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5 The social construction of knowledge: social marking and socio-cognitive conflict

Willem Doise, Gabriel Mugny, and Juan A. Pérez

Introduction

It is commonly accepted that opinions are of a 'subjective' order, marked by the social attachments of individuals. It is, by contrast, common to consider cognitive, intellectual or perceptual tools as independent of such attachments. These are considered as being grounded in biology, as, for example, is assumed by the theory of intelligence as a 'gift' (Mugny and Carugati, [1985]1989), and stemming from a conception of knowledge as a 'simple' reflection of the objective world. The predominant conception in interactionist and developmental social psychology, on the other hand, is that all forms of knowledge are grounded in social interactions between individuals. In particular, it is marked by social representations of the tasks and of the social interactions actualised by an individual. Thus, knowledge of the 'physical' world is not independent of knowledge or representations of the social world. This chapter aims to demonstrate this in different ways, first through the social development of intelligence, and then through social influence on reasoning and perceptual judgements.

Social interaction and cognitive development

Elements of social developmental psychology

A spiral causality accounts for the interdependence between social and individual regulations (Doise and Palmonari, 1984): at each moment in development specific competences allow an individual to participate in social interactions which can give rise to new competences which can then further enrich participation in other social interactions. The propositions which constitute the foundation for such a developmental social psychology (Mugny, 1982; Doise and Mugny, 1984; Perret-Clermont and Nicolet, 1988) are the following:

1 It is by coordinating their own actions and judgements with those of

others – that is through social interaction – that children are led to construct cognitive coordinations which they were unable to achieve individually. Thus, at a certain stage in their development, when they have the opportunity to accomplish tasks with peers or with adults, children succeed in accomplishing tasks at a stage of elaboration which they would be incapable of doing if they worked on them alone.

2 Once, having participated in social interactions, children then become capable of accomplishing these coordinations on their own. The resulting individual progress was observed after participation in both collective conservation tests (liquids, length, or number) and common spatial transformations or motor coordinations tasks (Perret-Clermont, 1980; Doise and Mugny, 1984).

3 Cognitive operations actualized on a given material or in a specific social situation take on more a character of stability and generality. In other words, they are transferable to other situations and other materials, providing evidence of children's authentic cognitive progress. This effect of the individual appropriation of cognitive operations has been confirmed, primarily through the use of different conservation tests (cf. Perret-Clermont, 1980; Doise and Mugny, 1984).

4 Social interaction is the source of cognitive progress because of the socio-cognitive conflicts which it generates. It is the simultaneous confrontation of different approaches or individual centrations during a social interaction which necessitates and engenders their integration in a new organization. To be a source for development, such a confrontation of responses does not imply that the opposing perspective should be cognitively more advanced than that of which a child is already capable; a child can benefit from responses of a similar level, even a lower level than their own, on condition that the centrations which flow from it are opposed to their own (Mugny, Lévy, and Doise, 1978). This social constructivism does not, therefore, assume any process of imitation or social learning from the responses of others.

5 For a powerful socio-cognitive conflict to take place, the participants in a social interaction must already dispose of certain cognitive instruments; in the same way a child will only profit from an interaction if they are already able to establish a difference between their approach and that of the other. This prerequisite competence means that some children benefit from some interactions, while those who have not yet attained this initial competence do not benefit from the same interaction. Experiments using motor-coordination tasks or the conservation of liquids have shown the role of this initial competence and illustrated in a more general way that not every interaction is beneficial for every child. Social constructivism, then, operates on the basis of cognitive instruments and social competences which the child possesses at a particular moment.

6 Regulations of a social nature which govern a given interaction can constitute an important factor in the establishment of new cognitive coordinations in this situation. It is precisely the intervention of such regulations or social meanings during the cognitive coordinations executed in the context of a particular task which is conceptualized by the notion of social marking. This idea refers to the correspondences which can be established between the social knowledge which characterises the interaction between the protagonists actually or symbolically present in a specific situation and the cognitive relations bearing on certain properties of objects which mediate these social relations.

