesis testing under influence. *A specific hypothesis was attributed to the subjects and the procedure committed them with this hypothesis.* Subjects were then presented with a source defending a different hypothesis. Finally they had to proceed with hypothesis testing. After a series of questions about their representations of the task, subjects had to solve a generalization exercise without influence. The first independent variable was the source's status: the source was either an expert or a novice. The second independent variable was the hypothesis under test: either subjects had to test their own hypotheses, or they had to test the source's hypothesis. In previous experiments subjects had to test their own hypothesis, and they used disconfirmation in order to test for the limits to the validity of their hypothesis. However, it is worth noting that within the scientific community disconfirmation is frequently used to test rival hypotheses (e.g. Gorman & Carlson, 1989; Mitroff, 1974). Thus it needs to be recognized that disconfirmation may have at least two aims, an *epistemic* aim of determining the validity or the invalidity of a hypothesis, and a *relational* aim of denying the validity of a rival's hypothesis.

It was expected that, when testing *their own hypothesis*, subjects confronted with the expert (a high status source) would primarily attempt find additional evidence in favour of their hypothesis and therefore to confirm it. When testing the *expert's hypothesis* these subjects should use a high rate of disconfirmation in an attempt to discredit the expert's competence. In so far as the focus is on the source, the individuals' validity is derived from the source's invalidity. Confronted with a low-status source, subjects' competence should be less threatened by the source's low competence. In this case individuals are in a conflict of incompetencies, and should use disconfirmation, as has been observed in previous experiments. Also in this case the use of disconfirmation should be epistemic, intended to discover the validity of the hypothesis. So, with a low-competence source no difference between testing one's own hypothesis and testing the other's hypothesis should be expected, precisely because the focus should be on the object and not on social comparison.

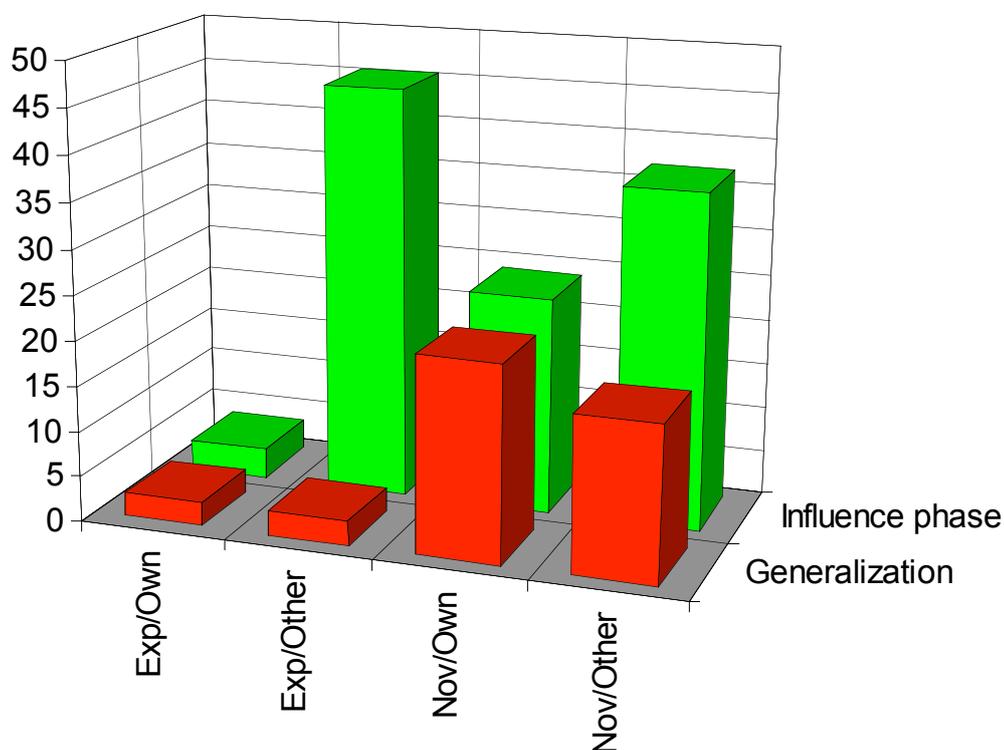


Figure 1. Percentage of subjects using disconfirmation in the influence phase and in the generalization phase (Exp= expert source ; Nov= novice source)

