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Socio-epistemic conflict and constructivism

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This article argues that conformity in Asch-like paradigms is not the result of mere normative pressure on Ss to conform to a group or to a majority. It is suggested that in such situations of influence, a *socio-epistemic conflict* takes place because the Ss are aware of the existence of a *diversity* of points of view, *a priori* all valid, regarding an object they considered as having only *one unique* way of being perceived. In fact, the consensus that exists out of the laboratory (the epistemic aspect of the conflict) clashes with the experimental group consensus (the social component of the conflict). A series of experiments, including one previously unreported study (n=96), are discussed to illustrate the following reasoning: the lower the normative pressure, the higher the likelihood that a conflict be solved epistemically; in which case, the effect will not be the usual effect of *manifest conformity* but a *latent reconstruction* of the object.

Explaining the Asch effect

We all know the task developped by Asch (1951) for the study of conformity: Ss were to judge which of three lines differing in length was equal to a standard line. Individuals answering in the control condition gave the obvious correct answer; but confronting single Ss with a unanimous majority of confederates giving an incorrect answer resulted in a significant number of answers conforming to the erroneous source (about a third). Several researchers have argued that such an effect had cultural and historical roots (cf. Larsen, 1974; Perrin & Spencer, 1980), but evidence shows that it can be reproduced nowadays (cf. Doms & Van Avermaet, 1981; Furnham, 1984; Vlaander & Rooijen, 1985). The aim of this paper is to review various explanations of this effect and to show how a close study of the conflict experienced by the Ss not only offers an adequate explanation of this phenomenon but also permits the prediction of various effects of manifest and latent influence (Moscovici, 1980).

Let us first of all examine the task itself. In this task, the answer is obvious (Ss *know* the answer) and therefore any error is just as obvious. The question one may ask is how an individual may be sure of the correctness of an answer, such as 2+2=4 or that a right angle measures ninety degrees. How could Asch's Ss be certain that the standard line was equal to the one that seemed to be of the same length and not to one that seemed to be longer or shorter? It is known that the less ambiguous the stimulus, the more certain the Ss will be of the correctness of their answer. The definition of ambiguity in terms of frequency of an answer (Flament, 1959) reveals the social nature of ambiguity: if an individual has always been confronted with the same solution in the same task (two plus two always equals four) and that any other answer has always been declared incorrect, then the representation the individual will have of this task is that of a task needing total consensus. In tasks that can be defined as objective and non-ambigous (Pérez & Mugny, 1993), there is a "spiral-like" relation between consensus and representation of the unity of the task: the consensus on the answer to the task creates the representation of the task as allowing that one and only answer; this representation, in turn, dictates the necessity for unanimity in all future answers. This demand for unanimity implies that no divergence in answers may be expected.

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The Asch paradigm lies on evidences, "physical reality" which implies, as far as Festinger's 1950) theoretical approach is concerned, that no social influence should be possible, as it is not a "social reality" but an objective reality, known with no need of social mediation (McGrath, 1984). Nonetheless, Asch's results demonstrate that influence is possible even in tasks for which the answer is more than evident. It is usually considered that Ss yield for reasons related to the nature of the source. This hypothesis of a normative dependance (Deutsch & Gerard, 1955) outlines the idea that Ss conform in order to (re)establish a positive relationship with the majority whose unanimity sets the target in a position of deviance. According to such an interpretation, Ss would conform only if the relation to the source is salient (cf. Allen, 1965). Deutsch & Gerard demonstrate that influence is greater when Ss believe they belong to a group (opposed to other groups) than when they are face to face with the source, and is even greater when Ss give anonymous answers, as in a Crutchfield (1955) setting. This explains why it is generally considered that the Asch paradigm induces mere compliance (Kelman, 1958), a form of manifest influence that is neither deep nor long lasting, disappearing as soon as the target is freed of the source's control or benefits from social support (Asch, 1956; cf. Allen, 1975).

