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A Multimodal Framework for Analyzing Websites as Cultural Expressions

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Departing from a broad conceptualization of culture and the need for a more adapted and sophisticated tool to disclose the internet as a rich cultural data source, this article provides the foundations of a multimodal framework for analyzing websites from both a medium specific and socio-cultural perspective. The 6-phased framework of website signifiers contains both a structured repository of potential cultural signifiers and a methodology for moving from salient aspects to more implicit meanings. While the framework may help researchers to make more and better use of the many layers of potential meaning that reside in the rich multimodal nature of websites it does not provide a shortcut to determine the cultural meaning of these signifiers and their interrelated effects.

Key words: Website Analysis; Multimodal Framework, Multimodality; Cultural Analysis; Internet Research

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INTRODUCTION: CULTURAL EXPRESSION IN WEBSITES

Web phenomena, and websites in particular, are unique expressions of contemporary culture, and as such they constitute a huge repository of potential data about contemporary ways of doing and thinking of large groups of people across ethnic and national boundaries. However it took some time before social scientists looked at cyberspace as an integral part of contemporary society and not as a strange refuge for some of its members or a sort of "parallel" virtual universe. While the specific opportunities and impediments of the web both as a source and a tool of research have been discussed by a growing number of scholars (Paccagnella, 1997; Jones, 1999; Hine, 2000, 2006; Mann and Stewart, 2000; Wakeford, 2000; Weare and Lin, 2000; Lievrouw and Livingstone, 2002; Rossler, 2002; Andrews et al., 2003; Lister et al., 2003; Carter, 2005; Stewart and Williams, 2005), to date the appeal of this rich resource has largely been limited to those aspects that can be addressed with more or less established, verbally oriented, methods. This rather narrow focus excluded the many distinct visual and multimedia features of websites that may embody very revealing aspects of cultures as well. So there is still a need for a more adapted and sophisticated tool or methodology to disclose this cultural data source in all of its apparent and less apparent modalities and to adequately address the interplay between these different expressive aspects as the prime generators of meaning.

This article seeks to provide the foundations for such an integrated tool by way of a multimodal framework for analyzing web phenomena from both a medium specific and sociocultural perspective. The interest in cultural aspects of the web is shared with other scholars, as the literature review in the

next section will reveal, yet it has a distinct focus. The core concern here is not how to develop or design culturally ''appropriate'' and or ''effective'' web sites (in a commercial or persuasive sense) but how to decode/disclose the cultural information that resides both in the form and content (and the content of the form cf. Hayden White, 1987) of web sites. Both strands of research (''cultural effectiveness'' versus ''cultural expressiveness'' in a broad sense) can inform one another to some extent, as designing and decoding are flip sides of the same coin.

The focus on cultural expressiveness involves a broader sociological / anthropological view on society through analyzing human behavior and material culture and consequently a more encompassing conception of culture, that includes both inter- and intracultural differences and expressions of norms and values, expectations, roles, goals etc. The presented framework should therefore be relevant for researching cultural differences between countries or ethnicities but equally be suited to track differences and specificities in organizational cultures (departmental or professional cultures) or small groups from a diachronic (longitudinal) or synchronic (comparative) perspective. Finally the presented analytical framework here is very much focused on taking into account the medium specific modes and sub-modes, their multimodal interplay and their origin and purpose.

PREVIOUS RESEARCH ON ''CULTURE'' IN WEBSITES

The bulk of research on cultural aspects of web phenomena to date takes Hall's ''high'' versus ''low context'' model for analyzing interpersonal communication (1966; 1976) and/or Hofstede's key dimensions of culture (1980; 2001) as its prime conceptual framework. Moreover these mainly business and management-oriented studies predominantly adopt a cultural comparative stance focused on producing ''culturally aware'' and ''effective'' web communication. Hofstede's popular cultural framework comprises of five key dimensions: High/Low Power Distance, Individualism/Collectivism, Masculinity/Femininity, High/Low Uncertainty Avoidance, Long/Short-Term Orientation, which originally were used to identify and explain differences in conduct between members of different nationalities. Most culturally oriented website research either tested or replicated parts of Hofstede's framework (see Sondergaard, 1994 for an extensive study of reviews, citations and replications of Hofstede up to 1994, and see Kirkman et al., 2006, for a further overview).