Figure 1 shows that, when confronted with an expert source, subjects mainly attempted to confirm their own hypothesis and disconfirm that of the source. However, it appears that disconfirmation used when faced with an expert source was relational in character, aimed at discrediting source's validity, as suggested by the fact that in the generalization phase—where the relation to the source was no longer salient—most of the subjects regressed to a confirmation bias. Moreover, a series of post-experimental questions showed that these subjects' concern was to prove that their hypothesis was correct while the source's hypothesis was incorrect. When confronted with a novice, subjects used the epistemic form of disconfirmation, as demonstrated by the fact that there were no differences in disconfirmation rate whether testing their own or the other's hypothesis, an effect that persisted at the generalization level. Moreover, they declared that they were more motivated to search among alternative solutions and less concerned with discrediting the source.

This experiment shows that confrontation with an expert source can have the paradoxical effect of focusing the subjects' activity on relational matters, promoting self-serving, rather than diagnostic, processing of the task. This is what was called conflict between competencies. Conflict between competencies appears when individuals cannot adapt their judgment to that of the expert source, because they are

already committed to another point of view. Such a situation implies that the source and the target are in a symbolic competition, something that is implicit in the above experiment. The source's judgment is thus threatening to the individual's competence. In fact, an expert source by definition gives valid answers; if subjects hold a different view, they may appear as incompetent. In a task where aptitudes are at stake, this may damage their self-esteem. The notion of threat seems therefore central to understanding the dynamics occurring in social influence when individuals are led to compare their high competencies.

Constructive social comparison and informational interdependence

Conflict between competencies, in which the social influence of an expert source induces a socio-cognitive activity oriented toward self-protection, has its origin in the impossibility of conceiving a judgmental complementarity between the source and the target. If this is true, then there should be at least two ways of reducing its effects. The first would be to convince subjects of the advantages of integrating others' judgments, even if these are apparently discordant with their own. The second would be to induce social comparison through a mode that does not elicit competition (cf. Mummendey & Schreiber, 1983).

In another study (Butera, Mugny & Tomei, 2000), using the same materials as the previous one, high school students received, following a pre-test, bogus feedback rating all of them as highly competent. Then they had to compare themselves (in terms of competence) with another student who received the same rating, either in a form that was negatively interdependent (by distributing 100 points between themselves and the other student), or in an independent mode (up to 100 points to themselves, and up to 100 points to the other student). Moreover, half of the subjects were shown the utility of conceiving knowledge as a coordination of different points of view (Huguet, Mugny & Pérez, 1991-1992; Butera, Huguet, Mugny & Pérez, 1994). Some of these subjects looked into a black box through a hole and saw a square; while others looked through another hole and saw a triangle. Subjects then exchanged information about what they respectively saw and tried to guess what was in the box. Finally, the experimenter showed that the box contained a pyramid and explained how important is seriously to take into account the information others have even if at first glance it can seem incompatible. Then the subjects proceeded to completion of the inductive reasoning task.

Table 3. Mean points of competence attributed to self and source, and percentage of disconfirmation

| Task representation: | Without decentration | | With decentration | |
|---------------------------------|----------------------|-----|-------------------|-----|
| Social comparison: | 100 | 200 | 100 | 200 |
| Own competence | 71 | 65 | 54 | 80 |
| Source's competence | 29 | 52 | 46 | 75 |
| Disconfirmation (percentage) | 6% | 33% | 38% | 64% |

Two main effects are apparent in the results, as shown in Table 3. First, the disconfirmation rate increases when an independent social comparison reduces the focus on identity threat, as well as when complementarity is induced. Second, the distribution of points mirrors quite precisely the results on the disconfirmation measure. The lowest disconfirmation rate occurs when subjects allocate most of the competence points to themselves, thereby denying them to an equally competent source. A higher disconfirmation rate occurs when subjects reduce self-attribution of competence at the expenses of the source, either because of the looser comparison mode, or because of the induction of the representation of complementarity. The highest disconfirmation rate is found when the subjects are not only able to assert both their own competence and that of the source in an independent way, but also when they are brought to recognize the utility of coordinating two competent points of view.