It is worth noting Deutsch and Gerard's remark that, in the Asch paradigm, individuals are in a situation of *"acute conflict"*. On one hand, their previous experiences have reinforced the rule that unanimity of judgment corresponds to validity. On the other hand, individuals rely on another trustworthy point of reference: their own perception. The authors point out that as long as they keep their eyes closed, Ss could blindly accept the unanimous judgment of the source, whereas open-eyed, they become subject to a conflict between the two sources of information. The Asch paradigm creates a form of normative dilemma, severely experienced by the Ss, as reported in the post-experimental interviews published in the 1956 monograph. The problem for the Ss is to know on which of two consensus rests the correct answer to the task: that of the unanimous majority with which they are presently confronted, or that, of their past, which has allowed them to forge absolute certainty in their own judgment in such a task. Ss must choose between two opposite social forces: belief in their own perception and the need for conformity with a majority. Deutsch and Gerard do not develop this idea any further, confining it to a footnote and preferring the explanation in terms of normative influence of a unanimous majority.

Recently Brandstätter et al. (1991) proposed an analysis of the task that reintroduces "past experience" as a major ingredient of the above conflict. The idea is that the Asch paradigm does not confront Ss with mere normative pressure but with a *socio-epistemic conflict.* Such a conflict arises when Ss become aware of the existence of diversity in points of view that are *a priori* both valid: on one hand the out-of-laboratory consensus and on the other hand the group consensus during the experimental session, both concerning an object supposed to have a one and only way of being perceived (in fact, Moscovici's 1976 reinterpretation of the Asch effect as being one of minority influence lies on a similar analysis). As noted by Tuddenham (1961), the Asch paradigm is a twofold problematic experimental situation for Ss: social and physical reality should usually go hand in hand, but in the laboratory this correspondence is shaken. This social diversity of judgments, along with the object representation in terms of unity, are the foundations of what we have defined a socio-epistemic conflict.

A way of solving this conflict can be to reconstruct the sole and exclusive representation of the object in such a way as to integrate the social diversity of judgments. The conflict arising from the object's unity and its being seen in different ways can be solved by reconstructing the object's properties in such a manner as to integrate divergent and alternative judgments in its definition. For instance, an object whose size is perfectly known (say, 90° for a right angle) can be redefined as being smaller in order to integrate the underestimation of an influence source. This idea can be illustrated considering three different forms of social diversity: diversity in judgments, categorisation and approach.

Object unity and judgment diversity

In our analysis, the compliance effect usually ascribed to majorities would be the consequence of the fact that normative pressure to manifest acceptance leads the resolution of the socio-epistemic conflict to a relational outcome. It follows that the lesser the normative pressure, the higher is the probability that the conflict receives an epistemic resolution; in such a case, one should no longer observe a manifest effect but a latent constructivism upon the object.

A second prerequisite for the emergence of such constructivism calls upon the subtle differences between deviance, diversity and validity. It is necessary that the source's point of view not be merely rejected as socially deviant (on the basis of a lack of consistency [Moscovici,1976], of psychologisation of a numerically minority source [cf. Papastamou,1986; Moscovici & Personnaz, 1986], or of a credibility denial in such a task [Mugny, 1984]), but for it to be elaborated as stemming from social diversity, as an alternative point of view, without necessarily being considered correct.

These hypotheses are put to the test in an experiment (Brandstätter et al., 1991) where either a majority source ("88% of peoples") or a minority source ("12% of people") estimated as 50° a series of 90° or 85° angles. In both cases, the task is objective, but whereas the 90° angle is totally non ambiguous and can be recognised with certainty and "necessity" (which defines this manipulation as an Asch-type task), on the other hand the 85° angle is ambiguous and not easy to appraise (it is neither a right angle, nor a prototypical acute angle). A particularity of this experiment rests upon the fact that in all experimental conditions the credibility of the source was denied. Ss were led to believe that the source had been the victim of optical illusions, of which the experimenter then gave some examples. As well as reducing the source's competence (i.e. its informational power), the experiment attempted to reduce as much as possible the source's normative control: Ss gave anonymous written answers, and were not in a face to face situation with the source, as the latter was not physically present but was represented by a mere percentage of answers given by a majority or a minority of Ss having already participated in the study.

