

CONCERNING THE STRUCTURE OF SOCIAL REPRESENTATIONS*

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It is proving increasingly indispensable to study the structure of social representations in order to understand the representative phenomena concerned, and numerous authors now refer to this domain, albeit using diverse terminology. On the basis of detailed studies of a certain number of social representations, it is possible to put forward the cognitive postulate according to which a given body of information, specific to one social representation and considered as a whole, is *coherent*: it in fact reflects a cognitive structure, *thus* a coherent structure (Flament, 1989). This initial reflection leads inevitably to two questions to which current research in the field of social representations is beginning to provide some answers:

1. What is the principle which organizes the internal coherence of a social representation?
2. Is this principle equally capable of organizing behaviour?

This article will discuss the current answers which can be given to these two questions.

The internal organization of social representations

In reply to the first question, it seems that an increasing number of researchers are in agreement that social representations are organized around a central nucleus (Abric, 1984, 1987, 1989, 1993; Flament, 1987, 1989, 1993). This central nucleus is considered to be composed of a small number of elements which organize the entire representation by determining its meaning, and its essential property seems to be stability. The central nucleus is also considered to be the place of consensus of the representation (see Abric, in the current issue of this review). Other authors refer to the same notion, but using different terminology. Thus Doise (1990, p. 127) speaks of "*position-generating principles*" which "organize the symbolic processes taking place in social relations." For Mugny and Carugati (1985, p. 48), the representations of intelligence are organized around a "*hard core*": the age-old preoccupation with inter-individual differences. Grize, Verges and Silem (1987) demonstrate the existence of an "*organizing nucleus*" in the representations of work. Emiliani and Molinari (1992), finding such a structure in relation to the representations of the child, designate it by the term "*common core*". Finally, Jodelet (1989, p. 377) uses the term "*representative nodal*" to refer to the organizing dimension of the social representations of mental illness.

A certain number of recent experimental studies show that the constituent elements of a social representation can now be distinguished according to whether they are central or peripheral (Guimelli, 1993 a; Moliner, 1989, 1992; Verges, 1992), or if they attest to the structuring character of the central system. Thus, Moliner (1989; see also Flament and Moliner, 1989), analysing the social representations of the ideal group, clearly demonstrated that when doubt is cast upon a central element, this provokes the collapse of the entire

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representation, something which does not occur by calling into question a peripheral element. In other words, only the central system appears to be necessary for the mobilisation of the representation as a deciphering tool of a given reality; or, if one prefers: it is the central system alone, which structures the entire representational field. Other experimental results (Abrie, 1989) support these findings. During a memorization task, subjects memorized the central elements of the social representations of the artisan better than the peripheral elements. Furthermore, and this is the result of greatest interest, when the central elements were absent from the list to memorize (the situation in one of the experimental conditions), these elements were nevertheless recalled by the subjects. In other words, even though the central elements are not available, they are essential to the subjects who produce them themselves and include them unprompted in their recall. It is probable that in this way the subjects intuitively try to restore meaning and coherence to a material which, without the central elements, would remain too weakly structured and, consequently, difficult to memorize. So it is indeed the central elements which are at the origin of the meaning and coherence of a given structure. In this domain, the role of the peripheral elements is very probably minor. Their meaning would seem to depend on the central system. On the other hand, the peripheral elements can be considered as playing a fundamental role as soon as one comes to analyse the processes which are at the origin of the *dynamics* of social representations. It is, in fact, in this domain that the functions of the peripheral system have been most widely studied (see in particular Flament, 1993). The peripheral elements are generally considered as schemas (on the notion of schema, see Fayol and Monteil, 1988). Directly derived from the theory of scripts (Schank and Abelson, 1977), schemas can be defined as sequences of information which are acquired by subjects during the course of their personal and social life. They thus allow them to act or behave in a particular manner in a given situation (prescriptive schema) or alternatively, to describe that situation (descriptive schema). Flament (1993), who made this distinction, considers that peripheral elements are for the most part prescriptive schemas. It is these elements which relate directly to the social practices connected with the object of the representation (precisely on account of their prescriptive aspect), whilst it is the central system which makes them legitimate. According to Flament, the central nucleus is also composed of prescriptions, but these are "absolute" (unconditional), whereas the prescriptions pertaining to the peripheral schemas are "conditional", that is they are liable to vary depending on the conditions in which they operate. In other words, the same peripheral schema could prescribe different behaviour according to the situation in which the subject finds himself.

