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# The Anthropology of Techniques Approach For Information and Communication Objects

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## ABSTRACT

This article offers a hierarchy of definitions for information and communication digital objects. We define gradually, object, tool, instrument, device, and the artifact. These definitions specify (a) the nature of these objects that organize our thinking, but are also the product thereof, (b) their function of both intellectual and practical for everyday experiences, (c) interest in causing different types of questions or problems. Our anthropological approach of digital objects admits that man shows everyday skills to understand these objects. This understanding is the heart of the problem. It amalgamates formal reality built by tools and techniques to informal reality built by technological society and digital culture. Therefore, this understanding is limited to arguments of human activity, objects are then used to make and thinking the activity becomes secondary. We forget the importance of objects in the construction of our representation of the world. We forget the objects ask a study of human capabilities and they are substance of human knowledge socially shared at some point.

**Keywords:** *Object, tool, device, artifact*

## 1. INTRODUCTION

The idea is that today, the pressure of the digital environment amalgam notions attached to digital objects in an comprehension, that juggles between the production of tools for action and the possible use of the objects produced.

Digital objects are now the link between generations and between cultures. These objects convey the intentions and values of digital communities. They influence ways of working, of communicating, and daily life of users. They undergo professional, social and cultural adaptations. They propose new uses and change the practices. In other words, it is the notion of transitivity [1] of the digital object, which is now accepted. The objects built the people as much as people make objects. The physical structure they constitute, structures the whole way of life [2, 3, 4] and determines social hierarchies, the professional division of labor, transmission systems, the representations of the world, etc., in fact all aspects of social life. The man uses the object to act, to think the world and to participate to its construction. It becomes a kind of mediator between action and human [1, page 251].

Beyond this function of mediation, digital objects become inalienable, that is to say that they embody the users [5]. They cannot be separated from the customs and practices. The objects are part of the human. Therefore, the perception we have of our objects changes. It goes through perpetual reclassifications, revaluations, and representations.

## 2. STATEMENT OF THE PROBLEM

Generally, the study of digital objects goes through discipline lighting or by a fashion effect. The objects can be digital, communicating, learners, structuring, organizing, etc.. More the technical innovations continue, more the field models are enriched by the creation of new models or the crossing of old models in new field. The everyday uses do not stand in a single glance. It is complex and plays with model compatibility.

Transitivity of objects [1] depends on relations between the models and understanding that men have these relationships. Understanding is based on the production of tools for action and the possible use of the objects produced. Each digital object is a type of question or type of problem. Each object corresponds to a way of enunciating a problem, but also to act solving it. For example, the object acts as a sign [6], it produces meaning and therefore produces actions. It is the centre of an informal conceptual system based on a functional semiotic model. But the object can also act as a representation, and then it is a conceptual model based on formal semantic ontology.

At first, this example shows that the digital object can be a sign, which will extend and adapt the idea to get a better perception of the world. At the same time it is also a referent that can extend and equip the body to perform a cognitive or physical gesture. It shows the strong imbrications approach. To answer this complexity, we choose to think that the digital object is anthropo-technical, that is to say that it is conceived and designed according to a human environment.

Men are always present in the life cycle of the objects (design, disposal, operation, use...). We must

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consider the association of men and objects to understand its properties, but also to organize their utility towards men. The real notion of "digital object" contains no human reference; nevertheless objects of technology and products are not only technical. Situations where human activity is confronted to objects are situations where the objects can be means of action for men. It is the object that makes them capable to act.

The anthropological approach of digital objects consider that men has got the ability to understand the objects because, in his everyday life, man demonstrates his skills of understanding them. As far as the use is concerned, man conceives very well the whole possibilities raised by the object. He has got a wide understanding of the object he is in relation with, including all the attributes belonging to an object concept [7].

This wide understanding is the core of the problem. The understanding that can only appear through the use, gives a sense to the formal real of tools, such as the technical one. Or, the understanding can also appear through the practices that enhance the social speech coming from a socially constructed informal real, such as a society based on technology. Therefore, digital objects are reaching the limits of the human activity arguments and, thus, are helpful to do while think the activity becomes accessory. Consequently, we forget that objects are important in the construction of our representation of the world, that they also come from a study of human abilities and that there are the sites of socially human knowledge, shared at a certain time [8].