These results show that neither one's own competence nor the source's are necessarily impediments to reasoning or to performance (*cf.* Chambres, 1995). What actually hinders constructivism is social comparison exclusively in terms of identity, which is to say with the goal of asserting self-superiority. It has been shown that conflict between competencies can be attenuated through a representation of complementarity between judgments, i.e., when targets realize that they are in a position of informational interdependence with the source. Parenthetically, in educational research there are several studies showing that pupils develop better quality reasoning strategies when the goal of learning is to pool together their respective knowledge, rather than when they learn for their own advantage (Annis, 1979; Bargh & Schul, 1980). An independent mode of comparison in particular favors a more integrative disposition toward the source, allowing subjects to accept that their own competence does not necessarily imply the other's lower competence. This is an important conclusion, as it confirms that experts can actually induce constructivist effects, but only under condition in which the target's self-esteem is not threatened.

Social influence in asymmetrical relationships

Informational dependence and informational constraint

Several studies show that, when confronted with a high-status source, subjects yield without any further constructivism, because the stressful character of the relation to the source (*cf.* Nemeth, 1986) leads them to a socio-cognitive disengagement based on a constraining social comparison. Indeed, Monteil and Huguet's studies (1993a, 1993b) showed that socio-cognitive disengagement is explicitly due to the high salience of the social comparison between competencies. Thus, when individuals feel incompetent, they will imitate the competent source, but with no real elaboration or generalization. If this is so under what circumstances can this informational constraint—the compelling information delivered by the competent source—be transformed into genuine informational dependence, in which individuals are motivated to integrate information from the competent source? The prediction that follows from the theoretical model presented here is that these will be circumstances that lower the threat associated with the social comparison of competencies (*cf.* Quiamzade, Tomei & Butera, 2000). Studies in another paradigm provide some support for this expectation (*cf.* Mugny, Quiamzade, & Tafani, 2001).

An initial experiment studied the effects of challenging the elements of a social representation in order to account for its transformations (*cf.* Mugny, Moliner & Flament, 1997). The paradigm, using only psychology students as subjects, consisted in measuring students' beliefs concerning a given phenomenon, providing some "scientific" information that disconfirms these beliefs, and finally measuring change in the representation. It is clear that this situation quite closely reflects natural teaching settings in which social influence is inherent in communication and the aims are to provide some information and to induce some change.

The materials for this study were derived from Aix-en-Provence studies on the central core in social representations of the ideal friendship group (Flament, 1982, 1994; Moliner, 1989). This social representation is constituted by stable elements, the central core of this representation (namely, the absence of hierarchy), and by peripheral elements (namely, opinion similarity). Students received fictitious scientific information stating that satisfaction in groups is a function of leadership (the central core of the representation). Half of the subjects were told that satisfaction is higher without leadership (confirmation of their belief), while the other half were told that satisfaction is higher where there is leadership within the group (disconfirmation of their belief; *cf.* Figure 2).

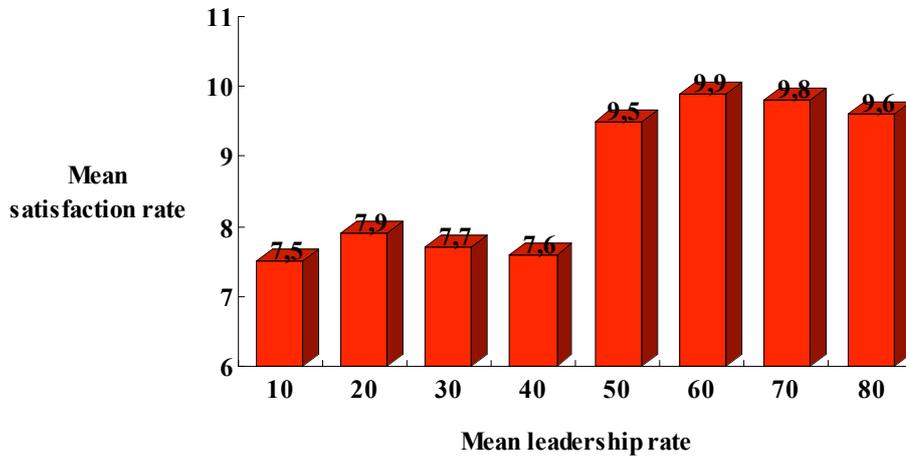


Figure 2. Example of information given in the disconfirmation condition

The main measure asked subjects how ideal is a group with strong leadership. Following Moliner’s study (1989), subjects were given the following information: “... Pierre, Olivier, Jean-Jacques, François and Marc form a very harmonious group, and when one meets them they give the impression of being very satisfied to be in one another’s company. They are very pleasant, and each of them benefits fully from being with the four others...”. Then, it was indicated that “... on many occasions, even on a quite regular base, some members of the group, namely Pierre et Olivier, give orders to the others, and that most of the time the others do what they are asked to do. In short, there is a clear hierarchical structure in this group”. Subjects had to indicate which of the following judgments best fitted their opinion about the above group: 1) It is a very typical ideal group of friends; 2) it is a not a very typical ideal group of friends; 3) it is not an ideal group of friends, but it looks like one; 4) it is not an ideal group of friends, and it does not look like one.