However, over the years Hofstede's approach has received some fierce criticism (as most elaborately and dismissively phrased by McSweeney (2002), but also by Kim (2007)) that focused on different epistemological and methodological aspects: e.g. measuring culture uniquely through surveys; equating/reducing culture to the idea of a monolithic (so with no internal variation) national culture; using (old) data of employees of one multinational (IBM) to extrapolate to national culture; focusing on only four, later five (ethno-centrically defined) dimensions. But in fact studies that fairly unproblematically adopt (with minor adaptations) Hall and Hofstede's concepts to the internet by far outweigh those that are more critical or downright dismissive (see Marcus and Gould, 2000; Triandis, 2004; Ess and Sudweeks, 2005; Callahan, 2006; Würtz, 2006; Gevorgyan and Manucharova, 2009).

More fundamental than disputing the data that were at the basis of the development of the dimensions is challenging the idea that culture can be framed in four or five dimensions and that typifying aspects of culture should take the form of binary oppositions or polarizing scales. Kim (2007) rightly questions the use of polar opposites as exemplified in Hofstede's five binary dimensions (a practice continued by others) which she connects with a ''prevailing ideology of unidimensional model of cultural identity'' (Kim, 2007: 27) and goes on to contend ''there is nothing illogical about the coexistence of apparently contrasting cultural orientations'' while ''elements of seemingly opposite worldviews may exist at the cultural and individual levels'' (2007: 28). The use of a limited set of

''passe-partout'' cultural dimensions also tends to predefine or at the least pre-mould the outcomes and focus the researcher's attention on just a limited set of aspects. If we are for instance interested in finding out how the cultural practice of family photography changed in and across different cultures once it became web-based (Pauwels, 2008a), then the application of Hofstede's dimensions will not lead us much further as the cultural shifts in this domain of social and cultural practices pertains issues like the moving boundaries of private versus public space, the change of a private audience of family and friends to an unknown global audience and the opportunities/intricacies that this creates (e.g. for voicing political and religious views or for pursuing commercial goals). Nor will this or a similar framework (e.g. Kluckhohn and Strodtbeck, 1961; Trompenaars, 1994) help us to disclose relevant information as expressed by the different multimodal features of a website. Focusing on preconceived cultural differences does not warrant that the most specific or intriguing aspects of particular sites are picked up. And it doesn't seem to stimulate a broader more encompassing approach to studying aspects of culture. To be clear, cultural conceptualizations such as that by Hofstede don't need to be rejected as such, as focused choices will have to be made, but the fact that one such conceptualization tends to be taken for granted and rather routinely and unsophisticatedly applied to different contexts, irrespective of the research interest or cultural setting, may be considered problematic.

While the criticism mostly focused on the reductionist (limited aspects of (corporate) culture and a dichotomous approach) and ethnocentric definition (a 'Western' perspective) of culture, another major flaw/challenge of culture on the internet has been largely overlooked: the often very partial and questionable operationalizations of the cultural aspects into observable aspects of the hybrid medium. To illustrate this point, one could refer to a table created by Callahan summarizing a selection of the literature on the use of Hofstede's framework for the interpretation of differences in what she calls ''graphical design.'' This table (Table 1 ''Web site characteristics in relation to Hofstede's dimensions of culture,'' Callahan, 2006: 248) reveals rather coarse operationalizations of Hofstede's initial four dimensions. Images for instance (implicitly classified by Callahan as ''graphical design features'' and not as prime sources of information in both direct and metaphoric ways!) are treated as mere windows to the depicted and only operationalized with respect to 'what' they depict (leaders or buildings or emblems to signify ''high power distance''; or students, both genders, every day activities to signify ''low power distance''). No attention is paid to the meaning that for instance resides in the formal qualities of the pictures (''how'' the subject matter is being depicted). Clearly, image analysis should involve more than counting the number of images and their immediate content categories (people, building, event, . . .) or categorizing the depicted in crude categories as types of people, events etc.

