The role of installations in building representations and similar practices in a population

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1 The intersubjective understanding of objects

Experience shows members of a population each hold similar individual representations of many "objects" of their culture. By "objects", I mean material objects (chairs, bottles…), material compounds of "things that move together" (suit, fleet …), conceptual objects (space, time, democracy…) and even heterogeneous compounds that "go together" (city, hospital, dinner…). This can be easily checked: people are able to name objects properly ("this is a chair"), cooperate locally using indexicals ("pass me the salt please") or even communicate complicated arrangements of complex objects (e.g. when you, reader, are understanding this chapter).[1].

So 1) we are able to connect a phenomenon external to our mind (the object) to a mental structure internal to our mind (the representation) that matches the object in some structural or functional manner, such that the representation will enable recognition of the object and acting upon it in a relevant manner. And 2) for a given object, different individuals in a given culture will each hold similar representations, in such manner they can communicate and act in a relevant manner about that object.

Let us call this phenomenon *the intersubjective understanding of objects* as we need a short-hand to discuss the nature of social representations. That intersubjective understanding of objects is not merely about communication. It comes with the constructivist assumption that participants refer to "the same" object. When I say "pass me the salt" to my neighbor at the dinner table, we both assume that we talk about this little container of white powder on the table. That seems obvious. Now if I

[1] This chapter is a revised version of a paper published in 2021 in the *RUDN Journal of Psychology and Pedagogics*, 315-331.

tell my neighbor in the voting line "please vote for the best candidate for democracy" we realize that the agreement on "what you think is what I think" is not so trivial. Still intersubjective understanding works well enough for everyday objects; and therefore this" psycho-social pact" (Lahlou, 2006) is at the root of our social construction of reality, and of the naïve realism which is the implicit assumption behind our everyday life interactions.

While the above intersubjective understanding of objects may appear obvious as an empirical fact, in practice that means that members of a culture each individually house similar mental representations for thousands, of "objects", which is in itself remarkable and *a priori* improbable. His improbable fact nevertheless grounds our capacity to act as members of a culture, grounds the intersubjective understanding of objects. How come we have similar representations? This problem of "common knowledge" and "common sense" has been theorized extensively by Serge Moscovici and his school, with the concept of "social representations".

Social representations are:

"A form of practical knowledge linking a subject to an object" (Jodelet, 1989, our translation)

"It is a form of knowledge, socially elaborated and shared, with a practical aim and contributing to the construction of a reality common to a social set." (Jodelet, 1989, our translation)

These definitions highlight that a social representation has an object, and a population of subjects using this representation in intentional manner regarding that object.

To facilitate the discussion below, let us fix a few definitions:

- The *object* of representation is what the representation "is a representation of": in practice what the representation *stands for* in thought or communication. E.g. the object of "the representation of psychoanalysis" is psychoanalysis.
- The *population* is the set of individual subjects who use this representation.

The representation appears "social" in two aspects: in its genesis, as it is *socially constructed*, and also in that property described above, that it seems, empirically, to be "*common"* to all members of a society.

The latter phenomenon has often been described as members of a culture "sharing" representations. In fact individuals don't "share" the representations, they simply each have similar individual representations, just as two people wearing the same model of shoes do not "share" their shoes, they have similar shoes. The seminal texts on social representations failed to address the ontological issue clearly: there seemed to be no difference between social representations and individual (mental) representations. In fact, reading them one could assume that social representations were a specific type of individual, mental, representation: the ones that were "shared", and by this we should understand that each individual would house his or her own exemplar of "the" social representation, just like at some point in history each good

Published in : Papastamou, Stamos ; Moliner, Pascal (Eds.), *Serge Moscovici's work. Legacy and perspective*, Editions des Archives contemporaines, ISBN: 9782813004314, doi: 10.17184/eac.9782813004314

Chinese citizen would have his/her own copy of Mao's book. This seems acceptable as long as every individual would hold the exact same representation. Then there would be no need to distinguish individual representation from social representation.