Results show that the majority source induces direct influence (a decrease in the degrees when estimating the angles shown in the figures) only in the case of 85° angles, whereas, with the same angles, a minority source induces only indirect influence (namely on the estimation of the weight of an imaginary figure – a cheese – formed by these angles). However, the result relevant to our current discussion is that a majority source (and not a minority) induces a *latent* modification of judgments indirectly related to the size of the angles (the weight of the "cheese") only in the 90° condition, i.e. when the stimuli were unambiguous. In short, a majority source, although of no informational superiority and with no means of social control, can lead to latent influence, provided that stimuli evoke a representation of unity. This effect shows how Ss reconstruct the object's properties (in this experiment, the figures' "weight") in order to render the new object more compatible with the majority's underestimation, solving both the social and the epistemic conflict.

Let us now consider the underlying dynamics of this processus. The basic idea is that Ss' representation of the task determines what conflict they will experience when confronted with a source's divergent point of view. On one hand, Ss know they can trust a unanimous judgment; this is an "epistemo-ideological" principle (Mugny & Doise, 1979) of consensus that can guide an individual's behavior in many situations (cf. Moscovici & Doise, 1994). On the other hand, when dissent appears, brought forward by the source, this diversity contrasts with the representation of unity that the Ss have of the object, as their past experience has always shown total consensus over an obviously correct answer. Therefore, the existence of a source contradicting evidence creates a socio-epistemic conflict; the conflict elaboration theory (Pérez & Mugny, 1993) considers this conflict as the foundation of the typical dynamics of influence in objective unambiguous tasks, such as Asch's.

How can one solve such a conflict? There are two possibilities. Either the reestablishment of social unity: social uniformity (in other words

conformity), that reestablishes consensus at the manifest level; or that of epistemic unity, that results in a latent and constructivist reinterpretation of the object. What determines on which level this socio-cognitive conflict will be solved? Three hypotheses can be considered. The first hypothesis is that, if the source owns legitimising or constraining psychosocial resources, social consensus will be reestablished through manifest influence. The second one is based on a general hypothesis of the conflict elaboration theory, according to which manifest reduction of divergence tends to mitigate the conflict (cf. Sanchez-Mazas et al., 1993); therefore no latent influence should be observed as manifest yielding has already reestablished the equilibrium of the system. The third hypothesis is the corollary of the second one: if, in such a task, a source does not possess enough resources to induce manifest yielding, the socio-epistemic conflict remains, as Ss focus on the dimension under divergence (in the case above, the angle's underestimation). In such case, a latent influence would be more likely, as Ss redefine the object's properties (namely, the figure's weight) in agreement with the principle organizing the source's judgments. The object's definition is therefore reconstructed by integrating the properties risen from social diversity.

Object unity and social diversity in social categorisation

It follows that a source of high social status, such as a majority (Moscovici & Lage, 1976) or an ingroup (Volpato, Maass, Mucchi Faina & Vitti, 1990) induces a form of compliance (manifest influence with no latent influence) whereas a source of lower social status, such as a minority (cf. Moscovici & Personnaz, 1980, 1986; Nemeth, 1986) or an outgroup (as we shall see), induces a conversion effect (latent influence with no manifest influence). In both cases, individuals attempt a reconstruction of the characteristics of the influence situation, in a more social manner through a conformity of responses, or in more of an epistemic way by reconstructing the object, in order to re-obtain a sole definition. We shall qualify *yielding* as the manifest expression of a search for consensus, and *uniformisation* as its latent expression (Pérez & Mugny, 1993, p. 40). In the experiment carried out by Brandstätter et al., we have seen that normative and informational pressure must be lessened for the majority source to induce a conversion effect, integrating the diversity in a unique definition of the object.