The research on social marking constitutes an extension of the earlier research on the conflict resulting from different or opposed cognitive approaches. A basic idea of this research is that an opposition can be brought about within an individual between responses induced by social knowledge and those induced by the principles organising their reasoning about a given material.

A situation of reasoning will, then, be considered as socially marked when an existing correspondence (or one which could exist) can be made salient between the cognitive responses implied in the (correct) resolution of a task (or in the way even an incorrect resolution is made by the child), on the one hand, and the responses flowing from the social meanings which are added to the properly cognitive aspects of the task, on the other. The guiding hypothesis of the following set of research studies is that certain social markings have constructivist effects on the mode of resolution of a task and induce real progress in the reasoning of an individual.

Hierarchical differentiation and social marking

Piaget ([1965]1995) established a theoretical correspondence between intellectual cooperation and relational autonomy (characteristic of relations among peers) on the one hand, and, on the other, between intellectual constraint and heteronomy which characterizes relations between the child and the adult. This conception allows the assumption that egalitarian 'horizontal' relations would be more propitious to the development of reasoning than the asymmetric relations in which children are also engaged. A great many observations demonstrate effectively that cognitive tasks involving children and adults risk being

resolved in purely relational terms, with the children, in particular, showing compliance in this respect, or simple imitation, at least when the adult lends themself to such dynamics (see, e.g., Mugny, De Paolis and Carugati, 1984). At the same time, it is also clear that the adult has the means which allow them to oppose such relational behaviours, and in particular can resort to questioning systematically children's responses, which comes back to the introduction of a socio-cognitive conflict (cf. Doise and Mugny, 1984, pp. 151–3). Furthermore, we should also note that if they take the form of reciprocal indifference, or introduce a constraining sociometric asymmetry (cf. Mugny, De Paolis and Carugati, 1984), relations among peers can also generate relational dynamics which block development. This is the reason why, for any developmental benefit, social interaction must at the same time secure a full unfolding of socio-cognitive conflict, and not merely introduce a purely relational solution in terms of agreement or disagreement.

A first study of social marking (Doise, Dionnet and Mugny, 1978) had shown how a hierarchical relation actually allows for the introduction of a constructivist social marking. In effect, since such a relationship assumes a differentiation between the child and the adult, implying a 'superiority' of the latter over the former, it is possible to establish a correspondence between this social differentiation and the responses to a cognitive task involving the conservation of an inequality. This experiment concerned the conservation of equal and unequal lengths. The subjects (aged about six years) were those who, in a pre-test, gave clearly non-conserving responses in a test of equal and unequal lengths. Thus, they did not recognize the equality (or the difference) of two objectively equal (or different) rods (or two bracelets) when the perceptual configurations were modified so as to be perceptually misleading. Only the conservation of the inequality of length task was included in the experimental session. For each configuration, the longer of the two bracelets was more or less deformed, leading the non-conservers to mistake the relative lengths of the bracelets: they judged them to be equal if their extremities coincided perceptually, and they judged the longer bracelet to be even shorter if its extremities were observed perceptually to be between those of the shorter bracelet. In the social-marking condition the child was told that they had to give one bracelet to the adult and one to themselves. They had first to give a judgement about the relative lengths of the bracelets (and justify this judgement), and then choose which bracelet was best for the experimenter and which was best for them. In the control condition without social-marking, the child had to choose which bracelet went best for each of two cylinders (whose dimensions were proportional to the wrists of a child and an adult). After

each choice the bracelets were 'tested'. The experimental condition involved the child making an unequal choice in the context of a social relation where the adult could claim a bigger object than the child. A similar differentiation existed also in the control condition, but it was only functional and not directly social.

For each item two types of counter argument were introduced, since it was also a question of introducing a sociocognitive conflict. If the child made a mistake in their choice, they were asked why 'it didn't fit'. If the child, in spite of their erroneous judgement, nevertheless made the correct choice, the experimenter asked them to explain the discrepancy between their judgement and their choice. In other words the experimenter centered the child's cognitive activity on their own contradictions, without ever also suggesting a particular solution to them. Progress was assessed through two post-tests, the first immediately after the experimental phase and the second two weeks later, but always using a task without social marking.