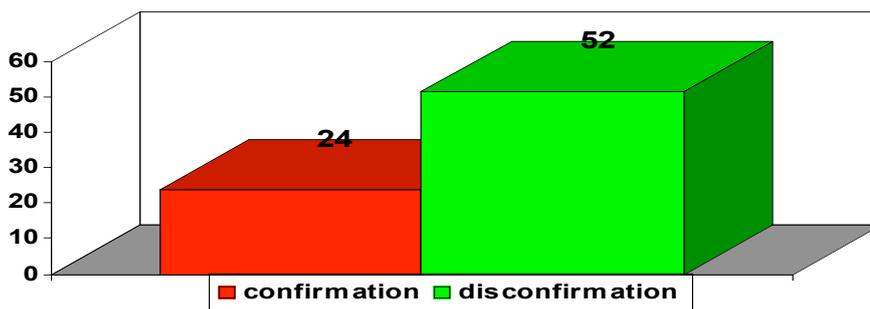


Figure 3. Percentage of subjects considering that the group is an ideal group despite leadership.

Figure 3 shows the percentage of subjects considering that the target group, even with a leader, is still an ideal group despite the presence of a leader. This would correspond to restructuring the foundation of the representation of the ideal friendship group. Results indicate that this mainly occurs when subjects are confronted with disconfirming “expert” information. Additionally, in a post-experimental questionnaire, subjects in the disconfirmation condition recognize more than those in other conditions that they changed, which shows that adopting the expert source’s point of view does not seem to give rise to an identity problem. This study showed therefore that individuals can integrate experts’ (or highly competence sources’) points of view in a kind of transfer of knowledge. However, this effect seems to be due to a situation of informational dependence in which the influence that occurs is unrelated to any identity issues. Such issues would be raised if subjects focused on a social comparison of competencies?

Another study suggested that in order to induce a change in the central core of the representation, a change which necessitates a thorough elaboration of the contradicting information provided by an expert source (a scientific researcher), targets need to avoid being focused upon the social comparison of competencies (Mugny, Tafani, Butera & Pigièrè, 1998). Socio-cognitive elaboration and deep restructuring of the belief system should not follow from a conflict at the level of social comparison of competencies. Using the same paradigm as the study described above, a further experiment (Mugny, Tafani, Falomir & Layat, 2000) confronted psychology students with either a high- or a low-credibility source who disconfirmed subjects’ initial beliefs about how ideal is a group of friends with strong leadership —i.e., a source arguing that members of a hierarchical group of friends are satisfied with their membership. Then, participants had to compare themselves across four characteristics in an negatively interdependent or in an independent fashion (see previous studies). Finally, they expressed their attitudes toward leadership in friendship groups (1= unfavorable, 8= favorable), and indicated the extent to which a group with strong leadership is an ideal friendship group (centrality measure; 1= probably not and 6= probably yes).

As regards the competence attributed to the self and the source, the proportional index (points attributed to the source or to the self divided by the sum of points attributed to self and source) revealed that the source’s competence was higher in all conditions. Results also indicated a main effect of source credibility, the highly credible source receiving more points ($M=.71$) than the low-credible source ($M=.54$). That is, social comparison with the credible source was potentially more threatening for subjects, who were therefore in an inferior position (Lemaine, 1974), since they were led to attribute less competence to themselves ($M = .29$) compared to the low credibility source ($M = .46$).

Table 4. Mean attitude and centrality of absence of leadership

| Source's credibility | high | | low | |
|-------------------------|----------------|-------------|----------------|-------------|
| | interdependent | independent | interdependent | independent |
| Attitude ^a | 4.44 | 4.68 | 3.86 | 3.54 |
| Centrality ^a | 3.00 | 3.81 | 3.03 | 3.28 |

^a Higher scores indicate more influence

As regards influence on the attitude measure (see Table 4), results showed that attitudes towards leadership were more favorable when subjects had been confronted with a high than with a low credibility source. Influence on attitudes therefore reflects source credibility. As regards the centrality measure, the higher credibility of the source contributed to a change in representation of the ideal friendship group when social comparison of target's and source's competence was independent, whereas negative interdependence produced no reduction in the centrality of the notion of absence of leadership in representations of the friendship group. Such an effect was also absent when the source had low credibility.