This conception allows a better understanding of how social representations are transformed. The cognitive processes which are at the origin of the transformation of social representations can take various forms (Flament, 1993), but it seems that in many cases it is the role of social practices and particularly *newly-introduced* social practices, which can be considered as the determining factor. In the particular case where the new practices *are not in contradiction* with the old social representations, the transformation process can be described as follows, bearing in mind that all the conditions (1) must be united for the transformation process (2) to take place :

1. The conditions for the transformation of social representations

1.1. An event characteristic of a *high degree of implication* for the group appears: the reference to the degree of implication is fundamental here. In fact, events cannot be measured on an objective scale of importance. What matters is their particular "cognitive image" for one

group or another, or rather it is their value as a system of reference for certain groups but not for others (Rouquette and Guimelli, 1992). If one prefers: an event will be considered particularly significant for a group when it has had a profound impact on the history of that group.

1.2. The circumstances external to the representation (that is the momentary characteristics of the physical and/or economic and/or social environment in direct relation with the object of the representation) are greatly modified in a way which is detrimental to the group, as a result of the event in 1.1. As soon as this happens, the modification of the circumstances challenges the traditional practices which tend to lose their pertinence.

1.3. The challenge to the traditional practices is perceived by the group as *irreversible*. In fact, in the contrary situation, the subjects will probably wait for the return of the conditions *in statu quo ante*, preferring to put up with the contradictions for a time rather than having to reorganize the field of the representation which would entail considerable cognitive effort (Flament, 1993).

2. The process of transformation

2.1. If the three preceding conditions are united, new practices are likely to appear, permitting the group to adapt to the new circumstances. They will impose themselves on the subjects and from then on will become more and more frequent *in the group*.

2.2. If the new practices are not in contradiction with the old representations, the schemas which prescribe them will be legitimate and available in the representational field. The new practices will therefore *activate* these corresponding schemas and this will probably occur in proportion to the frequency of their implementation.

2.3. The added weight of the newly-activated schemas gives them an increasingly important role in the representational field: they appear more and more frequently in the discursive production of the subjects and, as we shall see later, the number of relations which they maintain with the other elements of the field also increases.

2.4. The activated prescriptive schemas combine in one unique and unitary concept which then becomes the central nucleus of the representation and so ensures the coherence of the total structure. This process of fusion appears likely each time a significant number of schemas are highly activated by the corresponding practices. In fact, their activation and integration in the existing structure modifies the representational field, making it increasingly complex. Now, we know that the basic principles of cognitive economy demand that cognitive reorganizations be kept to a minimum. Consequently, it is reasonable to suppose that the fusion of the highly activated prescriptive schemas into one unique global concept constitutes one of the most economic ways to reduce and simplify the representational field.

Insofar as this process has been observed with regard to the contents of representations as diverse as hunting and nature (Guimelli, 1989) or the function of a nurse (Guimelli and Jacobi, 1990), we can put forward the general hypothesis that it occurs whenever the aforementioned conditions are united. Furthermore, it should be noted that in this case it is a question of a progressive structural transformation: the central nucleus of the representation changes state, but without a sharp break with the past history of the group. It is a new organizing principle, more far-reaching and with more numerous inclusive relations, which from now on ensures the coherence of the entire representation.

Social representations and the organisation of behaviour

We know that, for Moscovici (1961), social representations constitute "a guide for action" and that, more precisely, one of their essential functions is "to contribute to formative processes and to processes which orient communication and social behaviour." (Moscovici, 1961, p. 307). A large number of experimental studies support this hypothesis and demonstrate that the behaviour of individuals or of groups is not determined by the objective characteristics of the experimental situation in which the subjects find themselves, but by the representation which the subjects form of the situation (Fauchaux and Moscovici, 1968; Apfelbaum, 1969; Codol, 1972; Doise, 1976; Snyder and Swann, 1978, cited in Moscovici, 1982; Abric, 1987). So, we might assume that the central nucleus plays an essential role at this level too. In fact, insofar as it organizes the entire representational field, the central nucleus constitutes by itself, what Doise (1990, p. 127) designates by the term "position-generating principles". Or, if one prefers: as an organizing principle, the central nucleus prevails over all the others and, for this reason, it will generate positions (values, attitudes, opinions, behaviour...) which would be:

- from the point of view of social relations: the most important socially;
- from the point of view of relations with the object: the most essential and the ones which affect the subject most.

Some recent empirical results (Guimelli, 1993 b) will enable us to illustrate these proposals. This study was concerned with an entire group of student nurses (N = 37) coming to the end of their course at a nursing college. The subjects had reached the final stage of their training and therefore had to decide on the direction they would take in their professional career. As for any student, choosing the first job is an important decision which greatly affects many aspects of one's later professional life. With regard to the function of a nurse, the subjects' choice could be made in two directions having objectively very different professional consequences: either they could choose to be employed in the public sector (in a state hospital, with the notable aspect of job security) or alternatively, they could become self-employed (home nursing) or work in the private sector (in "cliniques"¹).