The progress observed (subjects shifting from a non-conserving level to an intermediate or conserving level) was clearly distinct in the first of the post-tests. Although the material for the post-test was not socially marked, the subjects in the social-marking condition made progress (and, indeed, they also made progress on the conservation of the inequality of length), which then generalised to the conservation of equal lengths. Moreover, the same differences were also observed two weeks after the experimental phase. Thus, as this progress in reasoning illustrates, social marking has a strong share in generalized cognitive development.

Cognitive effects structuring an egalitarian norm

Another set of research studies (cf. De Paolis, Doise and Mugny, 1987) suggests that the most coherent explanation for these constructivist effects is that of the socio-cognitive conflict introduced by the divergence – and hence establishing of a correspondence – between the solution suggested by social regulations or norms, on the one hand, and, on the other, the cognitive solution corresponding to the pre-operational cognitive strategies employed by the children participating in the experiments, or that suggested by the aid of the experimenter proposing an incorrect solution.

A conflict of the same type seems to be at work in experimental situations using tests of the conservation of liquids in a context of norms of equality (see, e.g., Doise and Mugny, 1984, pp. 69–72). For these tests the subjects were children who gave non-conserving responses to a test of equal amounts of liquids: if they accepted that two similar glasses

contained the same quantity of liquid, when the contents of one glass were poured into another (narrower or wider) they considered that the amount of liquid was no longer the same, judging the quantity on the basis of the height of the liquid, without compensating for the width of the glass. These subjects then participated in the experimental session involving a task of distributing liquid (syrup or fruit juice). The aim of this task in socially marked situations was to reward two children who had worked equally hard and therefore merited the same amount of juice to drink. In the control situations, without marking, the aim was only to establish an equality between two quantities of liquid. Of course, in both types of conditions the two quantities underwent exactly the same perceptual transformations. Nevertheless, in the case of social marking, these transformations introduced a conflict with a social norm, since the perceptual appearances contradicted the equality of merits. In the other case, this social stake did not exist, and the conflict, if there was one, could only be the result of the eventual contradiction between the initial perceptual equality and the apparent inequality introduced by the pouring. The results showed that the first type of conflict is more effective for the enabling the child to understand that two quantities of liquid remain identical in spite of the perceptual transformations which they undergo during various transformations.

In his research Zhou (1987) used as an experimental task a variant on the test for conservation of discontinuous quantities described by Piaget and Szeminska (Piaget, [1941]1952). The experimenter asks non-conserving children to put the same quantity of sweets or beads in two equal or unequal glasses. He observed that the children were easily led to use a simple procedure to arrive at equality: they placed one element in turn in each glass. They often applied this strategy spontaneously when they had to distribute an equal quantity in two opaque glasses, into which they could not see, since the opening of the glasses was above their visual field. To do it, according to Zhou, the children applied a rule already well mastered: 'each one in turn'. In the post-test, the children who had used this rule did not generally make progress on a conservation of equal liquids task which did not involve social marking. They did not resist the perceptual transformations produced by pouring into unequal glasses. However, if the children had used the procedure 'each one in turn' during the experimental task with each deposit respecting a social agreement on equal sharing, then they made progress on the post-test. Must we, then, conclude that social marking has an effect in this way, without any intervention of socio-cognitive conflict being necessarily introduced? A type of sociocognitive conflict may, in reality, have played a role: the conflict generated by the experimenter through the use of counter-

Table 5.1 *Frequency of progress (+) and non-progress (0)*

	With Counter-argument		Without Counter-argument	
	+	0	+	0
With social marking	20	20	3	37
Without social marking	9	31	7	33

argument, or by producing a strong contrast between the expectations based on respect for the rule 'each one in turn' and the result obtained when the glasses are poured into two unequal glasses.