In sum, identity aspects related to social comparison appear to affect the social influence process —i.e., high-status sources can expect to have reduced influence when targets focus on a threatening social comparison of competencies. Such an effect is interpreted here as one of informational constraint because the higher competence of the source forces the target to take its point of view into account, and this constraint results in higher influence on the attitudinal measure but impedes deep restructuring by targets of their belief systems. Only a non-threatening social comparison allows occurrence of the socio-cognitive activity necessary to change the dominant representation of the ideal friendship group.

Conclusions

The research presented in this chapter is of course neither exhaustive with respect to the question of competence relations in social influence, nor does it answer all the questions. However, it is a step in a research program that allows us to identify certain anomalies in what is generally believed about relations between expertise and influence.

It is worth noting that making a judgment in a task in which aptitudes are at stake can arouse a conflict at the identity level, as well as at the knowledge level. As pointed out earlier, this kind of task judgment requires the use of tools (rules of logic, computation, strategies, ...) that are highly valued in terms of aptitudes. Therefore, judgments in these tasks socially anchor individuals, assigning them to more or less valued hierarchical categories. These potential consequences are responsible for the paradoxical social influence effects highlighted in this chapter.

More specifically, we have demonstrated how the competence of an influence source, instead of always representing an informational support, can sometimes

threaten the targets' self-esteem, as the latter can perceive that their acknowledgment of the former's competence is at a cost to their own. These findings provide the basis for some recommendations for the field of education, in which it has already been noted that the perception of an incompatibility —of a negative interdependence— between points of views can be detrimental to classroom work. For instance, Johnson & Johnson (1991) have pointed out the negative effects of what they call “debate” in learning settings (see also Toczek-Capelle, 1993): when pupils must elaborate a judgment knowing that it will be evaluated competitively in terms of aptitude (winning), they tend to focus defensively on their initial position (see also Kruglanski & Freund, 1983), rejecting alternative positions. Additionally they are more interested in self-evaluation than in the way they accomplish the work (Ames & Ames, 1984).

This threat to self-esteem is less salient with a low-competence source. In this case fear of invalidity motivates individuals to elaborate the characteristics of the task, as shown by the use of diagnostic strategies in inductive reasoning or, as demonstrated in other studies, by an adequate application of the principle used by the source. Johnson and Johnson (1991) have pointed out that in the case of what they call “controversy” (a divergence in points of view arising from the different information that must be integrated), pupils become more uncertain and actively search for more information; this leads them to integrate contrary information and thereby to achieve more elaborated levels of reasoning.

Beyond these general tendencies, the proposed model indicates the circumstances under which these dynamics are likely to be moderate. Thus we would submit that the threat to identity entailed in the social comparison of competencies, a threat based on the status of the source or the context of social interaction, is responsible for differential processing of divergent information, and therefore of the task itself.

References

- Allen, V.L. (1965). Situational factors in conformity. In L. Berkowitz (Ed.), *Advances in experimental social psychology (Vol. 2)*. New York: Academic Press.
- Ames, C. & Ames, R. (1984). Systems of students and teacher motivation: Toward a qualitative definition. *Journal of Educational Psychology*, 76, 535-536.
- Annis, L. (1979). The processes and effects of peer tutoring. *Human Learning*, 2, 39-47.
- Bargh, J. & Schul, Y. (1980). On the cognitive benefits of teaching. *Journal of Educational Psychology*, 72, 593-604.
- Butera, F., Huguët, P., Mugny, G., Pérez, J.A. (1994). Socio-epistemic conflict and constructivism. *Swiss Journal of Psychology*, 53, 229-239.
- Butera, F., Gardair, E., Maggi, J. & Mugny, G. (1998). Les paradoxes de l'expertise: influence sociale et (in)compétence de soi et d'autrui. In J. Py, A. Somat & J. Baillé (Eds.), *Psychologie sociale et formation professionnelle: propositions et regards critiques*. Rennes: Presses Universitaires de Rennes.

