Streaming selves on screen: *declarative*, *acting*, and *calculated* identity in social web

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Abstract
In this paper, we discuss the impact of user's profiles on identity representations in web 2.0. We introduce a classification of 3 different types of identities: *declarative identity*, *acting identity and calculated identity*. This typology summarizes the theoretical model of "self-representation" in interactive devices, originally proposed in [Georges 2007]. "Declarative identity" (1) is constituted by data given by the user in the subscription process, and which he/she can subsequently modify (name, birthday, photograph etc.); "acting identity" (2) is constituted by data provided by the system relative to user actions (specific requests etc.); "calculated identity" (3) is constituted by numbers, calculated by the system, which appear in the user profile (number of friends, number of groups etc.). On the basis of a statistical analysis of Facebook data, we find that acting identity is much more valorised than the other two types.
We discuss the philosophical implications of this trend of Computer Mediated Communication to valorise acting identity, which continuously draws from new interactions with the interface. As a consequence, we question if it is possible at all for a user to develop a consistent self-representation under such conditions.

INTRODUCTION

Computer mediated communication (CMC) is a part of the user's cognitive and informational environment. The user's cognitive schemes are actualised through interactions with digital devices [Peraya 1999, Proulx 2005].
Studying the identity in the context of CMC allows to better understand how digital interfaces change the look at oneself and the impact of CMC on the cultural pattern (or "agency" cf. [Darras, 2006]) of world perception.

Jeffrey Sconce, in his work on presence from the telegraph to internet, notes that the evolution of communication devices changes the relation to the Other, and therefore has an impact on the concept of presence [Sconce 2000].
What does "being present" mean? How is the user "taking" existence on the screen? How does he socialise online?
In my PhD study [Georges 2007], I addressed this topic of user self-representation through socio-semiotic, systemic and grammatical approaches. I used the concept of *digital hexis* (or *habitus*) to designate a scheme of user self-representations. These latter are transformed like a body which is shaped by habit or by repetitive practice. Thus, the notion of *hexis* bears analogy with the shaping of meaning and body. Teenagers' social identity in particular is partially defined by themselves and partially by others. Their virtual interactions determine how they fit into the structures that society provides [Macziewski, 2002; Boyd 2008].

1. Identity, Difference and Consciousness of Self

1.1 Cultural agency

From first web to late applications, instant messaging (MSN, Live messenger) or dating websites (LoveLycos) provide information in the shape of icons about a user's presence and availability. Through the fact that the user has to fill out repetitively subscription forms, a model of digital identity is progressively shaped or "informed" (in the etymological sense of *informare* "to shape"), influencing the cultural representation of the person [Turkle 1995]. Digital identity is thus shaped by repetitive interactions and continuous perception of self-representations on the screen (*digital hexis*). A semio-pragmatic approach could help refine current explanations for such identity phenomena.

1.2 Identity and difference

We consider identity as the way in which a person or subject may be distinguished from another. Identity is thus closely linked to the notion of difference. For example, when we try to describe someone we do not know, we try to find signs that distinguish her/him from other people. As a consequence, this description technique makes identity dependent on the local cultural context. Thus, identity in such a point of view cannot consist of common and shared details. If the person you want to describe is a man with short brown hair, brown eyes, and dressed in black, you will experience difficulties to make your interlocutor identify him unambiguously in the current context of living. You will have to find much less ordinary characteristics for your purpose.

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Applying this problem to CMC, given that there are too few data relative to user profiles in many CMC applications, questions of identity and difference become critical. In many older CMC tools, identity is simply constituted by a name. Thus, the role of new CMC applications is to provide specifications for representations of self so that each and every profile can have a distinguished identity.

1.3 Streaming and fictitious identity

William James went beyond the apparent opposition between identity and difference by investigating the inner parts of the person, that is consciousness.

Indeed, identity is closely linked to the concept of consciousness. We could say that like consciousness [James 1904], identity is a "*stream"* and is "*fictitious"*. In other words, McCall and Simmons (1978) describe role-identity as "[the individual's] imaginative view of himself as he likes to think of himself being and acting as an occupant of that position"3 (p. 65). [Walker 2000]

Identity is a product of the stream of social interactions and personal events that the subject experiences throughout life.