In another experiment (Pérez, Mugny, Butera, Kaiser et Roux, 1991; 1994), we put to test another case of socio-epistemic conflict. We wanted to demonstrate that constructivism can also be reached through the diversity resulting from social categorisation. The paradigm reproduces that of Brandstätter et al. (1991). In this study however, Ss were submitted only to the stimuli of 90°, keeping constant the expectancy of unanimity. The study focused on the relevance of two factors. First the categorisation of the majority as ingroup or outgroup defined by "racial belonging" (all Ss were Whites); this first variable operationalised the level of normative pressure exerted by the majority source[1]. The second factor, the expectancy of social diversity or universality, rested on induced beliefs regarding differences or similarities of visual perception between black people and white people: Ss were told that the perceptual apparatus is identical for all human beings, disregarding skin color, or they were told that perception is different for white and black individuals. As we have seen, in such tasks conflicts are organised by the expectancy of universal consensus; therefore as soon as it is legitimate for individuals to expect different approaches of the task, such dynamics of influence should disappear.

The predicted interaction between the two variables was observed on the influence measures, but with different effects depending on the level of influence. First of all, dynamics re-

1 At this point, we must make a *caveat*. Nowadays it is clear that the term "race" is void of any scientific basis as it does not refer to any genuine biological distinction. However, our experiment explicitly used this term for the categories Black and White. Its use was for us the means of giving a plausible context to the manipulation of the second variable: the past debates on the differences in psychological mechanisms between the two "races" (cf. Gould, 1981; Lemaine et Matalon, 1985).

establishing consensus appear only when the belief in perceptual universality has been induced, but not when Ss expect differences. However, the level of influence differs with the identity of the majority. Ingroup majority induces more of a direct influence: the reestablishment of manifest consensus. This route, directed by self-categorisation (Turner et al., 1987) is hindered by an outgroup source to which the Ss do not identify. In such a situation, Ss engage in a process of uniformisation, and therefore change at a latent level (the weight of the cheese) without having yielded at a manifest level.

In this experiment, judgment uniformisation took place following an induced representation of the universality of knowledge, i.e when Ss were told that perception was the same for both groups. An alternative interpretation would be to sustain that the universality of perception creates an ingroup at a level that includes all human beings (David & Turner, 1992; Turner, 1991). According to such an analysis, these effects should be attributed to the activation of a superordinate level of categorisation and therefore to ingroup influence. However, even if we admitted that common group belonging results from the universality of the human perceptual system, this does in no way explain the absence of latent effect of an ingroup majority nor the absence of manifest effect of an outgroup majority.

Object unity and diversity of approaches

The fact that equally valid results can be reached through different methodological approaches is well accepted in the representation of scientific knowledge, although scientific pluralism is still disputed (cf. Mulkay, 1978). It is therefore interesting to study the constructivism resulting from the socio-epistemic conflict that may emerge from social diversity due to different approaches of a unique object. In the above experiment, maximum diversity was reached when Ss faced a divergent outgroup source and were brought to believe in perceptual differences between black and white people; this did not lead to any constructivism. In fact, it is possible that the diversity in the perceptual apparatus constituted a "scientific" pretext to invalidate the divergent outgroup, due to its mere categorization (Tajfel, 1972). Therefore the problem was comparing these conditions within a situation in which diversity of approaches would not lead to invalidation.

In the experiment we are now going to present, the nature as well as the categorisation of the source were kept constant: an outgroup majority. First of all, the representation of knowledge at stake in this task was manipulated by telling the Ss that visual perception is the same for white and black people or leading them to believe that it is different. Indeed, a representation of universality of perception should result in indirect influence when Ss are faced with an outgroup majority, as in the Pérez et al. (1994) experiment.