- Butera, F., Maggi, J., Mugny, G., Pérez, J.A. & Roux, P. (1996). Incertitude et conflit d'incompétences. In J.L. Beauvois, R.V. Joule & J.M. Monteil (Eds.), *Perspectives cognitives et conduites sociales, Vol. 5*. Neuchâtel, Paris: Delachaux et Niestlé.
- Butera, F. & Mugny, G. (1992). Influence minoritaire et falsification. *Revue Internationale de Psychologie Sociale*, 5-2, 115-132.
- Butera, F. & Mugny, G. (1995). Conflict between incompetencies and influence of a low-expertise source in hypothesis testing. *European Journal of Social Psychology*, 25, 457-462.
- Butera, F., Mugny, G., & Legrenzi, P. & Pérez, J.A. (1996). Majority and minority influence, task representation, and inductive reasoning. *British Journal of Social Psychology*, 35, 123-136.
- Butera, F., Mugny, G., Tomei, A. (2000). Incertitude et enjeux identitaires dans l'influence sociale. In: J.L. Beauvois, R.V. Joule, J.M. Monteil (Eds.), *Perspectives cognitives et conduites sociales. (Vol. 7)*, Neuchâtel, Paris: Delachaux et Niestlé.
- Carver, C.S. & Sheier, M.F. (1981). *Attention and self-regulation: A control-theory approach to human behavior*. New York: Springer-Verlag.
- Chaiken, S. (1987). The heuristic model of persuasion. In M.P. Zanna, J.M. Olson & C.P. Herman (Eds.), *Social influence: The Ontario Symposium (Vol. 5)*. Hillsdale, NJ: Erlbaum.
- Chaiken, S., Liberman, A. & Eagly, A.H. (1989). Heuristic and systematic processing within and beyond the persuasion context. In J.S. Uleman y J.A. Bargh (Eds.), *Unintended thought*. New York: Guilford Press.
- Chambres, P. (1995). Influence of an expert social position on incidental learning: the role of metacognitive activity. *International Review of Social Psychology*, 8, 79-99.
- de Dreu, C.K.W. & de Vries N.K. (Eds.) (2001). *Group consensus and minority influence : implications for innovation*. Oxford, Blackwell.
- Deutsch, M. & Gerard, H.B. (1955). A study of normative and informational social influence upon individual judgment. *Journal of Abnormal and Social Psychology*, 51, 629-636.
- Doise, W. & Mugny, G. (1979). Individual and collective conflicts of centrations in cognitive development. *European Journal of Social Psychology*, 9, 105-108.
- Doise, W. & Mugny, G. (1984). *The social development of the intellect*. Oxford: Pergamon Press.
- Doise, W., Mugny, G., Pérez, J.A. (1998). The social construction of knowledge: Social marking and socio-cognitive conflict. In U. Flick (Ed.), *The psychology of the social*. Cambridge: Cambridge University Press.
- Dweck, C. S. & Legget, E. L. (1988). A social-cognitive approach to personality and motivation. *Psychological Review*, 95, 256-273.
- Eagly, A. H. & Chaiken, S. (1993). *The psychology of attitudes*. New York: Harcourt Brace Jovanovich.

