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Chapter 23
How Agency Is Distributed Through Installations
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Action Is distributed

Artifacts will help, support, or guide users in their activity through their culturally constructed properties. This idea emerged in various forms in history (Leroi-Gourhan 1965); philosophy (Simondon 1969); psychology (Gibson 1950, 1982, 1986; Uexküll 1925; Vygotsky 1978), design (Norman 1991), cognitive science (Pea 1994),and so on. Hutchins (1995), observing jet pilots, demonstrated that what flies the plane is not pilots alone but the whole cockpit, including instruments, checklists, mapsand so on. Cognition is "distributed" in its content as well as in its process. Objects that possess agency are called "actants" (Akrich, Callon, and Latour 2006), a term including acting humans and material objects alike. When describing activity emerging from subject-object interaction, some (Gibson, Norman, Latour) focus more on properties of the object, while others (Vygotsky, Uexküll) start from the subject. This chapter proposes a larger systemic view.

Over the last two decades, I analyzed human activity recorded from a first-person perspective, with "subcams"—miniature video cameras attached to glasses of volunteers performing their usual activity, at work or elsewhere. With participants we analyzed their recordings to make explicit their cognitive processes and the various elements involved in their action (Lahlou, Le Bellu, and Boesen-Mariani 2015; Lahlou 2011).

In doing so, it appears obvious that *action* is distributed and its determinants as well. For example, in the activity of preparing breakfast, we can observe that, as Mother sets the table, Father goes to buy croissants, Coffee-Machine brews Coffee, Bottle contains Orange-Juice, Alarm-Clock wakes up Daughter, while Thermostat maintains House warm, and so on.

To clarify the distribution of agency, let us look in detail at the determinants of action.

Installation Theory

When you manage to cycle in heavy traffic, this is the result of *simultaneously* using the affordances of the road; of mobilizing embodied skills; of protection by the traffic rules that prevent cars from driving you off the road. Society has constructed the built environment (the road), trained you to embody skills (cycling, traffic sign reading), and runs control institutions (police, traffic lights, rules of the road). On one hand these three layers guide and scaffold your individual behavior, enabling you to safely reach your destination. On the other hand they make you a predictable road user to others, so we all together co-construct a "normal" traffic flow at societal level. The same mechanism that nudges and empowers you is also a mechanism of control at aggregate level.

The urban street is an "installation"; this installation is not located within the physical world only or inside your nervous system alone; it is distributed in the built environment, in educated and disciplined bodies, in institutions and their enforcing agents. Our everyday environment is built by humans; centuries of gradual construction have produced "installations" such as kitchens, conference rooms, or cockpits that make activity simple, so simple in fact that even novices can perform satisfyingly. Barker described such setups as "behavioral settings": "stable, extra-individual units with great coercive power over the behavior that occurs within them" (Barker 1968:17). But we must also include the individuals in the installation.

Installation theory considers how societies guide individual activity by constructing "installations," in which individual subjects operate. Subjects are moved by individual motives and intentions, but an installation has a momentum of its own. An installation is "a socially constructed system locally guiding a specific activity, by suggesting, scaffolding and constraining what society members can/should do in this specific situation" (Lahlou 2015). Installation theory is a theory for nudging (Thaler and Sunstein, 2008), but also for more intrusive control.

As for most important phenomena, a plethora of concepts and theories have been proposed in the literature, for example, "affordances," "disciplining institutions," "structures," "assemblages," "environments," "niches," "infrastructure," "channels," "codes," "norms," "habitus," and so forth. Installation theory tiles three layers of determinants that were so far separated by disciplinary approach, even though in practice they operate as a bundle. The various components of an installation are not located in the same medium; they emerge visibly as a functional unit only when they locally assemble in action; as a bundle they were gradually constructed in practice, and only as a bundle can they be understood. The example of the road above illustrates this: the installation is

not limited to the visible setting of the pavement; it includes the representations and driving skills of the participants, as well as the institutions that regulate the traffic. Each is meaningless without the others.

Within an installation, behavior is funneled *simultaneously* by (a) affordances of the physical setting, (b) subjects' embodied competences, and (c) social control. What characterizes human installations is their intentionality. Their design fits a specific purpose: they support a project of activity. Humans make installations for all kinds of activities: roads, houses, armchairs, hospitals, cradles, graves, and so on.

Individuals do have free will (e.g., they chose to get into the traffic), but their agency is limited. Clearly, installations have a momentum of their own. Installation theory considers that humans usually act in such settings (roads, homes, restaurants, hospitals, etc.) where activity is channeled by the cultural installation. Depending on how we want to see it, we can consider that individuals use installations as instruments to reach their goals; or that installations use individuals to produce an outcome. For example, the traffic installation (roads, signs, lights, traffic rules, police, etc.) uses drivers to produce smooth transport at societal level; the roller coaster or the night club uses Albert as "a client" and as "a participant" to produce "experience" for users, and profit. Both perspectives are valid to a certain extent.