The fact that Hofstede's conceptualization of culture (in multinational organizations) continues to be popular probably has to do with the fact that it provides a short cut to complex issues of culture and that researchers thus can rely or build on previous research. Hofstede's conceptualization of culture is not only too limited for framing culture in a broader way (cf sociology and anthropology), but also for studying a complex phenomenon such as the internet where culture resides in many aspects and increasingly is becoming multiauthored and hybrid. However, Hofstede cannot be held responsible for this latter flaw, which is twofold: the questionable operationalization of the dimensions to observable traits of the internet and the inadequate knowledge of the expressive means of the internet. Indeed, his conceptual framework was taken by others from the interpersonal level (getting along with colleagues and customers from other cultures) to mediated environments (e.g. advertising campaigns) and finally to extremely complex techno-cultural environments, such as the internet. The framework thus acquired an ''almost paradigmatic status outside its initial context'' (Sondergaard, 1994: 453).

The above discussed criticisms, though fairly fundamental in some instances, have not yet resulted in elaborate or fundamental revisions or the development of alternatives, to encompass both a broader conceptualization of culture and of the specifics of the culture of the internet which is highly hybrid

on all counts. In fact, Hofstede's framework continues to be taken as the basis for new research, and dichotomous thinking about culture(s) continues to characterize many contemporary research efforts.

"MULTIMODAL" CULTURAL ANALYSIS DEFINED

As the previous section tried to argue, a substantial part of cultural research of the internet is characterized by a triple form of problematic reductionism: firstly with respect to the definition of culture (monolithic national cultures, "culturability"), secondly in the way these cultural dimensions are operationalized (often a limited set of cross cultural dimensions, and an exclusive focus on "differences") and thirdly with respect to taking the aspects of the different expressive systems into account (most of the time only a very limited number of cultural signifiers and a bias towards the verbal mode). This article strives to deal with these problems with an emphasis on the latter by proposing a multimodal tool to address cultural aspects of websites.

The concept of multimodality

The detailed and multifaceted analysis of the internet and websites with all of their constituting parts requires what today would be called in a somewhat trendy way a "multimodal" analysis.

Modality and by extension multimodality lacks a succinct and acknowledged definition (see Kress & van Leeuwen, 2001 and O'Halloran 2005, both working in a systemic functional framework but with important differences in theoretical underpinning and definition of modality). The term "mode" (or "modality"), as distinct aspects of a communicative utterance or a medium is sometimes used in connection with physiological or sensory channels or capacities such as seeing (the visual mode), hearing (auditory mode), touching (tactile mode or the "haptic" mode when considered as aspects of a device), tasting (gustatory mode) and smelling (the olfactory mode). Modalities quite often are also defined from the medium side, thus one speaks for instance about images and texts, music and vocal and non vocal sounds, though they all belong to the visual or auditory channel or mode. Even the most hybrid and advanced (multi)media still only succeed (as do most other media) in addressing two out of our five senses (sight and hearing), as we either look at or hear texts, and almost all media fail to transmit tactile, olfactory or gustatory experiences. Thus the multimodal nature of the internet too is in fact limited to two (super) modes: the "visual" and the "auditory", ruling out all modes that address the tactile, olfactory and taste sense. However the visual mode in a broad sense includes a wide variety of expressive systems that are often not readily considered as "visual": the textual parts (have to be viewed or heard), typography, layout and design features. Likewise the auditory mode (spoken or sung texts, music, noises) exhibits a growing diversity of aspects and applications and a corresponding importance in website communications.

Returning to the earlier mentioned terminological confusion, written texts, images and gestures—while all "visual"—are according to some definitions only submodes (e.g.) but are referred to by others as separate modes. And some scholars even use the term mode to indicate, for example, different genres of texts or different genres of photographic images (a documentary versus an artistic mode). But to cut this discussion short, whenever at least two input (senses) or output (medium/device) modes (or sub-modes) are involved, one could speak about multimodality. Multimodal analysis not only takes different modes into account but also has a strong focus on the effects of their interplay. The older concept, multimedia, has a far more restricted meaning, as it refers mainly to the capabilities of a technical device or to a technology (not to a communicative act or to the perceptual processing of data by people). Multimodal research is an ambitious venture given the fact that even most forms of mono-modal or single mode analysis (for example the analysis of static photographs) are still underdeveloped, i.e. not able to tap into the full expressive potential of this medium.