The question is now how to induce indirect influence in a situation where Ss can legitimately expect differences in perception, considering that in the experiment conducted by Pérez et al. no such effect appears in that condition. How can the Ss be brought to elaborate the socio-epistemic conflict although they are in possession of heuristics effective enough (perceptual differences between black and white people) to explain the majority's claim and therefore to eliminate the conflict existing between the object's unity and the fact that the source's answer is different from their own. This basically amounts to convincing the Ss that the two answers (theirs and the source's) are complementary, and to bringing them to consider that an object may be more complex than it appears to be and that it therefore can be beneficial to take into account answers differing from their own even if at first these answers seem absurd. The diversity in approaches can then become more than a mere argument in disfavour of the importance of a divergent judgment and contribute to reactivate the socio-epistemic conflict.

In order to test this point, we used the decentration paradigm (Piaget & Inhelder, 1952) as developped and used in developmental social psychology (cf. Doise & Mugny, 1984), and we gave our Ss proof of the helpfulness of an answer that does not correspond to the answer that appears unique and obvious from their own point of view (we shall see in detail

how this was achieved). The hypothesis developed from the studies presented above is that divergent judgments resulting from some form of social diversity can induce socio-epistemic conflicts if the situation is dominated by a unique and exclusive representation of the object. Solving these conflicts leads to the reconstruction of the object's properties in order to integrate diversity in its definition. The prediction is that it is precisely when Ss expect differences and are in a condition of induced decentration (i.e. the representation of knowledge as a coordination of different approaches or centrations), that an outgroup majority should exert indirect influence, as under such conditions a latent elaboration of conflict could take place.

Method

In this experiment, the source was maintained constant: in all experimental conditions it was defined as a "majority of black people". In a 2×2 design, the first variable led Ss to believe in complete similarity or in the existence of differences in perception between black and white people (representation of universality or of diversity). As for the operationalisation of the second variable, Ss were or were not given a demonstration of the usefulness of taking into account all points of view (induction of decentration).

Subjects

96 Ss, all white, participated in this experiment, 24 in each experimental condition. They were all students of an introductory course in psychology at the University of Clermont-Ferrand.

Material and procedure

Ss were tested in groups of 12 in the same experimental laboratory. They were seated in rows and slides were projected on a screen directly in front of them. For each phase of the experiment, they were given a different answer book which was withdrawn immediately to avoid retracting and answer changing.

Pre-test and post-test: Ss were to evaluate 8 angles (15°, 25°, ..., 75°, 85°); the length of their sides (projected on the screen) remained constant: 39 cm. Angles were presented 5 seconds each, in the same randomized order. Ss were asked to estimate the amplitude of the angle (in degrees) and the weight (in grams) of an imaginary slice of cheese corresponding to the figure. Ss were informed that the total weight of the full cheese was equal to 1000 grams. The post-test was strictly identical to the pre-test.

Experimental phase: The experimenter explained to the Ss that this research was interested in studying *"similarities and differences between races in the perception of geometrical figures"* and that previous studies had been carried out on black and white individuals. The experimental inductions were presented on the answer book as well as repeated orally.

Manipulation of the representation of universality or of diversity

a) *Universality:* in order to induce a belief in similarity between black and white people, the experimenter asserted that *"Nowadays it is clear that there are no perceptual differences between races, and that the visual system is the same in all human beings. In short, the way individuals see things is independent of their race"*.
b) *Diversity:* in order to induce a belief in differences between black and white people, the experimenter asserted that *"nowadays it is clear that perception is subject to racial differences, and that the visual system is not the same in all human beings. In short, the way individuals see things depends on their race"*.

At this stage of the experiment, we showed our Ss a transparency film representing two lines obviously of different length. After having pointed out the difference in length, we told them that *"the results of a previous experiment carried out on a population of black people, show that people of this race, in a large major-*

ity, 88% to be precise, perceive these lines as being identical in length". This weakened the credibility of the future source (outgroup majority) of influence; in doing so we hoped to avoid strategies of compliance.