### 3. THEORETICAL CORPUS

Our classification concerns the articulation of object, tool, device and artifact notions. The differences between these notions have widely been discussed. However, the various approaches have rarely put them in synergy and have rarely pointed out the criteria used by each community to classify its digital objects. For this aim, we propose to put in relation these notions that proprietarily concern the part of creativity and innovation introduce in the perception of an organization that works in a digital environment. Among all, we are utmost interested in pragmatic criteria without dissociating them and without amalgamating those from their symbolic dimension playing its part in social life (cf. [9]).

#### 3.1 Object Allows Making

The notion of object structures functional factors for forecasting, coordination and deduction [10]. To recognize an object, we have to go above the monolithic representation of it. Throughout a synthesis, the plurality of its various functions leads us to decide what this object is or is not. For physical object, this recognition is articulated around three phases:

- a. Sensorial accommodation that allows predicting the recurrence of objects;

- b. Schemes coordination that allows attributing a multiplicity of interdependent qualities to each object;
- c. Proper deduction coming from motor sensorial reasoning that leads to understand the transformations and to give the permanence of apparent variations.

As far as these three factors are concerned, they change entirely when we manipulate digital objects. With digital objects, the simple practical schemes are substituted by class systems and recursive relationships. These class systems and recursive relationships are those that construct schemes of explanation and understanding regarding the object. In fact, as on one hand the physical object may be the product of a practical knowledge guided activity, on the other hand the virtual objects suppose a functional elaboration out of immediate perception (ex: the trash on Macintosh desk), which requires to discover what are the practical uses included in the object. This discovery phase of the object [11] and the related issues: "What's the point of using it? Out of what material it is made of? Etc.". Then comes the intentionality that is projecting us on a potential practice: "this object allows me to do". At this point, we construct the practical competences and the skills that able us to recognize the digital objects of a technical device and to combine them to act.

#### 3.2 Tool Allows Action

"Tool only exists in operating cycle; it is a good witness as it generally bears significant traces" ([12] page 35). Therefore, a tool makes: the knife cuts a piece of wood and makes the arrow; a spreadsheet program stores data and produces a spreadsheet. Tool allows us to act and gesture using the tool is an externalization of a human ability [13]. It invites to experiment practices: "Here is what I am going to do with...". At this stage of assimilation, the human being sorts and selects tools that are adapted to his activity. Then in the accommodation phase, he builds new relationships that generalize or enlarge the uses linked to the tool: "this tool changes my way of working...". Through these two phases, technical competencies are developing as well as aptitudes to make the tools evolving over time. These competencies and aptitudes give structural properties to tools as parameters of moving space that are likely to modify and in which action can be reproduced. These tools are not simples accessories of human activity, they transform it and the amplify it.

#### 3.3 Instrument Allows Thinking

The notion of instrument indicates that there are relationships between man and tool centered on an activity [11]. Tool acts as an activity mediator. It gives rise to think the activity and, thus, becomes an instrument. The instrument is made out of material or symbolical tool; produce by men and by use modalities of this tool. We can say that there is a double nature: objective and subjective, defining the perception tool

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[14]. A personal and local perception of the tool use organize the way of thinking: “here are the rules of use of my instrument that allows my project...”. Instruments shape intellectual human capabilities but change our perception of the world: “this instrument changes my way of seen the world...”. The notion of instrument establishes a temporal relation between actions that makes human being as a member of a community in which he is predictable by a social anticipation of his actions. This notion authorizes the construction of socio technical skills and aptitude to produce, to understand and to transform into uses that are appropriated to the situations and to the social codes of these situations.

### 3.4 Device Allows Organizing

The notion of device is the most polysemous. It has been largely discussed between intentions and technical means [15, 16, 17]. Here, we consider the device as a reflexive and abstract notion that serves to fulfil the pragmatic nature of what is happening between rules and resources. First of all, it is reflexive because the device encourages understanding the action conditions before executing them and, more of all it leads the action towards the understanding of what there is to do. Then, it is abstract because it does not refer to a technical object but it refers to relations, to self-Goings, to interactions that indicates a social order in which discourse and gaze exercise control [18]. In fact, within a digital device, these interactions and self-Goings become normality and acquire the status of skill:

- At a technical level when interfaces are manipulated,
- At a socio technical level when there are appropriated action uses to specific situations,
- At a strategic level when the relation is maintained in situation that ought to evolve in time.