But this it does not fit with the empirical data. Different persons hold slightly different individual representations of the Object. Researchers using the social representations concept have all, including from the very start Moscovici himself, been confronted to that problem.

2 Individual differences in representation

To analyze social representations (SR) of the object, what we collect are individual representations (IR) of the object. Typically, members of the population are asked to describe the Object, through interviews, questionnaires or some other device. The social representation is then usually considered what is "common" to those discourses collected. The empirical finding that individual versions of a social representations are different must be accounted for since individuals are supposed to have the same social representation. This generated a series of theoretical responses which were operational in practice but, as I argue below, epistemically inappropriate.

Moscovici was the first to encounter the problem of differences in IR. He addressed that by considering there are different types of social representations, depending on their stage of development. The representations can be hegemonic, emancipated or polemical (Moscovici, 1988), depending on the degree of consensus (in practice: of similarity) of individual representations of the object among the population. Remember the theory initially addressed unfamiliar objects that would be made familiar through the construction of a social representation. For example, when a new object enters the social field (e.g. psychoanalysis, AIDS) there might be some conflicting views in different segments of the population, hence several competing versions of the ("polemical") social representation. But in the end, when the social group has reached some consensual view, the representation may become hegemonic (everybody has the same IR).

In fact, there always remain some differences in a population regarding an object, especially according to socio-economic status. Doise (1986) came up with the notion of position taking regarding the object ("prises de position"): this may account for the fact that in practice we collect different versions from different subjects, even on objects that have been around for a long time.

Another empirical issue occurred. It turns out that even the same person can mobilize different IR of the object in different circumstances. For example, one might exhibit a scientifically correct representation but in some cases use another one (e.g. magical, religious, traditional etc.). To address this issue, Moscovici, in his seminal book on social representations, came up with the notion of "cognitive polyphasia" (Moscovici, 1976/2004, p. 282): the idea that different kinds of knowledge, possessing different rationalities can coexist in an individual or a population. That notion, while locally dealing with the empirical facts, raises serious epistemic issues: if there is polyphasia, which of the various versions "is" the social representation? Or are there different

Published in : Papastamou, Stamos ; Moliner, Pascal (Eds.), *Serge Moscovici's work. Legacy and perspective*, Editions des Archives contemporaines, ISBN: 9782813004314, doi: 10.17184/eac.9782813004314

objects? Interestingly, Moscovici writes a series of caveats about the limitations of theories in general[2] and suggests that much research remains to be done on social representations.

Finally, it was noted empirically that the representations that are given explicitly by people are in some cases not exactly what they think. Respondents tend to give researchers "politically correct" versions of the representation –a case of the desirability bias, and more generally of the responses bias where respondents tend to tell the researcher what they think the researcher wants to hear (Rosenthal, 1966). For example, respondents would not make explicit that their representation of the unemployed people includes laziness. Abric and collaborators described this as the "mute zone" of social representations (Abric, 2003b). This draws our attention to the idea that what we observe empirically are IR expressed by individual subjects, while "social representations" are a research construct, designed to address the phenomenon of mutual social understanding.

The assumption has usually been made that the observables (subjects' discourse) are of the same nature as the construct (social representation). This assumption is not explicit in the literature; but it is clear from the way the empirical material (usually discourse, or items of discourse) is analyzed and directly used into the description of the social representation, that we act as if these two entities (IR expressed by subjects, and SR) were made of the same epistemic fabric. I will argue here that it is not the case.

3 A formal definition of social representations, and two ways they can be described

As noted above, there is ambiguity in the core texts regarding the epistemic status of social representations; this has been noted many times, right from the early days of the theory's success (Billig, 1988; Jahoda, 1988; McKinlay & Potter, 1987; Potter & Edwards, 1999; Potter & Litton, 1985; Potter & Wetherell, 1987). The lack or formalism in the definitions allows looseness in the discussion and the confusion between individual and social representation has been detrimental to the advancement of the theory. So let us clarify here.