In Principles of Psychology, William James distinguishes 4 *constituents of the Self: The material Self, the social Self* or recognition received from one's peers, *the spiritual Self, the pure Ego*.

Applying this framework to CMC, the problem of digital identity must encompass all user activities in regard to the Self and identity representation, i.e. data concerning:

(a) a user's description or personal data, the user profile's graphic and functional layout (equal to "home"), user friends (equal to "family"), and items owned and/or shared (equal to "possessions");
(b) A user's social interactions (messages sent to the user, comments on his/her homepage etc.)
(c) user activities (post comment, share videos etc.)
(d) The movement of self-representing, giving her/his representation the status of self-representation.

This set of selves may govern the *decentration* dynamics identified as being the principle of a learning process [Peraya 1999] by textual markers of the interlocutor in Homepages [Klein, 1999] – for example: "dear reader". "Although home pages can be arranged in an infinite variety of ways, they all (intentionally or not) reveal identity." [Walker 2000: 105]

We extended the field of *decentration* by using the *Jamesian* typology and applying it to a larger field of CMC software, such as visual chats, networking sites and online games.

1.4 A focal point and peripheral signs

As a representation, identity is constructed by consciousness, which gives it shape. Everyday life may consolidate and improve this shape, and sometimes changes the idea we have of ourselves.

2. A Model of User Self-Representation

In the "real" world, the presence of the body is an absolute clue of existence. In the "digital" one, it is not because you are consulting a website that you do exist. Thus, a user has to *take* existence to communicate. If he/she does not create a representation (a web profile), he/she does not exist, but remains hidden.

2.1 Being traceable to exist

To be seen, the user has to be *traceable* (i.e. must leave traces intended for others). This necessity *to take existence* by becoming traceable is a radical change of the identity paradigm where the sign system of self-representation acquires a shifting meaning ("embrayeur de signification").

Therefore, and as we have seen before (cf. 1.3), to design the semiotic layout of self-representation, all signs of manifest user activity have to be taken into account.

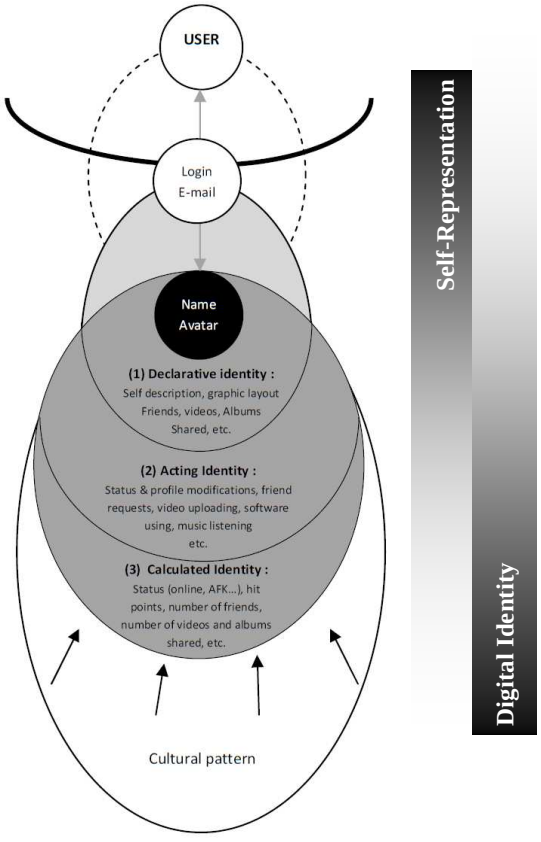

Figure 1. Self-Representation and Identity model [Georges 2007]

2.2 From the stream of human consciousness to the computer screen

In the *stream* of Self-Consciousness (cf. James, 1.2), as in the process of self-representation and identity, we should distinguish a permanent axis around which ephemeral elements aggregate. Indeed, on the one hand, some signs like "picture", "(nick)name" or "birthday" are not often modified and thus are part of the permanent axis of identity. On the other hand, some other signs are often modified, like "status", "shared videos", or "comments"; these are the ephemeral elements of identity.

Online identity can then be represented by a scheme as shown in figure 1: a central axis (black disk) around which aggregate ephemeral signs updating the representation.