The experimenter took advantage of the Ss' surprise to reinforce the representation of universality or of diversity: *"How can one explain these surprising results, as (although) it has been shown that there are no racial differences (there are racial differences) in perception, and that the visual system does not differ with race (differs with race)?"*. A "probable explanation" was then offered: the existence of optical illusions (cf. Brandstätter et al., 1991). To illustrate this point, Ss were shown two optical illusions: Titchener's circles and the trapeze illusion; then, ruler in hand, the experimenter demonstrated how two identical figures can appear to be very different.

Ss were therefore brought to believe that the large majority of the black Ss previously tested made erroneous evaluations because of some optical illusion.

Induction of decentration

In the conditions without decentration, the experimenter directly passed on to the influence phase.

In the conditions of decentration, the induction elaborated by Huguet, Mugny & Pérez (1991–92, p. 159) was used: *"(...) perception of objects, forms and therefore of geometrical figures always depends on from what point of view you perceive them. (...) It is therefore always enlightening to consider the opinion expressed by other individuals faced with the same object, the same form, etc., (...)"*.

To illustrate this point, the experimenter gave a demonstration using a black box containing a pyramid set on its side; fluorescent tape enhanced one of the triangular sides and the square basis. The box was fit with two openings: the first on one side of the box (A) and the second on its top (B); a light was set inside the box in such a way that when it was lit up, the Ss could see the perimeter of a triangle (B) or that of a square (A) depending on their point of view. Each Ss was invited individually to look in the box, half the Ss from opening A, the other half from opening B; they were then asked to write down what they had seen and pass the information to a subject who had looked through the other opening. All Ss were then in possession of all the necessary information (the two points of view) to guess what object was inside the box. Let us note that only one subject worked out that it was a pyramid. As soon as all Ss had proposed a solution, the experimenter would present the pyramid to them and thereby prove the point he had previously argued.

Influence phase: It was then explained to the Ss that they were going to be shown a series of figures which they would have to estimate as they had done before. This time however they would be informed of the estimates of the angles given by 88% of the black subjects previously tested.

Ss were shown a series of 6 identical slides: a 90° angle (in all conditions) with sides of equal length (56,4 cm on the screen). To assure the comparison between the Ss estimation and that of the source, the experimenter introduced each slide as follows : *"This is figure number X (1 to 6); in our previous experiment, 88% of our black subjects gave an average estimation of 50° for this angle"*. The source was therefore consistant throughout all items (Moscovici, 1976). The same sentence appeared on the page of the booklet where Ss were to give their answer during this phase of the experiment. It was therefore rendered clear that the source underestimated all the angles.

Ss were then shown the figures of the post-test (strictly identical to those of the pre-test) and gave their estimation without being informed of the source's. They then filled out a questionnaire relative to their representation of the source. The experiment was followed by a thorough *debriefing* which explained in detail all the experimental inductions as well as the purpose of the experiment.

Measures

Direct influence is determined by the mean estimates of the (90°) angles of the experimental phase, the expression of positive influence be-

ing a reduction of evaluations. The measure of *indirect influence* is the difference between the estimates of the weight of the imaginary cheese in the post-test and the estimates in the pre-test. If the source induces a representation of the angle as being smaller, the cheese's weight should be lighter in the post-test estimates. This measure (Brandstätter et al., 1991) is relative to a non-existant object and is therefore dependent on the Ss' representation of the object. Therefore, this measure allows investigating whether the principle of underestimation has an effect on the Ss' representation of the object, i.e on its reconstruction. A smaller difference between post- and pre-test means indicates a decrease in the estimated weight and therefore more influence (or a smaller distancing from the source).

Results

Direct influence

As expected, considering the results of the Pérez et al. (1994) experiment and that the source is an outgroup in all experimental conditions, experimental manipulations had no significant effect on the measure of the angles estimated during the influence session. Let us note that for all conditions mode and median value is 90°.