An experiment (Doise and Hanselmann, 1990) controlled the effects of these two types of conflict. Social marking was manipulated by asking subjects to distribute a quantity of marbles equally between two experimenters deserving exactly the same reward from an earlier task. In the conditions without marking, the distribution was made without any mention of equal rights. For the counter-argument, when the child replied correctly that there was the same quantity in two unequal glasses, the experimenter drew their attention to the difference in height between the two glasses, or when the child centred on only one dimension, the experimenter invoked the difference in the other dimension of height or width. In the absence of counter-argument the experimenter accepted what the child said without question. The 160 subjects were all non-conservers on a conservation of equal quantities of liquids task, but intermediary on a conservation of number task where they had mastered one-to-one correspondence. During the experimental task the children were all led to use the procedure one by one in order to assure the equality of distribution. Table 5.1 shows the frequencies of subjects who did or did not make progress on the first post-test (after Doise and Hanselmann, 1990).

The results show that social marking has a significant effect when it is accompanied by counter-argument. Social regulations therefore contribute to cognitive progress on the condition that they are used to orient a socio-cognitive conflict. We insist on the point that social regulation does not necessarily produce any cognitive change. When the regulation does not enter into any conflict with an individual centration, the child's habitual cognitive functioning is not put into question, and there is no reason to develop. On the other hand, socio-cognitive conflict produced by the divergence between responses induced by a social regulation and those derived from a cognitive

approach can become a source of cognitive changes. We shall now see how in situations of social influence a cognitive change is equally produced in analogous situations.

Social meaning of tasks and social influence

In these studies of social marking in cognitive development we have seen how certain types of social relations, even simply symbolized in the task, make possible the resolution of cognitive problems and logical tasks. A problematic of the same order has been approached in recent studies of social influence. These studies are close to those on the structuring effects of socio-cognitive conflict, notably because situations of social influence generally involve the existence of a divergence of judgements between two or more individuals. The conception we propose for the mechanisms of change which flow form these situations assume two basic hypotheses. First, that the contribution of information given by the other plays less of a role than the relation which predominates with them, and the mode of sociocognitive functioning which flows from this relation. Second, that the divergence has a different meaning according to the nature of the other, and the way in which they represent the task. This is exactly where the hypothesis of social marking in cognitive development rests. We shall begin the illustrations, however, with a paradigm which constitutes an extension of it.

Social influence and reasoning

In a series of studies, Butera has asked whether social dynamics can be an explanatory factor for higher thought processes, such as, for example, inductive reasoning. He begins from the fact of the difference between majority and minority influence is a difference of kind (cf. Moscovici and Mugny, 1985): the majority most often secures a manifest, that is to say, immediate, public or direct, influence while the minority obtains a more latent, that is to say, deferred, private or indirect influence (Mugny and Pérez, 1991). From a similar point of view, Nemeth (1986) speaks of the activation of different modes of thought as a function of the status of the source. Faced with an interlocutor from the majority, individuals will function with a convergent thought, articulated around the position of the interlocutor. Faced with a minority interlocutor, divergent thought would be activated, based on parameters not necessarily present in the situation of confrontation.

One explanation is that these influences may proceed by activating different representations of knowledge: the majority would have its

effects in a social field which it makes unidimensional through social regulations habitually associated with it, and which are governed by the necessity of consensus (one would speak of a representation of uniqueness; cf. Brandstätter et al., 1991). The minority, on the other hand, would have its impact through the plurality of the field which corresponds to it (representation of plurality). The hypothesis is, therefore, that individuals will tend to use forms of reasoning which correspond to the social structure in which they are inserted. Reasoning strategies aiming at the elaboration of ideas already presented and at the verification of predominant hypotheses would correspond to a social consensus made salient by a majority. On the other hand, a social structure in which an alternative is introduced (which occurs through a dissident minority) must induce reasoning strategies which take into account alternative hypotheses, and which envisage falsification.