Observations indicated that 16 of the 37 subjects in the study had chosen the public sector and the remaining 21 the self-employed or private sector. It must be noted that it was a question of a real choice for the subjects, required by the college at the end of their course and not just a hypothetical choice which could have been obtained by a questionnaire. As we saw previously, the theory suggests that this decision, insofar as it affects the subjects significantly, will be determined by the central nucleus of the social representations pertaining to the function of a nurse. If we want to test this hypothesis, the central nucleus of the representation must first be located. An initial study (Guimelli and Jacobi, 1990) enabled us to demonstrate the transformation process (see above) of the social representations of the function of a nurse. This study showed that over the past few years, new nursing practices, seeking to look after the patient on a relationship level as well as taking care of his medical requirements, have become more and more frequent in care units and have highly activated the corresponding schemas. The activated schemas have thus combined to form one unique concept, *the proper role*, which now designates a field of intervention specific to nurses, in which they have real autonomy and apply their own knowledge. The results of this first

¹ In the French system "cliniques" are private hospitals. From now on in the text the term "hospital" will imply a state hospital as opposed to private "cliniques".

approach thus suggest that the concept of proper role has become central in the representation of the function of a nurse.

These results have been confirmed by a second study (Guimelli, 1993 b), using a fundamentally different methodology. The empirical procedure employed is derived from the *model of basic cognitive schemas* (Rouquette, 1993). According to this author, a large part of the subject's knowledge, including notably, social knowledge, can be modelled in the form of sequential structures of the type (A op B), where the inductor "A" and the induced "B" are lexical elements designating indifferently a word or expression, and "op" is a formal operator of relation. The operators are considered as identifiable, able to be formalized and of a finite number. Furthermore, they are organized into stable primitive families designated by the term "basic cognitive schemas" ("Schèmes Cognitifs de Bases" or SCB). At present we can identify five SCB, in which 28 operators are distributed. We must also add the nul operator, making a total of 29 operators: LEXICON (3 operators), FAMILY (3), COMPOSITION (3), ACTION (12) and ATTRIBUTION (8). Each operator is designated by a "trigramme" (a 3-letter term) and has a formal definition. For example, the operator of synonymy, belonging to the SCB "LEXICON" is designated by the trigramme SYN and defined as follows: "reference to a term which is synonymous or equivalent in usage." The statement (A op B), in which A refers to B by the bias of the operator op, represents a particular piece of knowledge of the individual. Thus, one can have the statement (Psychoanalysis SYN Confession) which could be translated as "psychoanalysis is like confession."

The empirical procedure derived from this model (Guimelli and Rouquette, 1992; Guimelli, 1993 b) consists in the presentation of a questionnaire which has three successive stages:

a) word association task: the subject has to associate an inductor term with three words or expressions which come rapidly to mind. We thus obtain three replies (or induced items) R1, R2 and R3.

b) justification of the replies from the word association: for each reply, the subject is then asked to give a written explanation, in one or two sentences, of why he replied as he did (for a theoretical and empirical justification of this stage, see Guimelli and Rouquette, 1992). Let us just say that one of the aims of this stage is to prepare the subject for the following task.

c) analysis of the relations inductor item/induced items: the subject is presented with the 28 operators in the form of standard expressions: the formal definitions are translated into everyday language, thus making them understandable for the naïve subject. So, for example, for the operator SYN, the subject is not presented with the operator in the form "reference to a term which is synonymous or equivalent in usage" (formal definition), but in the form "means the same thing, has the same meaning as" (standard expression). The subject must then decide if yes, no or perhaps, the standard expression reflects the relation between the inductor item and his own reply. He analyses all 28 standard expressions in this way, for each of his three replies in turn (R1, then R2, then R3). So at the end of this task he has given 84 replies.