Indirect influence

As shown in Table 1, experimental differences do appear on the measure of the weight. A 2×2 ANOVA on the mean decrease of the 8 angles altogether reveals a marginally significant interaction (F1/92=3.780 p<.06) between the two independent variables. Although contrasts follow the predicted pattern, significance is too weak to draw conclusions. Angles were therefore split in two groups, one with the more acute angles (15° to 45°) and one with the less acute (55° to 85°), in order to provide a closer look at the data: the estimation of the more acute angles should be more of an indirect measure of influence as they are the most different from the experimental angle (90°).

No significant effect is found for the les acute angles. On the contrary, analysis of var iance on the more acute angle reveals a signif icant interaction (F1/92=8.711, p<.005). With out decentration, the contrast between condi tions reproduces the results found by Pérez e al. (1994): the induction of similarity resulte in "lighter" weights during the post-test (m= -8.54) more than the induction of difference dic (m=+17.70; t/92=1.778, p<.04). With the de centration procedure, the induction of similarity annuls the decrease obtained without decentra tion (m=+27.33; t/92=2.430, p<.02). Moreover induction of difference results in a greater de crease with decentration (m=-8.04) than with out (t/92=1.744, p<.05), and also greater thar that under the condition of induction of simi larity with decentration (t/92=2.396 p<.02). Ir short, on the measure of the more acute angles (the most different from those, of 90°, estimated during the influence phase), indirect influence conforms significantly to our predictions.

Representation of the source

The source is clearly recognized as black (m=2.04 on a scale from 1 to 6; 1=black, 6= white) and more so when decentration has been induced (m=1.75) than without decentration (m=2.33; F1/92=6.349, p<.02). Let us note that when asked if the "racial belonging" of the source influenced their responses, Ss replied that it did not (m=2.10); however, this negation is stronger in Ss induced to a representation of similarities between black and white people (m=1.61) than in those led to believe in differences (m=2.58; F1/92=10.628, p<.002).

The source is judged of less credibility in the decentration conditions (m=2.60) than without decentration (m=3.13; F1/92=4.249, p<.05), more incorrect in its judgments (m=5.27; without: m=4.58; F1/92=8.610, p<.01), and of greater rigidity (m=4.42; without: m=3.52, F1/92=13.122, p<.001). Last but not least, the source is considered more incorrect when similarity is induced (m=5.21) than when difference is induced (m=4.65; F1/92=5.764, p<.02), and is judged most incorrect by Ss having participated in the decentration demonstration (m=5.71).

When asked if knowing the answer of other people is useful or useless (useful=1, useless=6), Ss in the similarity conditions find it more useless (m=4.60) than Ss in the difference conditions (m=3.88, F1/92=5.088, p<.03), as shown in table 2.

Moreover, knowledge of the source's answers is considered less useless with decentration (m=3.79) than without (m=4.69; F1/92 =7.681, p<.01). This latter result shows that the decentration procedure had the expected effect of focussing on the benefits of considering the source's answer. This effect, jointly with a marginally significant interaction effect (F1/92 =3.493, p<.065), suggests that the source's answers are considered the least useless in the decentration/difference condition (m=3.13), less than the decentration/similarity condition (m=4.46; t/92=2.917, p<.004) and less than the without decentration/difference condition (m=4.63; t/92=3.281, p<.001); no other contrast is significant. It is therefore shown that when decentration is induced in a context of knowledge relativism, the source is considered less useful for its informational resources (as it is the case for the other conditions, all of them having a mean value inside the "useless" pole of the scale), and its utility is set at a mean value between the two poles.

Discussion

In this experiment, two opposite dynamics characterize the influence of an outgroup majority source. We are, of course, referring to indirect influence, as manipulations had no direct effect. We must note that inducing decentration had great repercussions on the Ss' representations of the source and of the task. Indeed, having participated in the "black box" demonstration, Ss find the source more erroneous, rigid and of less credibility. It is then clear that all effects due to decentration are not the result of an identification with the source.