The paradigm to test these ideas (cf. Butera et al., 1991–2) uses one of the tasks most classically employed to study processes of individual reasoning and scientific reasoning (Wason, 1960). Subjects have to discover the 'correct' rule (decided by the experimenter, for example, any two-figure number) with which a triplet of numbers (for example, 2–4–6) is compatible. A bias appears systematically when subjects have to propose a triplet to control the validity of their hypothesis: in spite of the diagnostic value of disconfirming strategies in this task, it is confirmation which is predominantly used in this type of task, as it is elsewhere in scientific practice (cf. Tukey, 1986; McDonald, 1990). For example, subjects who think that the rule is 'even numbers increasing by 2' propose 6–8–10, which is compatible with the experimenter's rule, but does not allow the subject to discover that their own rule is too specific and hence incorrect. Can majorities and minorities remedy this state of affairs?

In a first experiment (cf. Legrenzi et al., 1991; Butera et al., 1991–2) subjects were informed of the hypothesis ('each new number is larger than the preceding one') of people supposedly already asked, either the great majority of those already asked (specifically 88 per cent), or a small minority (12 per cent). In each trial a second series of three numbers was advanced, and presented as the triplet given by these people with the aim of verifying if their rule was well founded. This triplet was confirmatory for half the subjects (3–5–7) and disconfirmatory for the other half (7–5–3). In each trial subjects had then to give the rule which they thought underlay the initial series which had been proposed to them and a new triplet of numbers, and they wished to know whether or not it corresponded to this rule. After these problems subjects responded to some questions about their representation of the task. Finally, a post-test

presented similar trials to the earlier ones. This time no information was given about the responses of the source.

The performances were evaluated from two points of view: that of the hypothetical rule and that of the strategy to test it. For the rule, it was either the same as that of the source (conformity), or the same rule but with some clearer specification (convergent cognitive work), or it was a new rule and evidence of divergent thinking. For the strategy to test the hypothesis, the triplet given by the subject either confirmed or disconfirmed the rule they themselves had proposed. There was confirmation when the triplet given by the subject could be described by the subject's hypothetical rule. Disconfirmation meant that the triplet did not correspond to the proposed rule.

Two effects were observed in relation to the rules. The same proportion of majority and minority subjects adopted the rule proposed by the source. On the other hand, differences appeared for the reshaping of the rule, which was more frequently the case during the experimental phase for subjects faced with the majority, and during the post-test for those faced with the minority.

In relation to the strategy for controlling the hypothesis, subjects benefited from 'useful' information given by the source using the strategy of disconfirmation, irrespective of its status. Subjects equally recognized the value of this strategy, even if its use remained infrequent. A difference appeared for the confirmatory sources: faced with the majority, subjects mainly used confirmation, while there was greater use of disconfirmation by those faced with a minority, a difference which persisted in the post-test.

From the point of view of the rules as much as the control strategies, the majority induced a mode of convergent cognitive functioning, taking inspiration from information coming from the source. Faced with a minority, subjects engaged more in a more divergent mode of socio-cognitive functioning, more open to new hypotheses, and also more frequently constructing an adequate (because it was more informative) strategy of disconfirmation. The complementary questions indicated that the minority had indeed induced a representation of the solution of the task as particularly tied to a consideration of different alternatives.

The representation of the source and of the task even appeared to constitute more important factors than the fact of knowing whether the source was correct or not. In another study (Butera and Mugny, 1992), subjects were told whether the rule of the majority or the minority was right or wrong. The results showed than even if subjects did then adopt the rule of the source more frequently, only the minority induced a control strategy based on falsification. In other respects, the analysis of

the representation of the task again suggested that the minority generated a representation in multi-dimensional terms. This hypothesis was directly tested in a full factorial design (Butera et al., 1996). Subjects confronted with a majority or a minority were also told that the problems allowed either one single correct answer, or several possible answers. Results showed that it is when the source is a majority and the problem allows a single answer that most subjects adopted the majority's hypothesis and use confirmatory testing. On the other hand, it was when the source was a minority and the problem allowed several possible answers that most subjects gave alternative hypotheses and used disconfirmation.