The SCB model and the derived empirical procedure can no doubt contribute to a fine analysis of social representations. With regard to the location of the central elements, the data are analysed using a parameter of *valency* which can be defined (in the way this term is used in chemistry) as the property of an item to enter into a greater or smaller number of relations of the type (A op B). At an operational level, the valency of an inductor item is calculated

from the ratio of the number of operators activated (the number of "yes" replies to the standard expressions) to the total number of replies in the population (28 standard expressions x 3 replies x N). Thus, the more operators which are activated, the higher the valency of an inductor item. Consequently, if, as the theory predicts, the central elements organize the entire representational field, then they should enter into a considerable number of relations with the other elements of the field. In any event, *their valency should be much higher than that of the peripheral elements*. Some experimental results confirm this hypothesis (Guimelli, 1993 a): the analysis of the social representations of the ideal group using this procedure demonstrated that the valencies of the central elements were significantly higher than those of the peripheral elements ($p < .001$). Furthermore, a number of other analyses, carried out on different objects of representations, indicate that there is a strong likelihood of an inductor item being central in the representation when its valency is higher than .50.

Returning to the social representations of the function of a nurse, we saw that after transformation, the representations were organised around a new concept, the proper role, which, very probably, now constitutes the central nucleus. If the empirical procedure relating to the SCB model is applied to the contents of these representations, by asking groups of nurses to carry out the word association task with the inductor term "proper role" and evaluate the relations between this term and their own replies, very high valencies are observed. In particular, in the case where the subjects regularly implement the new practices, the valency of the inductor item "proper role" is .74. Thus these results support the findings of the first study and confirm the centrality of this element in the representation.

And so we can now suppose, in view of the hypothesis which states that the central nucleus alone determines those decisions which particularly affect the subjects, that it is the concept of proper role which is at the origin of the professional choice of the student nurses in our study. To test this hypothesis (Guimelli, 1993 b), each of the 37 student nurses was asked to reply to a questionnaire consisting of 15 statements relating directly to care duties. Each statement was in the form of a short sentence. For example, statement n°1 was as follows:

"Generally, the care given in a hospital is of high quality."

For each statement, the subjects had to show their agreement (or disagreement) on a 4-point scale (from completely agree to completely disagree). Each of the 15 statements referred to one of the following fields of activity: quality of service given, working conditions, proper role, relations with the hierarchy, carrying out medical instructions, pay and the use of specific equipment. For example, statement n°1, presented above, refers to the domain "quality of service given". Two of the fifteen statements referred to the domain "proper role":

n°3: In a hospital, the delegated role is more important than the proper role.

n°7: In a hospital, the conditions are united to allow a nurse to exercise her proper role.

The results indicate that only these two statements differentiate the replies of the two sub-groups, characterized by different career choices. The degree of agreement for statement n°3 was significantly higher for the subjects choosing the self-employed or private sector ($p < .10$), whereas disagreement was higher for these same subjects for statement n°7 ($p < .05$). In other words, when the student nurses think on one hand that in a hospital the delegated role (carrying out medical instructions) has more importance than the proper role, and on the other hand that conditions in a hospital are not united for a nurse to be able to exercise her proper role, they choose the self-employed or private sector. To say it in yet

another way, when the student nurses think that *the proper role of a nurse is called into question in a hospital*, they do not choose to follow a career there, but prefer the self-employed or private sector. No other significant difference was observed for the remaining thirteen statements. Thus it is not the working conditions, the relations with the hierarchy, the pay proposed by the hospital, etc... which influence the professional choice, but the manner in which the conditions to exercise the proper role are perceived.

These last results demonstrate firstly the determining role which social representations can play in choices which are particularly significant. But above all, they confirm that it is indeed *the central elements* (here the proper role) *and not the other aspects of the representation, which intervene massively and in a decisive manner in the orientation of action.*