- Falomir, J.M., Mugny, G. & Pérez, J.A. (1999). Social influence and identity conflict; In D. Terry et M. Hogg (Eds.), *Attitudes, behavior, and social context: the role of norms and group membership*. Mahwah, N.J.: Lawrence Erlbaum.
- Fazio, R.H. (1979). Motives for social comparison: the construction-validation distinction. *Journal of Personality and Social Psychology*, 37, 1683-1698.
- Flament, C. (1959). Ambiguïté du stimulus, incertitude de la réponse et processus d'influence sociale. *Année Psychologique*, 59, 73-91.
- Flament, C. (1982). Du biais d'équilibre à la représentation du groupe. In J.-P. Codol & J.-P. Leyens (Eds.). *Cognitive analysis of social behavior*. La Haye, Boston, Londres: Martinus Nijhoff.
- Flament, C. (1994). Aspects périphériques des représentations sociales. In C. Guimelli (Ed.), *Structures et transformations des représentations sociales*. Neuchâtel, Paris: Delachaux et Niestlé.
- French, J.R. & Raven, B.H. (1959). The bases of social power. In D. Cartwright (Ed.), *Studies in social power*. Ann Arbor, Mich.: University of Michigan Press.
- Gorman, M., & Carlson, B. (1989). Can experiments be used to study science? *Social Epistemology*, 3, 89-106.
- Heesaker, M., Petty, R. & Cacioppo, J. (1983). Field dependence and attitude change: Source credibility can alter persuasion by affecting message-relevant thinking. *Journal of Personality*, 51, 653-666.
- Hovland, C.I., Janis, I.L. & Kelley, H.H. (1953). *Communication and persuasion*. New Haven: Yale University Press.
- Huguet, P., Mugny, G. & Pérez, J.A. (1991-1992). Influence sociale et processus de décentration. *Bulletin de Psychologie*, 45, 155-163.
- Johnson, D.W. & Johnson, R. (1991). *Joining together: Group theory and group skills*. Englewood Cliffs, NJ: Prentice-Hall.
- Jones, E.E. & Gerard, H.B. (1967). *Foundations of social psychology*. New York: Wiley.
- Kelman, H.C. (1950). Effects of success and failure on « suggestibility » in the autokinetic situation. *Journal of Abnormal and Social Psychology*, 45, 267-285.
- Kelman, H.C. (1958). Compliance, identification and internalisation: three processes of opinion change. *Journal of Conflict Resolution*, 2, 51-60.
- Kruglanski, A. (1989). *Lay epistemics and human knowledge: cognitive and motivational bases*. New York, London: Plenum Press.
- Kruglanski, A.W. & Mayseless, O. (1987). Motivational effects in the social comparison of opinions. *Journal of Personality and Social Psychology*, 53, 834-842.
- Kruglanski, A. & Freund, T. (1983). The freezing and unfreezing of lay inferences: effects of impression primacy, ethnic stereotyping, and numerical anchoring. *Journal of Experimental Social Psychology*, 19, 448-468.
- Legrenzi, P., Butera, F., Mugny, G. & Pérez, J.A. (1991). Majority and minority influence in inductive reasoning: a preliminary study. *European Journal of Social Psychology*, 21, 359-363.
- Lemaine, G. (1974). Social differentiation and social originality. *European Journal of Social Psychology*, 4, 17-52.

- Maggi, J., Butera, F., Mugny, G. (1996). The conflict of incompetences: Direct and indirect influences on representation of the centimetre. *International Review of Social Psychology*, 9, 91-105.
- Martin, L.L. & Tesser, A. (1989). Toward a motivational and structural theory of ruminative thought. In J.S. Uleman & J.A. Bargh (Eds.), *Unintended thought*. New York: Guilford Press.
- Mitroff, I. (1974). Norms and counter-norms in a selected group of Apollo moon scientists: a case study of the ambivalence of scientists. *American Sociological Review*, 39, 579-595.
- Moliner, P. (1989). Validation expérimentale de l'hypothèse du noyau central des représentations sociales. *Bulletin de Psychologie*, XLV, 405, 325-329.
- Monteil, J.M. (1993). *Soi et le contexte*. Paris: Armand Colin.
- Monteil, J.M. & Castel, P. (1989). Modèles d'insertion sociaux, attribution de sanction et comparaisons sociales: une contribution expérimentale à l'explication des conduites scolaires. In J.L. Beauvois, R.V. Joule & J.M. Monteil (Eds). *Perspectives cognitives et conduites sociales*, Vol. 2. Cousset: Delval.
- Monteil, J.M. & Huguet, P. (1993a). The influence of social comparison situations on individual cognitive task performance: Experimental illustrations. *International Journal of Psychology*, 28, 627-643
- Monteil, J.M. & Huguet, P. (1993b). The social context of human learning: Some prospects for the study of socio-cognitive regulations. *European Journal of Psychology of Education*, 8, 131-150.
- Monteil, J.M. & Huguet, P. (1999). *Social context and cognitive performance: Towards a social psychology of cognition*. Hove, East Sussex: Psychology Press.
- Moscovici, S. (1980). Toward a theory of conversion behaviour. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology (Vol. 13)*. New York: Academic Press.
- Moscovici, S., Mucchi-Faina, A. & Maass, A. (Eds.) (1994). *On minority influence*. Chicago: Nelson Hall.
- Moscovici S. & Mugny G. (Eds). (1987). *Psychologie de la conversion*. Cousset: Delval.
- Mugny, G., Butera, F. (1995). Influences majoritaire et minoritaire: vers une intégration. *Psychologie Française*, 40-4, 339-346.
- Mugny, G., Butera, F., Sanchez-Mazas, M. & Pérez, J.A., (1995). Judgments in conflict: The conflict elaboration theory of social influence. In B. Boothe, R. Hirsig, A. Helminger, B. Meier & R. Volkart (Eds). *Perception - Evaluation - Interpretation. Swiss Monographs in Psychology*, (Vol. 3). Bern: Huber.
- Mugny, G. & Doise, W. (1978). Socio-cognitive conflict and structure of individual and collective performances. *European Journal of Social Psychology*, 8, 181-192.
- Mugny, G., Lévy, M. & Doise, W. (1978). Conflit sociocognitif et développement cognitif: l'effet de la présentation par un adulte de modèles "progressifs" et de modèles "régressifs" dans une épreuve de représentation spatiale. *Revue Suisse de Psychologie*, 37, 22-43.