Concerning the "feeling of self" point-of-view, the central axis is composed of identifying elements as "login - e-mail address" to guarantee access confidentiality [Hypponen 2008]. This group is confidential and possibly hidden by the user; it's doubled in the visible area by a public name, a picture, or an avatar and other related elements describing the person.

The second and third geometrical ellipses contain, respectively, the interpersonal relations of the user and objects less revealing of Self, but participating in the differentiation and self-development, as we have seen earlier in 1.2..

We distinguish 3 parts of self-representation, constituted by overlapping circles around a central axis (Fig 1): declarative identity, acting identity and calculated identity. Such a frame of "Selves" determines the general adequateness of a subject in a given society and acts as a cultural pattern.

2.3 Cultural pattern

In fact, identity has no material shape and on the computer screen, a shape made of pixels is given identity, unlike in mixed reality, where there is a variety of specific screen based devices. The consequences are significant: nowadays people use a material shape of identity to socially interact with others on CMC.

Unlike face-to-face conversation, online conversation confronts the user with a communicational device where the user is alone, staring at a screen containing the whole social world he/she interacts with. This is a central point in regard to the way the user constructs meaning: being alone in a vast room and facing a small inhabited screen, the user is naturally conduced to interpret its position as preponderant. The screen acts as a frame through which the user can see the human kind – and sometimes its vanity, according to some interviewed users. This acts like a spatialization of the notion of figure of speech (like a "*figure of space*") providing a context of development to the identity process.

This identity layout, by the fact that the user interacts with it (cf. Lakoff & Johnson's cognitive metaphors, Lakoff & Johnson, year), creates a dynamics of *centration-decentration* (Piaget, year): the representation of identity stimulates a cognitive process of *decentration* through the presence of elements referring to other entities (other people, but also movies, pictures, or anything different from the user self). Thus the user is constantly engaged to wonder about the others' representations of themselves. This process of decentration, according to Piaget, is at the origin of the child's cognitive development, and according to Peraya at the origin of learning.

3. A Model of Digital Identity

As seen in figure 1, the self-representation process is centered on the user representation-shaping process by *reflexive dynamics* which are linked to consciousness. In figure 1, digital identity is shown as being centered on cultural patterns. These two processes are closely linked, as argued earlier in 1.3. To define the cultural impact of CMC software on the representation of identity, we have to develop a second dimension, based on the self-representation phenomenon and reflected by the local cultural mirror.

Figure 2 Facebook: declarative, action and calculated areas

Digital identity has been divided into 3 categories (Figs 1, 2, 3):

(1) "Declarative identity" is constituted by data given by the user during the subscription process and which can be modified (name, birthday, picture etc.);

(2) "Acting identity" is constituted by mails provided by the system and reporting user actions (requesting a friend etc.);

(3) "Calculated identity" is constituted by numbers calculated by the system and appearing in the user profile (number of friends, number of groups etc.).

Interactive identity is composed neither only of "acting" data (as they are the reflection of the user's interactions), nor of solely "declarative" data (as they are the direct produce of user interactions). Interactive identity is composed of the whole system, by the medium of the self-representation, and especially the group "name-avatar", by which the user interacts with the virtual world. These 3 dimensions of identity are part of a unique sign system of interactive identity.

3.1 Declarative identity

Data relevant to declarative identity have the specificity to be provided by users. These data describe the person as a "material self", the central axis of identity around which ephemeral signs will aggregate.

As seen in 2.2, the avatar or the picture (*ligator*) are associated with the name given by the user to identify himself/herself (*autonym*). This dyad acts as a *shifting* system which shifts the meaning from a system of graphical signs to the representation of a person *(autonym ligator*).

This system of declarative signs is considered by the user as the most relevant to describe their identity. Indeed, these elements are restricted in priority by those people who want to control access to their identity [Lenhart 2007]. Examples here would be "gender", "birthday", "photos", "school name", "situation in love, religious or political opinion", "sexual orientation", or "personal information".

Signs composing declarative identity may be (in order of decreasing privacy):

- Data about the physical self (e.g. sex, date of birth, sexual orientation, marital status).
- Relationship data (e.g. interests, friendships, meetings, professional networks)
- Localization data (e.g. city, community, college)
- Opinion data (e.g. politics, religious beliefs).
- Activity related data (e.g. business, sports, leisure)
- people known and social networks (e.g. friends, favorite sites, blogs, colleagues, lovers)
- Collections, media, items uploaded or shared (e.g. videos, links, magical objects).