References

- Abric, J.C. (1984): A theoretical and experimental approach to the study of social representations in a situation of interaction. In R.M. Farr and S. Moscovici: *Social Representations*. Cambridge: Cambridge University Press, 169-183.
- Abric, J.C. (1987): *Coopération, compétition et représentations sociales*. Cousset: DelVal.
- Abric, J.C. (1989): *L'étude expérimentale des représentations sociales*. In D. Jodelet (Ed.): *Les représentations sociales*. Paris: PUF, 187-203.
- Abric, J.C. (1993): *Les représentations sociales: aspects théoriques*. In J.C. Abric (Ed.): *Représentations sociales et pratiques*. Paris, PUF, in press.
- Apfelbaum, E. (1967): *Représentations du partenaire et interactions à propos du dilemme des prisonniers*. *Psychologie Française*, 12, 4, 287-295.
- Codol, J.P. (1972): *Représentations et comportements dans les groupes restreints*. Thèse de 3ème cycle. Aix-en-Provence: Université de Provence.
- Doise, W. (1976): *L'articulation psychologique et les relations entre groupes*. Bruxelles: De Boeck.
- Doise, W. (1990): *Les représentations sociales*. In R. Ghiglione, C. Bonnet et J.F. Richard (Eds.): *Traité de Psychologie Cognitive. 3: Cognition, Représentation, Communication*. Paris: Dunod, 113-174.
- Emiliani, F. and Molinari, L. (1992): *Structure and function of social representations: images of child and theories of development*. Communication, First International Conference on Social Representations, Ravello (Italy).
- Fauchaux, C. and Moscovici, S. (1968): *Self-esteem and exploitive behaviour in a game against chance and nature*. *Journal of Personality and Social Psychology*, 8, 1, 83-88.
- Fayol, L. and Monteil, J.M. (1988): *The notion of script: from general to developmental and social psychology*. *Cahiers de Psychologie Cognitive/European Bulletin of Cognitive Psychology*, 8, 4, 335-361.
- Flament, C. (1987): *Pratique et représentations sociales*. In J.L. Beauvois, R.V. Joule et J.M. Monteil (Eds.) *Perspectives cognitives et conduites sociales*. Tome 1: *Théories implicites et conflits cognitifs*. Cousset: DelVal, 143-150.
- Flament, C. (1989): *Structure et dynamique des représentations sociales*. In D. Jodelet (Ed.): *Les représentations sociales*. Paris: PUF, 204-219.
- Flament, C. (1993): *Pratiques et représentations sociales*. In J.C. Abric (Ed.): *Représentations sociales et pratiques*. Paris: PUF, in press.
- Flament, C. et Moliner, P. (1989): *Contribution expérimentale à la théorie du noyau central d'une représentation*. In J.L. Beauvois, R.V. Joule et J.M. Monteil (Eds.): *Perspectives cognitives et conduites sociales*. Tome 2. *Représentations et processus cognitifs*. Cousset: DelVal, 139-141.
- Guimelli, C (1989): *Pratiques nouvelles et transformation sans rupture d'une représentation sociale*. In J.L. Beauvois, R.V. Joule et J.M. Monteil (Eds.): *Perspectives cognitives et conduites sociales*. Tome 2: *Représentations et processus cognitifs*. Cousset: DelVal, 117-138.

- Guimelli, C. (1993 a): Locating the central core of social representations: towards a method. *European Journal of Social Psychology*, in press.
- Guimelli, C. (1993 b): La fonction d'infirmière: pratiques et représentations sociales. In J.C. Abrie (Ed.): *Représentations sociales et pratiques*. Paris: PUF, in press.
- Guimelli, C. et Jacobi, D. (1990): Pratiques nouvelles et transformation des représentations sociales. *Revue Internationale de Psychologie Sociale*, 3, 3, 307-334.
- Guimelli, C. et Rouquette, M.L. (1992): Contribution du modèle associatif des schèmes cognitifs de base à l'analyse structurale des représentations sociales. *Bulletin de Psychologie*, N° spécial: *Nouvelles Voies en Psychologie Sociale*, XLV, 405, 196-202.
- Grize, J.B., Verges, P. et Silem, A. (1987): Salariés face aux nouvelles technologies. Vers une approche sociologique des représentations sociales. Paris: Editions du C.N.R.S.
- Jodelet, D. (1989): *Folies et représentations sociales*. Paris: PUF.
- Moliner, P. (1988): Validation expérimentale de l'hypothèse du noyau central des représentations sociales. *Bulletin de Psychologie*, XLI, 759-762.
- Moliner, P. (1992): Structure de représentation et structure de schème. *Cahiers Internationaux de Psychologie Sociale*, 2, n°14, 48-52.
- Moscovici, S. (1961): *La psychanalyse, son image et son public*. Paris: PUF, second edition 1976.
- Moscovici, S. (1982): The coming era of representations. In J.P. Codol and J.P. Leyens: *Cognitive approaches to social behaviour*. La Haye: M.Nijhoff, 115-150.
- Mugny, G. et Carugati, F. (1985): *L'intelligence au pluriel: les représentations sociales de l'intelligence et de son développement*. Cousset: DelVal.
- Rouquette, M.L. et Guimelli, C. (1992): Sur la cognition sociale, l'histoire et le temps. *Temporalistes*, n°22, 4-15.
- Snyder, M. and Swann, W.B.Jr (1978): Behavioural confirmation in social interaction: from social perception to social reality. *Journal of Experimental Social Psychology*, 14, 148-162.
- Verges, P. (1992): L'évocation de l'argent: une méthode pour la définition du noyau central d'une représentation. *Bulletin de Psychologie*, N° spécial: *Nouvelles voies en psychologie sociale*, XLV, 405, 203-209.
- Schank, R.C. and Abelson, R.P. (1977): *Scripts, plans, goals and understanding*. Hillsdale: Erlbaum.

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