- Mugny, G., Moliner, P., Flament, C. (1997). De la pertinence des processus d'influence sociale dans la dynamique des représentations sociales. *Revue Internationale de Psychologie Sociale*, 10, 31-49.
- Mugny, G. & Pérez, J.A. (1991). *The social psychology of minority influence*. Cambridge: Cambridge University Press.
- Mugny, G., Quiamzade, A. et Tafani, E. (2001). Dynamique représentationnelle et influence sociale. In P. Moliner (Ed.), *La dynamique des représentations sociales*. Grenoble : Presses Universitaires de Grenoble, 123-161.
- Mugny, G., Tafani E., Butera, F., Pigière D. (1998). Contrainte et dépendance informationnelles: influence sociale sur la représentation du groupe d'amis idéal. *Connexions*, 72, 55-72.
- Mugny, G., Tafani E., Falomir, J.M., Layat, C. (2000). Source credibility, social comparison and social influence. *International Review of Social Psychology*, 15, 151-175.
- Mummendey, A. & Schreiber, H.J. (1983). Better or just different? Positive social identity by discrimination against, or by differentiation from outgroups. *European Journal of Social Psychology*, 13, 389-397.
- Nemeth, C. (1986). Differential contributions of majority and minority influence. *Psychological Review*, 93, 23-32.
- Pérez, J.A. & Mugny, G. (1993). *Influences sociales. La théorie de l'élaboration du conflit*. Neuchâtel, Paris: Delachaux et Niestlé.
- Pérez, J.A. & Mugny, G. (1996). The conflict elaboration theory of social influence. In E. Witte & J. Davis (Eds.), *Understanding group behavior (Vol.2): small group processes and interpersonal relations*. Hillsdale, NJ: Erlbaum.
- Quiamzade, A., Tomei, A., & Butera, F. (2000). Informational dependence and informational constraint : Social comparison and social influences in anagram resolution task. *International Review of Social Psychology*, 13 (3), 123-150.
- Rosenberg, L.A. (1963). Conformity as a function of confidence in self and confidence in partner. *Human Relations*, 16, 131-139.
- Taylor, S. E. & Lobel M. (1989). Social comparison activity under threat: Downward evaluation and upward contacts. *Psychological Review*, 96(4), 569-575.
- Tesser, A. & Cornell, D. P. (1991). On the influence of self-processes. *Journal of Experimental Social Psychology*, 27, 501-526.
- Tetlock, P. E. (1992). The impact of accountability on judgment and choice: Toward a social contingency model. In M. Zanna (Ed.), *Advances in experimental social psychology (Vol. 25)*. New York: Academic Press.
- Toczek-Capelle, M.-C. (1993). *Systèmes de formations et conduites d'acquisition*. Unpublished doctoral dissertation, Université de Clermond-Ferrand.
- Utman, C.H. (1997). Performance effects of motivational state: A meta-analysis. *Personality and Social Psychology Review*, 1, 170-182.
- Wason, P.C. (1960). On the failure to eliminate hypotheses in a conceptual task. *The Quarterly Journal of Experimental Psychology*, 12, 255-274.
- Wicklund, R. A. & Brehm, J.W. (1968). Attitude change as a function of felt competence and threat to attitudinal freedom. *Journal of Experimental Social Psychology*, 4, 62-75.

- Winnykamen, F. (1990). *Apprendre en imitant?* Paris: Presses Universitaires de France.
- Wood, J. V. & Taylor, K.L. (1991). Serving self-relevant goals through social comparison. In J.M. Suls & T.A. Wills (Eds.), *Social comparison : Contemporary theory and research*. Hillsdale, N.J. : Erlbaum