We also note that within such a framework, friends, children, and lovers can be collected (or rented, or sold) like objects.

3.2 Acting identity

Acting identity arises from the user's interaction with the CMC software.

In Facebook, which is actually the software using the most this functionality, these data are displayed on the homepage in the "mini-feed" window, containing displayed messages. For example: "S., C., S., V. have changed their profile picture ", "M. and T. have been converted into vampire ". To refer to the notions of identity and difference, correlations and relations between users are suggested by these messages, insisting on the identity of the user's network and suggesting a global point-of-view on the community of friends.

Although these data are considered less relevant to identity by users (teens, cf. Lansen 2007), the "mini-feed" is often denounced as very intrusive[1]. This complaint indeed reveals that acting identity is to some extent sensed as revealing something private.

Acting identity data can relate to 3 types of events:

- Events being a consequence of changing declarative identity (for example: "update profile" means a modification of the picture or of personal information).
- Events having a direct impact on declarative identity (for example: "friend requests", "participation in an event or group", "creation of event or group").
- It can also relate to the user's social activities (for example: "commented or tagged or sent a gift", "sent a collective posting").
- It contains indications about the recognition from one's peers (cf. 1.3 William James's *Social Self*; for example: "was tagged by a friend" , or "recommended by").

3.3 Calculated identity

We call the third component of identity *calculated identity*. It is composed of variables produced by a qualitative or quantitative calculation automatically performed by the system (number of friends, groups, messages etc.).

Unlike declarative identity, calculated identity is not provided by the user. Like acting identity, it reveals the activity of the user. Unlike acting identity, it is the product of an interpretation which depends on rules fixed by the system and those who conceived it (for example: the message appearing on the personal profile "180 friends" is part of calculated identity, which is different from the message "Fanny Georges is now friend with Laurent Poulain", which is part of acting identity). The latter message has a direct impact on the former: Fanny Georges had 179 friends and now, because of her new friendship with Laurent Poulain, her score grows to 180.

Among these variables automatically generated by the system, it is relevant point out two categories, as they bear different meanings:

- Qualitative variables: qualitative information about the presence and current activity of the user (connection state –online/offline- availability, unavailable/away from keyboard/occupied etc.). Due to their qualitative aspect, these variable are the product of a certain level of interpretation done by the system itself.
- Quantitative variables: the number of friends, the score, the rank.

[1] However, only few users disable this functionality.

Talking about “scores”, “rules”, even for relationships or friendships, “having a “score” in friendship” is significant. Indeed, quantifying the presence, visibility, and reputation of the user by the means of calculated identity allows the CMC software to do comparisons and rank its members. It reflects the user’s presence in the local cultural mirror, involving an implicit form of social game [Georges, 2005].

4. A quantitative approach of the identity

Despite the large number of items composing the user’s profiles in recent CMC software, there are still users reluctant to fill them in. What happens in such a case to the user’s identity? Would the user have still a digital identity? What is the dominant aspect of identity in Web 2.0?

We first tried to investigate this question using questionnaires and interviews with different users chosen randomly. Unexpectedly, this method produced undecipherable results for the following reasons: the interviewed persons often adopted a method of reconstruction of their memories to produce speech, the only purpose of which was to answer to our questions. Thus, the simple fact of asking questions was inducing bias in attitudes and speech of the users and it became too difficult to extract the role of the interviewer.

So we chose an approach in which there is no direct interaction with the users, and in which the users are observed from a distance. Such an approach yields relatively unbiased data and allows pertinent conclusions. Using the typology of declarative, acting, and calculated identities, we produced an original quantitative study of digital identity based on personal profiles.

Sixty one personal profiles in the social networking application *Facebook* were analyzed [Georges, 2009]. Profiles were divided into two groups: "hyper-visible" and "hidden", on the basis of users’ declarative behaviour.

-Hidden users: are those who did not fill any of the declarative fields of there profile. However their activity is reported by the system through calculated and acting identities (see section 3).

-Hyper-visible users are those who have filled in all declarative fields.

By collecting the data relative to these profiles and sorting them into the three modalities of identity (declarative, acting, calculated), we computed statistics representative of intensities relative to the three identity modalities. These statistics also revealed the most relevant data for each of the three identity modalities.