The cultural decoding of hybrid media

Few choices and options in websites and the broader infrastructure of the internet are culturally neutral. Cultural research of the internet, therefore, could be focused on uncovering explicit and implicit statements on a broad range of issues such as values, norms and opinions regarding gender, class, race, religion, state, etc. as they are intentionally or unintentionally expressed and materialised in the many features of this highly hybrid medium (Pauwels, 2005). Consequently one of the pillars of such a broad interest in mediated culture is a thorough knowledge of the medium's building blocks and of the effects of their advertent or inadvertent selection and combination.

Cultural website analysis, as with any type of media research, may take a snapshot approach (focusing on a static slice of a dynamic medium at a certain point in time); or opt for a diachronic approach in the form of a longitudinal study that consists of different snapshot data at certain time intervals, or for a more dynamic diachronic approach, focused on examining changes (actions and reactions) in a shorter period of time (key transitions, events). It goes without saying that cross-cultural research (synchronic and a fortiori diachronic) poses extra challenges to the researchers involved and that one of the major challenges is the hybridity of the required expertise that needs to be integrated.

The breadth of knowledge with regard to these building blocks is pretty daunting. And the size limit of this article only allows a very concise introduction to the most important parameters.

The presented research approach does not seek to take a predetermined (based on standard or "universal" cultural indicators), predictive ("what works best") or normative ("how should it be done") stand , but advocates a rather explorative, descriptive ("what is there to be found") and interpretative ("what could it possibly tells us about aspects of culture") approach.

Thus rather than departing from a rather reductionist view on (national) culture that is subsequently operationalized in only a few preconceived aspects of websites, this method tries to gain insight into the complex paradigmatic choices and signifiers of websites. The approach addresses in a more sophisticated and integrated way how specific combinations of these paradigmatic choices may inadvertently or advertently construct cultural statements. However, it does not provide a ready-made tool to "read" or "decode" culture in each of those aspects, for reasons that will be explained later.

This approach highlights some of the differences between the dominant focus on "cultural usability" and a research approach that seeks to uncover "cultural expressiveness" in a broad sense. Such an "open" attitude towards cultural analysis should not conceal or exclude a theoretical focus, a clear methodological framework and a set of expectations, as an unfocussed and under-theorized observation would largely remain blind or impressionistic.

The framework as presented in the next section contains both a structured repository of potential cultural signifiers and a plan of attack, a methodology for moving from the general / salient/ quantitative to the specific / implicit / qualitative and from mono-modal to multimodal analysis.

While it may very well be that some cultural interpretations of certain paradigmatic choices and their combination into larger syntagmas are relatively "fixed" and "universal" (or cross-cultural to some extent) — as the very valuable work of Kress and van Leeuwen (1996) on paradigmatic meanings of certain options in images and the design of pages seems to suggest and illustrate — one should at all times remain very cautious about adopting rather undifferentiated views on cultural expressions.

THE MULTIMODAL FRAMEWORK FOR ANALYZING WEBSITES

The model for analyzing websites as social and cultural data sources consists of six phases which correspond to a certain logic of discovery: from looking at rather immediately manifest features and performing straightforward measurements (phase 2) to more in-depth interpretations of the

Figure 1 A Multimodal Framework for Analyzing Websites *(Pauwels, 2011)*

constituting elements and their intricate relations. The research thus migrates from fairly easy-to-quantify and code data, to more interpretative analysis focused on discovering the metaphorical and symbolic dimensions of websites or to unraveling their intended and even unintended meanings. My discussion briefly explores each of these phases of analysis of websites, with examples of their potential to express aspects of culture. The references provided are only listed as sources for further reading.