An Individual representation (IR) of an Object O is a symbolic structure that individual subject uses to deal cognitively with the Object. This structure "stands for" the Object in thought, communication and action. A representation can be embodied (in the form of neural network); it can be projected in some medium (speech, writing, drawing), etc.

4 A Social representation (SR) of an object O in the population P is *the set* of individual representations of O in P

E.g. the social representation of "Contraception" in the UK will be the full set of all IR of what contraception is for the members of the British population (a set of

[2] "Une théorie ne recouvre jamais les données empiriques. Elle est débordée et les déborde » (Moscovici, 1976/2004, p. 289)

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more than 60 million IR). IR and SR are different *in nature and logical type.* IRs are included in the SR, but the SR is *not* an IR. A set cannot be an element of itself. So no individual can "have" a SR, individuals can only have IRs.

Still, an individual usually does hold an IR that has characteristics similar to the modal or the mean IRs in the population. The components of that specific individual's IR will usually be similar to those of the other individuals in the population. E.g. most individuals in the population will know that contraception has something to do with avoiding reproduction when having intercourse, and most people will be aware of the most usual means for this (pill, condoms etc.) But there will be individual variations in knowledge and attitude, and variations in practice, between individuals and even for a given individual according to circumstances; there will also variations in what people say about it and likely there will some mute zones (e.g. depending who they talk to); etc.

So how can we describe social representations properly? Mathematically, in the theory of sets (Cantor, 1874; Halmos, 1974; Runde, 2005) a set can be described in *intension* or in *extension.* An *intensional* description defines a set by some properties of its elements (usually a rule or semantic description; necessary and sufficient conditions). E.g. an *intensional* definition of "Birds" could be "Animals with wings": {x *Animals*: x *has wings*}. An *extensional* definition explicitly lists all the individual elements of the set. An *extensional* definition of the clients of a bank would be the listing of all the names of these clients. Extensional definitions are accurate and explicit, nevertheless they becomes impractical for large sets.

5 The problem with describing social representations

Social representations, as any set, can be defined in intension or in extension. In practice, because of the huge size of the sets, SRs are defined in intension. This definition is empirically obtained through statistical techniques, by inferring the properties of the social representation from a sample of the set.

Individual mental representations are observable empirically, for instance by asking a sample of individuals to talk about the object (e.g., "If I tell you 'Democracy', what comes to your mind?"). From this sample one extracts (through content analysis) a description of the elements of the set. Then one infers statistically the intensional definition of the set. For example, the SR of "Studying" is found by (Lheureux, Rateau, & Guimelli, 2008) to contain the following cognitive components: *Knowledge, Investment, Diploma, Culture, Future, Work, Job, Long term, University*; this is obtained through questionnaires filled in by a sample of students. *The set (SR) can then be described in intension by these components which are characteristic of the elements (IR) of the set.* What is tricky is that, when we describe the SR, we use words to refer to content traits, just as we do when we describe IRs. For example: Knowledge, Diploma, Culture, University are typical components of *individual* representations of "Studying"; and it is the same words we use to describe the components of the *social* representation of Studying. This is dangerous because there is a difference in *logical type* (Russell, 1908; Whitehead & Russell, 1962) between IR and SR; and making confusions between logical types brings errors and paradoxes.

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If we do not distinguish properly, with the right formalism, between the element and the set, we may attribute to the SR (the set) properties that lay in the element (IR), and vice-versa. While for some properties that is not problematic, for others that is a disaster. Harré (1984) aptly spotted the issue in a critic of social representation theory:

"The weight of an army is a distributive property, while its organization is a property of the collective. As far as I can see, the concept of *représentation sociale* is used by the French school as a distributive property of groups".

Let us illustrate with the analogous problem of the biological species. We could account for the fact that in the species of Dogs there are small and big dogs by saying that the species is polemical and not hegemonic, or account for the fact that not all dogs bark when observed by calling "barking" a mute zone of the species, etc. But describing the Dog species as a population is a more rigorous approach because it acknowledges the various factors of diversity in the population. We do not need to invent names of properties for the Dog species to account for the distribution of some *individual* characteristics (e.g. size) across elements of the species (individual dogs).