The experimental results presented in relation to this new axis of research have enabled progress to be made in the definition of the relations between social regulations and cognitive functioning. The higher processes of thinking, such as the confirmation or disconfirmation of hypotheses, arise in different ways, according to the social interlocutors who have the role of providing either an example or a counter-argument. As with cognitive development, the other intervenes in an active way even in the construction of reasoning. These constructivist effects depend, however, on the correspondences established between the status of the interlocutor and the representation of the task. We shall give a last example.

Anticipating consensus and the dynamics of influence

For this research we returned to situations of social influence similar to those used in the study of conformity (Asch, 1956; cf. Allen, 1965). The paradigm will be presented to test the merits of the hypothesis of uniqueness and plurality as preconstructs presiding over the social marking of situations of social influence. The specific hypothesis returns to the assumption that the dynamics of social influence resulting from a higher-status source, specifically the majority, flow from its correspondence with a social representation of the task as requiring unanimity. Three predictions were tested. First, that the dynamics of majority influence would only appear if individuals considered that the knowledge in question required unanimity. The other two predictions concerned the level of the regulation of the conflict which appeared in the case of divergence, when the expected unanimity was broken. The second prediction suggests that when there is a particular attraction between source and target, the search for unanimity will be more relational, and expressed at the level of socially manifest responses. The third suggests that when this is not the case the break in homology between source and

knowledge will give rise to a constructivist effect: individuals will construct a new understanding to re-establish consensus.

The paradigm designed to test these correspondences was the following (cf. Brandstätter et al., 1991): during the experimental phase of influence subjects are confronted with a source (majority or minority, from the in-group or the out-group) who judges that an angle of 90° or 85° measures 50°. As with Asch (1956), this response is manifestly wrong. In a pre-test and post-test subjects also estimated the weight of an imaginary cheese represented by various angles. The manifest influence is measured by the reduction in the angles during the experimental phase, and the indirect influence by the reduction in weight of the figures in the post-test.

In the first study based on this model, either a majority (88 per cent) or minority (12 per cent) of people (who were shown to have made a mistake on a similar task) estimated as 50° angles which were either 90° or 85°. The idea was that angles of 90° would refer to an absolute demand for unanimity because of the *gestalt* represented by a right angle, while angles of 85° would leave room for some uncertainty. The former should favour majority influence and the latter minority influence. In fact, even when the source is explicitly presented as wrong, three significant effects were observed. First, the majority has a direct effect with angles of 85°: uncertainty is regulated by complaisance, since no indirect effect was observed. Faced with angles of 90° the majority has an effect, but uniquely indirect: manifest conformity is impossible, since the right angle is too pregnant, but the break in unanimity preoccupies the subjects to the point that they construct an object with a new property, in this case weight, which is compatible with the demand for unanimity. In the first case one can say that the regulation of the conflict is purely relational, while in the second it is properly sociocognitive. But in both cases it is the product of a contradiction between the anticipation of consensus and the majority status of the source. As for the minority, it obtains, as predicted, a latent influence in the face of angles of 85° (the weight of the figure then decreases), whose more open representation is more compatible with the minority status of the source.

A second experiment (Pérez et al., 1991) used only 90° angles, so as to ensure that any effects could not be explained simply by the degree of certainty associated with angles which were more (85°) or less (90°) difficult to evaluate. Two variables were manipulated. The first concerned the source, always a majority (88 per cent), and was defined as either in-group or out-group: an in-group source should induce a more relational regulation of the conflict, while an out-group source should induce a more sociocognitive regulation. Categorization was established on the basis of 'race'. In a supposed study of the similarities and differences

Table 5.2 *Evaluations of experimental angles (in degrees) and change in the weight of the cheese (in grams; − or + : direction of influence) (taken from Pérez et al., 1991).*

	Majority			
	In-group		Out-group	
Anticipation:	Similar	Different	Similar	Different
Angles	80.9	88.7	88.9	87.3
Weight	+33.5	−27.8	−187.3	+296.1

between races, the majority was either white, like the subjects, or black. The anticipation of unanimity was introduced by instilling in the subjects the belief that scientific studies had demonstrated either a similarity or a difference in the perception of the races.