These skills insure regularity in the action or in the rules that are collectively accepted. They perpetuate and serve a common interest that is the relationship. A digital device can be defined as a digital social structure. It helps to coordinate actions that include separate strategic skills but that need to be together for satisfying the socio technical skill. Therefore it is a collective cognitive construction that consists of rules and shared resources as we find in digital social network.

The device notion articulates as constraints as possible practices that are socially recognized, developed and shared: “I am a member of the device community...”. It is characterized by strategic skills as well as aptitudes to adapt theses strategies to interpersonal relationships diversity and to unpredictable events reaction ability. In other words, the strategic skill that is linked to the device has got the aim of producing an action. It identifies and takes into account how actions differ (the ones out of rules) in a collective. It compensates communication difficulties and encourages to deliberately structuring

each situation through an amount of new actions (the ones out of time). Part of it is a competency of circumvention of use.

### 3.5 Artifact Allows Representing The World

Un artifact is a relational process that builds an interpretative system of knowledge and practices in human mind. This process helps him to understand the world. Our approach on artifacts [19] finds its source from the tools produced by man. Tools are socially constructed [14] and their development strictly depends on operational modes and on the way that users think their goals. This active individual participation in the uses of a tool modifies its “nature”.

From tool, it becomes instrument. It orients intentionality, thinking and changes human activity. In fine, it releases intellectual activity. From instrument, it becomes artifact that mediates (and therefore amplifies) our vision of the world. It is a material or cognitive tool that associates the characteristics that we have exposed previously with, in addition, personal and local knowledge to think how to manage a relation to the world. We do not speak about the world of globalization, but about the local and the personal one. We speak about the world to which the human being is a community member, group member or tribe member.

According to us, artifact is an *artis facti*, an art effect, a construction that is progressively elaborated throughout mediation in order to reach a “quasi reality” of representations. Because these representations have been drawn in order to be dismantled as methodically as they have been imagined, it gives an indisputable value of the artifact by the user. Of course, here, the art means an aptitude or an ability to do “something”, but also means a heap of means, procedures, rules in relation with an activity or a profession. It is also an activity that is ruled and that gathers human creative activities that produce works. These works contain precepts and rules of a discipline and the engineer’s art. For the word “effect” (in the sense of influence), we consider it as the result of an action. It is what it is produced by “something”, it leads to action or to reaction. Surely, the art of influencing can produce subjectivity according to context and use. Some works of art become good objects, good buildings because they dedicate to the social along with partly constructing it and with the feature to adhere to all their points to the social body. Others, as technical objects or factish objects [20], seem to be detached objects or objectives objects that we do not know how to link them to the rest of the social world. Then the effect of art can induce interpretation mistakes or misunderstanding as well as rejection reactions. Therefore, a contextual vision is necessary for observing artifact. Artifact does belong neither to the means (that are considerably variable according to the points of view) nor to the ends because all the authorized possible is not an end in itself. Consequently, uses are not anymore the core of the relation man-tool as a unique solution to the addressed

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problem [11], but only as an immediate, here and now solution, which is not projective. In fact, uses are not the demonstration of a man-tool relationship that is identical to it and that would appear and disappear at variable deadlines, in a universe that would recognize this relation and where this relation would recognize it. They are transitory concordances of various components that can be deduced by reading in context a decision model that emphasizes on the relation between observable actions and decision-making. From this point of view, the physical every-day life is not more "natural" than the instrumented one. The artifacts are not "out of nature". Among of all, an artifact is a fancy of the mind, an illusion that associates human interactions, tools mediation, cognition and community intention.

#### 4. CONCLUSION

Globally speaking, we have chosen to observe ICT through an empirical approach [22] that studies digital society in the whole. The meaning given to objects is never independent from interactions; these interactions develop themselves along a proper dynamic [22]: the digital society concept corresponds to actions process more than material structure.

In this context, the anthropology of objects is a kind of modelization that put into light an operational system that cope with cognitive activities. These cognitive activities are linked with instrumented human activities. This is a comprehensive method for activities through which individuals build up ordinary activity frames. The main challenge of such an approach is to clarify what are the interactions in a context because according to the interactions the ICT user drops from a category to another one. In each category, the balance between uses that are proposed by the techniques and practices that are linked to the expert field, the profession, the everyday life, draws the outline of a new digital challenge.

This point of view does not seek to be antagonist to the existing ones, but rather complementary to the disciplinary approach for objects that hunt for ubiquitous interaction in the ICT issues.

#### ENDNOTE

1. Latin : artis : art, skill ; facti : made, action

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