Defining social representations as the set of individual social representations is a clean epistemic solution to the problem of the relation between IR and SR.

Interestingly, this theoretical clean-up has little practical implication on the way social representations research is done, because researchers have in their empirical practice always acted as if the SR is a set of IR. Indeed, as said above, when a set is described, it is done so usually *in intension* (see below) as the list of common properties of the elements of the set ("a Mammal", "that barks", etc.). And *in practice* social representation specialists do indeed extract these common properties by comparing individual representations, which is precisely extracting a representative sample of the set of individual representations –implicitly acting as if the social representation was thatset. Nevertheless, this clarification has theoretical implications, and considering SR as sets it is necessary to take an evolutionary perspective (Lahlou, 2015). Indeed it is through the variation of individual representations that the social representation evolves, just as a natural biological species (e.g. Finches) evolves as a population through the variation of individuals. That is why this new definition, which is operational in practice *and* epistemically appropriate, should be used.

In passing, our definition clarifies in terms of statistical distribution what are the different types of social representation -hegemonic vs polemical etc. In hegemonic representation that the set has little variance, while in polemical representations there will be subsets of the population that are homogeneous as a subset but differ from the other subsets. And for "cognitive polyphasia": a given individual can have several representations of the "same" Object, which they use alternatively according to the circumstances in which the Object appears (e.g. the same person might use different contraception methods depending on the situation).

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6 A social representation is more than a set of similar representations

The theory of sets brings us useful formalism to distinguish the nature and logical type of social vs individual representations. Nevertheless it does not do justice to what a SR is: a SR is more than a set of similar IR. It gathers IR that are linked both functionally (to their object) and socially (to their population).

The IRs that constitute an SR emerged to facilitate action and communication about an Object of the life world, among a specific population (e.g. how British people should deal with contraception, how students and teachers should deal with education etc.) That is the *intersubjective understanding of objects* alluded to in introduction. Therefore, those IR of the same SR all point to the same empirical phenomenon "out there" and their content is designed for operational effectiveness of the representation, for practice and communication. Simply said, representation must "match" reality well enough to enable the population to deal efficiently with the object. IRs are not independent of each other within the population. In practice, as members of the population communicate and cooperate, their IRs crossbreed (there is discussion, controversy, influence, education. That facilitates homogeneity of the set of IR.

These two aspects (functional and social) are intertwined because practice is a social process. To sum up, a SR is a set of IRs which are linked together because they refer to the same Object in a given Population. They are connected together by the social practice of that Object in that Population, and they are linked to the Object and the Population by the process of social construction of the Object, by which practice continuously reconstructs the Object.

There is inevitably variability between the IR, within individuals and across individuals. The variability reflects the different practices which different members of the population have with the object, across time and space. Still this variability is limited by the functional constraints of practice and communication, as those who actually co-interact with the object must have a minimum of common ground to interact. These functional restrictions ensure the coherence of the SR into more than a random set of similar IR. That is why SR differ from "memes" (Dawkins, 1976), and more generally why social representations theory is different from the naïve approach of "shared" representations, which considers a set of multiple replicated occurrences of a single representation, "copies" distributed over a population.

That was a clarification of what has for too long being ambiguity in the theory. Defining social representations as sets of IR is consistent with the very spirit of the concept. In fact, as noted above, all the empirical work on social representation is implicitly based on the idea that a social representation is a set, of which the characteristics are obtained by sampling elements (individual representations) from that set, and describing their characteristics based on what traits they have in common, which is typically the way of describing a set *in intension*. Retrospectively, the definition of SR as sets of IR provides solid epistemological ground for all techniques that describe SR based on surveys on samples of IR –in fact the immense majority of the studies in the field.

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7 Why individual representations are similar

Now we have a proper definition of a SR, we can address the question behind the intersubjective understanding of objects: how come that, in a given culture, individuals all hold individual representations that are so similar to one another?