Preservation of first impressions and reactions

This first phase precedes in fact the actual analysis. It is aimed at retaining the first general impression of the website before the researcher's initial reactions are possibly eradicated or supplanted by further, more in-depth research insights. In this initial phase, researchers will try to make an instant assessment of the website in terms of "look and feel," their first impression with respect to genre and purpose. They should also note down their affective reactions: whether they are attracted to the web presentation, or intrigued by some features, what they immediately don't seem to like about it, what puzzles them, etc. These first reflections need to be recorded while they remain spontaneous and they are important to feed a reflexive attitude, which implies the conscious reception of a website as a "meeting of cultures" between producers, intended audiences and researchers. Such reflexivity is also required throughout the research process to help understand the reactions of other people, who have not studied the website as a focus of research.

Inventory of salient features and topics

In this phase, researchers concentrate on collecting and categorizing present and absent features and topics of the websites in their chosen sample. This involves making an inventory of website features and attributes (for example the use of graphs and tables, the presence of web cams, feedback areas) that are present, and an inventory of main content categories and topics (for example "news," "about us," "photo gallery," "products"). These features and attributes can then be counted (or measured) and put into significant categories steered by theoretical insights or a hypothesis.

In addition to listing, counting and clustering the salient elements that are present, it is also useful to perform a "negative" analysis, that is to pay attention to those items, aspects or events that are "meaningfully absent" (that is in a way "expected" or forming part and parcel of the cultural reality the website refers to, or the genre to which the website seems to subscribe). Absent topics and features or "omissions" may be as culturally significant as the present ones in that they may point to cultural taboos, or implicit values and norms.

What is significant or not in this regard may require both deliberation and specific knowledge of the genre and the broader culture under study. Also, this assessment will be guided by the specific research interest. But all in all, this phase entails a rather straightforward and fairly easy to quantify approach yielding a first basic set of indications regarding functions, purposes, genre conformity, affiliations, and opinions expressed in the selected websites. This phase is well-adapted for large scale research using standardized coding sheets by different coders, since it requires minimal interpretation and is limited to a primarily denotative reading of the content and form. Automated data collection may even be possible in some cases, for example the automated searching for certain words in content analysis of a text corpus (Bauer and Scharl, 2000; Bell, 2001).

In-depth analysis of content and stylistic features

While the preceding phases yield some basic insights, the central and no doubt most encompassing third phase proposes to first look at the potential information that resides in the separate modes (intra-modal analysis) and then to look at the complex forms of interplay between the different modes (cross-modal analysis). In an actual research project these phases may be combined at some points, as meaning is often produced by the interplay of expressive systems, yet it remains useful to devote separate attention to the specific signifiers within each of the modes and sub-modes with respect to their cultural connotations.

Intra-modal analysis (fixed/static and moving/dynamic elements)

Verbal/written signifiers. In this subphase, research is focused on analyzing potential culturally specific meanings that reside in the explicit and implicit content of the written utterances (for example

opinions, propositions, descriptions) as well as in the stylistic features of the written language parts and their possible meaning/effect in a broad sense (syntactic, semantic, and pragmatic aspects). The content can be analyzed in terms of topics and issues that are being dealt with and the expressed positions vis-a-vis these issues and topics: opinions, value statements (for example politically, corporate-, or family-oriented), forms and degree of self-disclosure etc. With respect to style, the analyst may look at such things as: word register/lexicon, forms of address, use of first person singular or plural or impersonal, temporal orientation, gendered statements, use of metaphors, rhetoric and narrative strategies, humor, connotative meanings, use of abbreviations, redundancy, use of paralanguage (emoticons), and to numerous other language variations and choices that may potentially reveal useful information about the sender(s): social background, position, preferences, intended audience, purpose, beliefs etc. (Wierzbicka, 1991; Foley, 1997; Crystal, 2001)

Typographic signifiers. This subphase focuses on analyzing the potential culturally specific meanings that reside in the visual properties of the written texts such as: font choice (font ''families'' and their ''character'': formal, informal, authoritative, elegant, playful etc.); font size (importance, ''shouting'' vs ''whispering''); font style and effects: bold, (for emphasis, respect, phatic function etc.); font direction (left to right, top to bottom, etc.) and curvature (straight or dancing); font color (cultural connotations, iconic and symbolic properties); combinations of different fonts (multiple ''voices''?); character and line spacing, legibility (font shape and size in combination with color and background); para-iconic qualities (type as image: ''bloody'' characters); text animations (text in motion); intertextuality (reference to a specific type or logo, for example Coca Cola) (Brumberger, 2003; Stöckl, 2005; Van Leeuwen, 2005a, 2006; Cahalan, 2007).