Examination of graphs of acting and calculated identities shows that identity is much less determined by data relative to declarative identity than by data signalling for acting and calculated identities.

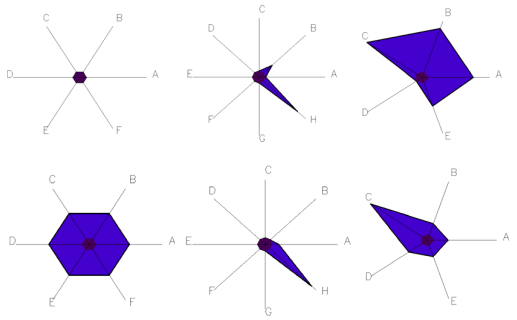

Figure 3. Declarative, acting and calculated identity graphs of one hidden user (top row) and of one hyper-visible user (bottom row)[2]

Hidden users yield graphs of acting and calculated identity which are rich enough to give them the *difference* they need to have an identity in the sense of Locke (cf. 1.1). "Hidden users", from a declarative point of view, become *visible* in the two other dimensions of identity.

The lack of information on declarative identity is thus not an obstacle to socialization or recognition by others. *Facebook* valorises *acting* identity, whereas web 1.0 valorises *declarative* identity.

5. A Feeling of Reality

Like the classical identity process, self representation in CMC software is nourished by data collected from everyday practice. This structural analogy consolidates not only a feeling of reality, but also the impact of the interface on identity (Georges 2007). Whereas in the real world, identity is, for the most part, built on memory, digital identity is built on graphical, textual, and sound signs.

As argued in section 4 here, these signs are only few in web 1.0 but expand in Web 2.0. From nascent web to the late internet, the system of signs which manifests identity has changed: declarative identity (age, sex, city bio, interests ...), which was previously the central pole of the “cotton candy” identity, has become more important because the signs of user activity have expanded to better

[2] *Declarative identity* (filled or not: normalized/1). A: gender, B : interested in men/women/etc., C: relationship, D: Birthday, E: Politic or religious opinion, F: Professional information. *Acting identity* (normalized/10 events). A: profile update; B: friend request; C: participating to events; D: event creation; E: commented or tagged a friend’s profile; F: posted in a group; G: received a post; H: has been tagged; I: used softwares.*Calculated identity* (normalized). A: number of friends (/ 130); B: number of groups (/20); C: number of events (/10); D: number of albums (/20); E: number of shared friends (/20). Dark round based graphs mean the group Name+Avatar especially in the declarative identity of hidden user.

characterize it. Thus, in web 2.0, a user who wishes to exist on the web must comply with this imperative: provide activities continuously. This structural constraint on the user is, incidentally, linked to the phenomenon of web addiction.

As a sculptor may carve each and every finger of a model very finely, or may choose to not include a whole arm, the user of communication services shapes and reshapes his/her identity to adjust it to local cultural agency. Thus, the act of self-representing is *per se* the essence of self-representation.

Facebook draws attention to gesture to exist on the screen, to take existence and to keep one's representation alive. In doing so, Facebook boosts compulsive behaviour that is ever to occur, to continue existing, and to maintain a social network. This evolution of online identity suggests a change in user behaviours towards a focus on the immediate, the present moment, without losing time to consider the past or the future, as a result of continuous action. An identity that would be the aggregate or the sediment of the present being.

CONCLUSION

Online identity displays certain similarities with "real" identity: it is a *constituted by a central and permanent shape around which ephemeral signs aggregate.*

We have revealed three dimensions of digital identity

- Declarative: provided directly by the user
- Acting: based on user activities of the user
- Calculated: based on internal system statistics

Declarative identity, which is the focal point of identity in web 1.0, is found to be less predominant in web 2.0. Rather, identities are now built on the basis of activities (acting identity), and are shaped further by calculated identity. The emphasis on certain specific dimensions of identity in web 2.0 implies a trend towards local cultural elements and patterns. The habit-forming nature of interacting with this type of interface is to be questioned. Indeed, when we are kept to the kind of activity that is needed to exist and to shape some form of identity in the virtual world, will we still be able to construct ourselves (or Our Selves) as independent beings, without having to continuously look at our own reflection in the mirror of a World Wide Web?

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