Individual representations can be learned by education, by communication and by practice. In the two first cases, it is obvious that representations are in some way replicated from one individual to another, and therefore will be similar, albeit minor losses in translation. Diffusion of IR through these mechanisms accounts for similarity between individual representations among members of the same culture. But this does not cover all cases. Individuals who have never communicated may have similar representations. Furthermore, mere communication only provides theoretical knowledge of the object; in many cases direct experience is necessary to support actual practice, as is well known in instruction and training. Let us now look at construction of representations through practice.

The relation of representation to practice is (under various names and guises) a major topic in social science. Let us try to summarize in a paragraph what we know. In society, practices and representations reproduce each other (Berger & Luckmann, 1966; Bourdieu & Passeron, 1977; Giddens, 1984). During social interaction, individuals learn to behave properly (Goffman, 1974; Mead, 1972; Rogoff, 2003; Schütz, 1944). They acquire a common knowledge and skills, about local practices, typical of culture (Abric, 1994; Bruner, 1999; Durkheim, 1898; Foucault, 1978; Jodelet, 1989; Moscovici, 1961; Vygotsky, 1986). This knowledge is embodied in individuals and expressed in symbolic form (Barsalou, 2003; Freud, 1895; Karmiloff-Smith, 1992; Lashley, 1951). Then, once embodied, in situ knowledge and skills, combined with mediating structures distributed in context, produce practices (Barker, 1968; Cicourel, 1992; Hutchins, 1995; Maturana & Varela, 1980; Suchman, 1987). As we see, the (re)production of representations involves the context and action in context, and that is where we must look for an explanation beyond education and communication.

The short answer to our question is that members of a given population hold similar representations because they interact with similar objects (those objects that make the life-world of that population). But furthermore, there are mechanisms that channel individuals to learn, through practice, similar representations.

Indeed, we could assume that, by trial and error, every individual would gradually construct, of a given Object, its own IR of that Object. Then, as all members of the Population interact with the same object, they would in the end converge. But trial and error is a slow process, and convergence is not guaranteed. Anyway, investigation shows that is not how things are done. There are socially constructed devices, "installations", which channel behavior of members of a given population into predictable, typical, sequences. These installations include material affordances that guide action and social mechanisms of feed-back that reward those who use « proper » representations vs « improper » ones.

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8 Installation theory

In society, individual behavior is predictable. Full grown members of a population know how to behave in standard social situations such as "a dinner", "at the dentist", "a flea market", "a shower", "an election", "a tribunal", "a wedding", "a conference" etc. Sometimes we only know approximately, but when in situation the context and other people give us enough scaffolding and feed-back to channel us into the proper behavior. Let us call installations *the specific, local, societal settings where humans are expected to behave in a predictable way* (a dinner, an election, etc.). Installations consist of a set of components that simultaneously support and control individual behavior. The components are distributed in three layers: a) over the material environment (affordances[3]), b) the subject (embodied competences) and c) the social space (institutions[4], enacted and enforced by other subjects). These components assemble at the time and place the activity is performed.

Installations channel individual behavior. The affordances provide feed-forward and feedback. Representations and other embodied skills allow the subject to interpret the objects and the situation. Finally social feed-back funnels behavior into what is expected: proper behavior is reinforced by positive feed-back while improper behavior is extinguished by negative feed-back. Through the social feed-back (and also the outcome of behavior), operant conditioning takes place which facilitates embodiment of « what should be done in such situations ». For a detailed description, see (Lahlou, 2018).