The results, shown in Table 5.2, show that the dynamics of positive influence only appear when subjects believed in the similarity of judgements described as the equality of perception between the races. When the source comes from the in-group, and in spite of its explicitly erroneous character, the residue of normative pressure (Deutsch and Gerard, 1955) tied to the categorisation was sufficient to induce the relational regulation which was expected: subjects re-established consensus by diminishing the angle, notwithstanding the perceptual evidence. This is not the case for an out-group source, which induces a constructivism about the object, hence the change in weight. Inhibiting the relational regulation only deepened the re-establishment of consensus made necessary by the representation of knowledge (Butera *et al.*, 1994).

Conclusions

The studies reported in this chapter refer to two distinct domains of research: the social development of cognitive tools in the child, and social influence, traditionally studied among adults. In reality, they converge on many theoretical ideas which sustain them (Doise and Mugny, 1997):

1 At the origin of cognitive development, as with influence, is the working in one form or another of socio-cognitive conflict, which implies a *divergence* between an individual and one or more other individuals; disagreement about the same problem or the same object is thus at the root of individual changes.
2 In both domains, it is in effect the change which is the principal measure, and which theories aim to explain. This implies that the

individual is led to form judgements which they would not have done if they had not been confronted by a disagreement with others. A characteristic of these changes is that to a great extent they do not highlight a process of imitation, but a *constructivist elaboration* of new judgements and new forms of reasoning. Nevertheless, the resolution of conflict depends largely on the nature of the sources. Those of higher status, adults (in developmental studies), majority, or in-group (in studies of social influence), tend to induce a more relational regulation of the conflict, that is to say, a socially explicit re-establishment of consensus (imitation in developmental studies, compliance in social influence). Sources of an equal status (developmental studies) or inferior status, minority, or out-group (studies of influence) induce a more constructivist process.

3 In effect what predominates is the question of understanding if the knowledge on which individuals should converge is defined by its uniqueness or its plurality. The former attempts to induce a more convergent mode of thought (Nemeth, 1986), taking its inspiration directly from the response of the source, and the latter a more divergent mode of thought, which constructs on the basis of the knowledge of both parties. The relational regulation corresponds to a concordance between the higher status of the source and the anticipation of unanimity; constructivism to the concordance between a source of equal or inferior status and the anticipation of a plurality of knowledge (Butera *et al.*, 1996).

Note

Translated from the French by Gerard Duveen.

6 Social memory: macropsychological aspects

Augustín Echebarría Echabe and
José Luis Gonzalez Castro

Introduction

For centuries scholars in the Western world have been interested in the study of memory. Herrman and Chaffin (1988) reviewed different works on this topic written before Ebbinghaus, and located the first study on how to improve one's memory in the fifth century BC, which was entitled 'Dialexis'. From then onwards, those studies conducted on the subject of memory were fundamentally interested in the practical aspects of memory. It was only during the seventeenth century that there was a shift in interest from the practical to the theoretical aspects of memory. Although, as we see, there is a long history of interest in this topic, a more general interest on the impact of macrosocial factors (i.e. culture) on cognitive processes in general and memory in particular is quite recent (Jahoda, 1992). Nevertheless, as Jodelet (1992) states, social psychology's interest in this subject is but a decade old. To be more precise, we could say that the emergence of this interest is parallel to the emergence during the 1970s of social cognition as the dominant paradigm. (Markus and Zajonc, 1985; Fiske and Taylor, 1991).

Social cognition explains memory by using the concept of 'schemata', developed by Bartlett (1932) in his classical studies on memory. The epistemological bases underlying this approach to the study of memory are basically those which characterize 'cognitive science' as a whole (Gardner, 1985). We should not forget that cognitivism's gradual importance in social psychology is just another example of a more global 'cognitive revolution' which affects different areas. Cognitive science is a multidisciplinary approach which integrates philosophy, linguistics, psychology, anthropology, neuroscience, and artificial intelligence. Of all the characteristics which define this approach to cognitive phenomena, a certain number of them are also going to define the way that social psychology approaches cognition:

1 the acceptance that historical and cultural factors (in a word, social factors) are not necessary to explain human thought; and