Visual representational types and signifiers. This subphase is a very complex one. First because visual representations come in many different types and shapes: graphical/conceptual representations (for example charts); algorithmic representations (for example photographs, scans); nonalgorithmic representations (for example drawings, paintings); abstract or nonrepresentational forms; symbols and icons, numerical representations (tables), each involving a different analytical stance because of their very diverse referents, production processes and uses (see Pauwels, 2008b). And second, because visual representations have to be analyzed meticulously both for ''what they depict'' (''referent'' or ''content'') and ''how they depict or represent'' (style). The latter aspect requires very specific knowledge of each of the distinct representational processes and therefore is often overlooked (many visual studies indeed limit themselves erroneously to the depicted content). In looking at the characteristics of the depicted, the analyst should be well aware of the nature of the referent (imaginary, material, conceptual; visible/invisible etc.?). The mode of depiction is also important (Carroll, 1996: 241); the mode may be ''nominal,'' representing a class or general example, or ''physical,'' depicting a particular person, thing or event. Due to space restrictions, I will limit the discussion of concrete characteristics of visual representations that might bear some cultural meaning to the ubiquitous ''photographic'' image in websites.

To analyze the ''level of the depicted'' in the case of photographs or films means consideration of the ''pre-photographic'' or ''ante-filmic'' level. This requires analyzing, for example, the depicted event, visual ''motives,'' characteristics of persons, e.g. the age, gender, acted character or natural behavior, type of behavior etc., background, lighting, use of visual rhetorical figures (such as metaphors, metonyms) etc.

To analyze the ''level of depiction'' addresses the style, medium-specific characteristics and post-production processes. This includes careful study of:

a) the ''*material characteristics of the image*'': these characteristics are limited in this specific case, namely websites, to ''images projected on a computer screen.'' They include: texture, resolution, sharpness, color spectrum, image ratio (square, panoramic etc.), image form, image borders;

b) the "*signifiers and codes of the static image*": these include: composition (prominent elements, balance, planes, light contrasts, color, direction, shapes and forms); use of superimposition, reflections or double exposures; nature of lighting (intensity, direction, diffusion); camera distance (extreme close up to very long shot); focus (deep focus/selective focus, soft-focus, center focus etc.); depth of field: broad (deep focus photography) versus narrow (shallow focus); camera angle (high/low, canted angle, etc.); focal length (wide angle to telephoto); shutter speed (frozen to blurred effect); exposure (correct or over/underexposure); special effects (filters, digital effects, etc.);
c) the "*signifiers and codes of the shot*" (moving image): camera movements (panning, tilting, rolling, travelling, crane, handheld, steady cam, zooming, follow focus, rack focus); shutter speed (slow motion, fast motion, time lapse, freeze-frame);
d) *editing choices*: shot length (short, long duration); image transitions (dissolve, fade to black, etc.); editing style (continuity editing, propositional, dialectic, etc.);
e) *post-production*: digital effects, (relative) size of visuals, position on screen, sequenced or randomly changing images, live web cam images (web cam).

Each of these parameters and signifiers may express a particular culturally significant view on the depicted (for example respect or superstition by avoiding a close up, high and low camera angles to express domination or subordination, shallow focus to help steer (direct or obscure) the visitor's look, etc.) (Boggs, 1991; Monaco, 2000; Giannetti, 2007).