Let us now see what indirect influence was observed, starting with the conditions where decentration was not induced and that can be compared with the Pérez et al. (1994) experiment. We replicated the following result: the outgroup majority induces a latent effect if the perceptual system is declared to be equal for all people, but not if Ss are led to believe in variations in perception between Blacks and

Table 1: Mean changes in the weight of the "cheese": overall and for both groups of sizes (−=more influence; standard deviations in brackets; n=24).

Decentration:	Without		With	
Repres. of the task:	similarity	difference	similarity	difference
mean for the 8 items	−14.89 (80.29)	+8.43 (37.27)	+8.07 (55.85)	−12.61 (36.59)
55° to 85° angles	−21.23 (119.01)	−0.83 (49.99)	−11.20 (51.37)	−17.19 (61.03)
15° to 45° angles	−8.54a (60.17)	+17.70b (32.61)	+27.33b (70.83)	−8.04a (27.54)

Means sharing the same subscript do not differ significantly at p<0.05

Table 2: Mean values of appreciation of the source's uselessness (1=useful, 6=useless).

Decentration:	Without		With	
Repres. of the task:	similarity	difference	similarity	difference
useless source:	4.75a (1.48)	4.63a (1.47)	4.46a (1.82)	3.13b (1.54)

Means sharing the same subscript do not differ significantly at p<0.05

Whites. This confirms the idea that in a task where an object calls for a unique definition, a majority source can induce latent influence in spite of, or perhaps owing to, its outgroup position, as long as the representation of the object's unity is validated by the belief in the universality of perceptions. The socio-epistemic conflict resulting from the source's dissent causes latent resolution because the source's categorisation impedes a manifest resolution. The normative pressure to avoid conforming to an outgroup source then results in the displacement of the conflict's resolution to a latent level. The context of knowledge diversity decreases the urge to reestablish the object's unity, deactivating the conflict, as categorisation largely justifies the differences (cf. Tajfel, 1972).

By inducing decentration, influence effects are reversed and the source gains in influence with the assumption of Black-White differences. Decentration and belief in perceptual differences induced the predicted effect: the socio-epistemic conflict is solved by the reconstruction of the object's properties through the integration of social diversity, validated by a representation of knowledge as a coordination of different approaches or specific centrations.

Conclusion

In this article, we presented experimental studies illustrating the effects of three factors on the reconstruction of the definition of objects usually inducing a representation of unity: the divergence of judgments, the pertinence of different social categories, and the use of different approaches. This is representative of the dynamics existing in the scientific community when one same phenomenon is given different definitions.

There are three, non exclusive, ways to come to different results in the scientific field. They are inherent to the fact that there are different theories or concepts of reference, that studies are elaborated by different groups or in different cultures, and that different methods can be used. These discrepancies are no problem if the studied object allows diversity and possesses a variety of properties, i.e when it is a "plural" object. Individuals easily accept that such an object may be apprehended by different theories, within different cultures or with different methods.

The problem of diversity in the scientific field emerges as soon as it is considered that an object can be seen and defined only one way, for instance in the case of a non-historical or empiricist conception of science. The clash between the social diversity in the scientific field and an exclusive representation of the object would be the basis of socio-epistemic conflict. From this point of view, a hypothesis could be that the social diversity of science conveys the risk of losing the object's unity through its scientific analysis. A way of solving the conflict would then be the endless reconstruction of an exclusive vision of the object, in such a way that each reconstruction of the object integrates social diversity. The conflict stemming from "being unique but seen differently" could therefore be solved by adding together or integrating into the object's definition the diversity of attributes resulting from its analysis (cf. Lakatos, 1978), at least as long as the accumulation of anomalies does not incite a change of paradigm (cf. Kuhn, 1970). As a conclusion, we shall consider that a paradigm such as Asch's does not only inform on the relational dynamics of conformity, but also on the socio-epistemic dynamics of the (re)construction of certain types of knowledge, namely those taken for granted because they are unique and exclusive.

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