In other words, while Hutchins noted the environment contains mediating structures that process parts of the cognitive operations necessary to complete tasks, Installation theory considers more radically that our environment contains constructed "installations" which coproduce and funnel activity with the human actors as components. It must be clear here that installations are not just the context: individuals are part and parcel of them. Society does not only install physical artifacts, it also installs interpretive structures (the manual) in individuals so the physical layer is used "as it should." For smooth traffic, drivers should know how to drive their vehicle and there should be rules that are enforced. And this is indeed the case: society has set up systems to embody competences in individuals (e.g., driving lessons, license) and sets of rules of the road, with an enforcing body (the Police). These are neither independent nor accidental: the three sets of determinants are obviously part of one single societal project: smooth traffic. In practice, what the subject can do is the remaining intersection of what is objectively possible (affordances), subjectively possible (embodied competences), and socially enabled (social control). Amazingly, while this is common sense, the three layers tend to be studied independently by different disciplines. In the study of accidents, though, it becomes clear that problems occur only when the loopholes of the various layers of defense of the system combine (Reason 2000).

Installation theory has two aspects. The first is an operational framework to describe the determinants of activity. This framework, above, is simplistic, with three layers of components; it can be used for analysis and for change management. It is practical because the layers indicate where one can act to change the system.

The theory's second aspect addresses the evolution of installations. It describes the interactions between the components of the model, and genetic, functional, and historical mechanisms that produce sustainable systems. During education individuals will internalize not only various representations and practices, but also social rules. Foucault (1975) described how this embodiment of social rules makes individuals "docile bodies" and as a result each actor becomes his own controller. Other society members will also encourage and control others into behaving (from smiling or frowning to giving directions or orders); societies also have specific control forces (e.g., Police) to ensure enforcement. The rules themselves may be reified into artefacts which can become actants. Embodied interpretation systems (e.g., mental representations of objects) and physical objects themselves are taken in a chicken-and-egg reproductive cycle, with dual selection operating in each of the two forms (embodied and material). Institutions are in charge of designing, operating, maintaining, and evolving the installations; they monitor the dual selection process that make the installation a single, coherent, functional unit. In this short chapter we will use only the first part to provide a framework distinguishing three types of agency.

Installation theory considers three types of components that determine action: affordances in the physical context, embodied competences of the subject, and social influence—direct or through institutions. Affordances afford; competences enable, and rules empower and control. The combination of these three layers generates a limited tree of possibilities for action at every step; so actors are funneled into the very activity the installation is designed for.

At a **physical level**, objects have affordances that both limit some behaviors and call for some others. Gibson considers that objects immediately display their affordances to the senses. For example, a door handle signals how it can be handled and turned (Norman 1988: 133-134). Uexküll placed more emphasis on the interpretation by the subject, considering the object provides "connotations for activity" (Uexküll 1925). Unless one is in the wilderness, we are surrounded by man-made objects, which, as stated above, carry some intentionality and affordances by human design. The environment has been planted with physical installations.

The physical level can be used by Humans because they have **embodied competences** to interpret these affordances and perform action. In practice we learn and embody new affordances. Someone who never used a fancy door handle (e.g., electric button) could stay trapped in the room even if the door is not locked. Representations of common objects, material or not (doors, hospitals, democracy, etc.), are shared by the population: they are "social representations" (Moscovici 1961; Abric 1994). Social representations are the World's user's manual. As we see with the example of the door, "interpreting" is not only a matter of chaining ideas to perception, but also chaining *action* to ideas. Interpreting a door includes the motor action to open it—or close it. Just as the physical environment is planted with physical installations, the minds and bodies of Humans are an **embodied layer** that has been installed with representations and motor skills; as a combined result of biology, education, and experience.

Finally, we take into account what others do and want us to do (or not do). Others can influence us by force or menace; most often on our own behalf we are influenced by imitating others or anticipating consequences of our actions. Social psychology experiments show interpersonal or group influence in laboratory (for extreme cases see Haney, Banks, and Zimbardo 1973, or Milgram 1963); in real life influence is often mediated by institutions, and the expected behaviors come in the form of rules. There lay the third, **social layer** of installations: its components are distributed over "other people." This level can hamper and control as well as empower and support. It is the most diverse in form since influence can come directly from individuals or from groups, and can be mediated by institutions and rules.

Let's take again breakfast in the family: Father brings four Croissants; Croissants have affordance as "food." Children will interpret these as edible; they know how to eat them. The institutional rules of the family are that Croissants should be shared equally, one per person, so if Son wants to take an extra one, other participants will prevent him from doing so. Another example in a hospital installation: a cancer patient may afford several treatments among which the competent doctor will make a choice; but hospital rules will force the doctor to ask the patient's consent.