Let us take a simple example: when you take the train, from the moment you enter the station to the moment you step out of your destination station on arrival, you take very few personal decisions: your behavior is channeled by a series of successive installations that guide and constrain your actions. You follow the flow. You still have some choices (which train, which car, which seat), but they are socially constructed. Affordances limit your options: you can only use the doors, tracks and seats provided. Then again you are limited by conventions (you must sit on your assigned seat, otherwise someone will ask you to do so). You have some freedom of action as you seat, but you are mostly supposed to seat quietly. Etc. In the end, you behave "properly" as a train passenger. Installations channel behaviors by two complementary mechanisms: constructive and restrictive. In a constructive manner, they offer, suggest and support specific behaviors. In a restrictive manner, they prevent some behaviors and repress those considered inappropriate. Most peculiar is this installation makes *everyone* behave properly, whatever their age, gender, nationality, religion, social status, personality etc.; therefore installations are stronger than all classic social, psychological or economic variables. *Note that IRs are embodied com-*

[3] "Roughly, the affordances of things are what they furnish, for good or bad, which is what they afford to observe. […] they are ecological, in the sense that they are properties of the environment relative to an animal. […] Affordances do not cause behavior but constrain or control it" (Gibson, 1982).

[4] Institution: "a cluster of social uses. It connotes a way of thought or action of some prevalence and permanence, which is embedded in the clothes of a group or the customs of a people. […] The function of a behavioral and behavioral approach to tolerance of an activity or a complement of activities" (Hamilton, 1932).

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petences about a specific Object. Therefore they are part of installations, they are a component of the embodied layer.

The three layers of installations (affordances of the material environment, social regulation by institutions and embodied competences in the subject) each limit and constrain behavior and leave open only some paths. As the three layers act simultaneously, the paths that behavior can take are the ones that are compatible with each of the three layers (what is possible, what is thinkable, and what is allowed), which leaves only a rather narrow set of possibilities. Furthermore, the redundancy of the layers of determination makes installations very resilient. Where one layer of determination fails to scaffold and control, others may repair. For example, if in the train you sit by error in the wrong car, someone will likely tell you and point you to the right seat, as also indicated on your ticket. This means that where the embodied layer fails, the physical layer (affordances) and the social layer (social feed-back) may kick in and repair.

There are many types of social regulation that produce embodiment of skills that are conform to social expectation: Role and status, Imitation, Conformity and zeal, Seeking guidance, Instruction and guidance, Influence and persuasion, Vigilante effect, Force and threat (Lahlou, 2018). For a detailed description of how installations construct embodied competences in general and representations in particular, refer to.

9 Installations produce similar individual experience, and hence similar IR

Individuals learn their IRs through practice. The IR of an object is built by the various types of experiences connected to that object (e.g. one will learn about democracy through experiences of votes, collegial discussions, elections, etc.) For many aspects of social life, practice is channeled by installations So most these experiences about the Object tend to be channeled by installations; hence the IR of an object tends to be constructed by the series of relevant installations present in a culture. Because installations are resilient, they induce similar behavior in all individuals that use them (e.g. all students will get similar experience of studying because schools are similar).

Indeed in large scale societies, installations are similar across a society (schools, airports, etc. are similar across the territory used by the population). By using these installations, members of a population are channeled into standard behaviors, and therefore they get similar experience, and hence similar IR. This similarity is reinforced by communication, often prepared by education and training. And in return, the representations contribute to rebuild the installation and the object, in a chicken-and –egg manner. I have no space to discuss further that point here, please refer (Lahlou, 2018).

10 Conclusion

A social representation (SR) is a set of individual representations (IR) of an object by members of a population of subjects who deal with this object. These IR are

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similar, and that similarity supports *the intersubjective understanding of objects* that characterizes a culture. What makes the set a social representation is not merely the similarity of IRs, but rather the relation of the population to the object of the SR, for which the SR is a functional, constructive instrument. The similarity of IRs in a population is constructed by education and communication, which homogenize IRs, but also by individual practice in relation to the Object. In large scale societies, practice is channeled by "installations", local combinations of components that scaffold and control behavior and experience into standard paths of action. Members of a culture behave through similar installations. This generalized channeling constructs similar experiences across the members of a population, and therefore contributes to members of a given culture having similar IR. Interestingly the process is reconstructive, since through installations practice reconstructs structure and vice-versa.

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