In short, Installation theory states action is supported and guided at three levels: affordances planted in the environment, competences embodied in the subject, other people and institutions. It suggests that sustainable behaviors are the ones that are simultaneously supported by and compatible with these three layers altogether. Agency, as the potential for action, is therefore distributed in these three layers.

How Agency Is Distributed

Activity is a process that gradually transforms one state of things into another. We can consider that agency, for a subject who has a goal ("a representation of a specific desired final state"), is the capacity to reach the goal in the conditions given.

The final state is the result of a series of actions performed in a distributed way, by the subject and a series of actants: other people and objects. From the perspective of the subject, these actants can be resources or constraints, depending whether they support or hamper the process of reaching the goal. Agency of a subject, as the capacity to reach a goal, is a function of access to resources and liability to constraints.

We highlighted three layers of determinants: physical affordances, embodied competences, and social control. In that framework, what does agency mean? Capacity to reach the goal in the conditions given translates into capacity to use the necessary components in the three layers above.

Moreover, as we saw that many contexts were constructed as "installations," having access to an installation that is designed to reach the goal provides agency for that goal. This is a first finding: *capacity to use (i.e., entitlement and competence) an installation provides agency for the goals supported by this installation*. But not everything is an installation; many goals will not match exactly with the available installations; some components will be general enough to be used across the board; and so on.

Let us then look more generally at agency as the capacity to mobilize the necessary components of activity.

Material agency is access to the resources in the physical layer. It includes direct and indirect access and control over affordances. For example, I can use my kitchen, my car, and the roads in my country.

Access to resources is not enough. The subject must be able to use them in a relevant way. The subject's *embodied agency* is the set of embodied education, experience, and more generally psycho-physical capacity to interpret. It includes mental representations, motor skills, memories of past experience that can serve to interpret situations, and so on. Note that these competences can be used for the subject's goals, but also to contribute to other people's goals, as shown above.

Activity is constrained by other people. They define and enforce, usually collectively, rules in their local domains of control. When operating in these domains, subjects must obey local rules, or face the consequences. Social agency is the capacity to deal with social forces. This capacity is often the result of the subject's history in that

specific community, especially his or her status and roles[1]. From a subject's perspective, social identity (belonging to various communities) provides access rights to some commons (protection, support, common resources). It also makes one subject to those rules and accountable to the communities, for good or bad. Being an inhabitant of a village may grant access to common meadows for one's cattle, local clubs, hospital, and so on. Being a national of a country provides access to public services, infrastructure, and so on. Family, town, country, organization, religious community, party, professional body, and so on enable their members to access resources and provide support through rules of use. They also forbid certain behaviors.

Finally, in some cases restrictive laws do not apply to trusted members of the community: top managers have no fixed and controlled working hours, some government heads are immune to laws during their mandate, and so on.

We can call *institutional agency* the agency granted to the individual by a community that provides support for action. Institutional agency is about what behavior is authorized or forbidden, and this agency is mediated by an institution at the moment of acting (an institution is a stable common set of rules in a community). The various layers of agency are not independent.

While this triple layered analysis may appear commonsensical or too encompassing in theory, it is handy in practice. Key here is that an installation work as a bundle: sustainable performance requires agency in the three realms *simultaneously*. For example, having a car and a road is not enough to drive from point A to point B: one must also know how to drive, and drive on the right side of the road; otherwise one may face serious problems. By separating the various levels of agency, the installation framework facilitates the analysis of cases where agency is contested, hazardous, and so on, and also provides handles to act—to empower or to restrict.

One can be surprised here not to find "power," as the capacity to force other people to perform behaviors, in our analysis of agency. In fact power can appear as brute force in embodied agency, as economic power in material agency, as institutional power in entitlement. Cognitive authority is one variant of power active in social influence. The classic approach of financial capital, cultural capital, and social capital (Bourdieu and Passeron 1990) seems to map the three levels of agency outlined by Installation theory: access to material goods, embodied skills, and social support.

Finally, we should note that agency is a situated notion: it is agency to do something specific; it is goal-dependent and context-dependent. Agency to make a pair of shoes is different from the agency to vote a law or to feed a village.

In sum, we saw three main forms of agency: *material agency* (access to affordances—direct or through the proxy of social entitlement); *embodied agency* (interpretative competences, where interpretation involves motor skills as well as cognitive); and *social agency* (often mediated by an institution, including capacity to evade local rules). Robust agency must combine the three layers. In practice we can consider the palette of these three layers to improve a given situation. By distributing agency over the layers, we can design interaction and foster or hamper different types of behavior. In doing so we can empower (or control) groups or individuals and support political or organisational change. Because such approach can be very efficient, and will partly rely on nonhuman actants that have no moral concerns, we must be especially cautious and ethical in the design process.

Acknowledgments

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Stoetzel (1963: 178) defines role as the set of behaviors that can be legitimately expected from the subject, and status as the set of behaviors the subject can legitimately expect from others.