Sonic types and signifiers. Websites are increasingly including sonic or auditory aspects, which in turn are becoming increasingly varied.

a) "Spoken words or sung lyrics": these have syntactic, semantic and pragmatic features similar to written texts. However, in addition, they have a set of potentially significant phonetic characteristics, which also need to be studied, e.g. tone, accent, intonation, articulation, pauses, volume etc.;
b) Vocal sound which is non verbal (e.g. laughter, screams, sighs);
c) Nonvocal sound/noise (e.g. car breaks, train whistles, ticking clocks);
d) Music (instrumental or vocal).

In particular, the iconic, indexical and symbolic qualities of music can provide strong cultural indicators of such things as genre, ethnic origin, ritual function and sub-cultural affiliation. Indeed, all the types of auditory signifiers listed above can be analyzed in terms of "content," mainly through their iconic and indexical properties as well as through symbolic /metaphorical features.

Layout and design signifiers. The proverb "design is thinking made visual" (credited to the American graphic designer Saul Bass) also applies to websites. Website design and layout features are essentially tools used to attract, direct and invoke the desired effect on, or response from, website visitors. However, through the choices, they also convey producer-related ideas, opinions and aspirations.

Particular combinations of choices may, for instance, express more conservative or nostalgic feelings or conversely embody a more experimental, daring or "avant-garde" attitude. Layout and design features will work to guide potential visitors through a web page by the use of dominant elements, iterative features and compositional choices: themes, templates, color schemes, use of columns and frames, backgrounds, white space, spatial balance (symmetry /asymmetry, horizontal, vertical or diagonal structure,) left-right, top-bottom relations and expectations, relative size and position of texts and visual representations etc. (Kress and Van Leeuwen, 2002).

These choices may result in a very rigid structure (predefined categories and spaces and pathways) or embody a more open space to wander around. They may seem to blend to a recognizable "genre" (newsletter, family album, institutional) or exhibit a very hybrid and eclectic appearance. Again explicit

attention should be paid to cultural connotations/metaphor and intertextual references (for example a politicians' website adopting the form of a family album).

It is important to note that the design and layout will be more revealing about the culture of the immediate sender(s) the more they are responsible for each of the constituting choices. When prefabricated templates are being used, (which include content categories, for example commercially operated companies offering family website templates), researchers may be learning more about the culture (ideas, preferences) of the developers of templates and browsers and the hosting services than about their users, though the choice by the user for a particular ready-made template, graphic theme, browser also remains significant.

Analysis of cross-modal interplay

This subphase pays explicit attention to the forms of interplay between linguistic, visual, auditory, spatial and time-based elements. Very often meaning is constructed by an interplay of two or more elements and while the constituting parts may express a specific idea, this idea may be completely reversed in combination with other elements.

More concretely, research here could focus on:

- Relations between written parts (captions, titles, body copy) and visuals, which can be characterized by a tightly bound or a loose relation: a mere illustrative, redundant or highly complementary one (Garner et al., 2003; Hocks and Kendrick, 2003; Martinec and Salway, 2005; Hagan, 2007).
- Relations between sound and visuals (for example use of off screen comments, onscreen speakers, musical score, synchronous sound), which may be characterized by a balanced/complementary, or hierarchic (dominant/subservient), or contradictory-contrapuntist (for example irony) stance. Sound can be used, for example, to enhance realism of the images or conversely serve a primarily expressive-symbolic function (Chion, 1994; Van Leeuwen, 2007).
- And further: all possible interactions between typography; layout and design elements versus textual content, visual representations and sound, which may for instance contribute to a unified view or position or reveal many incongruent ideas (for example a retro design combined with avant-garde opinions). This includes even relations between different elements within the same mode and is the meaning that resides in the juxtaposition of images, or a specific combination of music or writing styles (Kress and Van Leeuwen, 1996; Van Leeuwen, 2005b; Knox, 2007).

In-depth "inverted" analysis: significantly missing or incomplete content, arguments and formal choices

This sub-phase in a way reprises phase 2, but now it involves a much more in-depth analysis of aspects, issues and arguments that are not covered and which exactly by their absence seem to become significant (for example no use of close ups, no people in images, or no old people in images, absence of ethnic diversity in an ethnic diverse context, no external links, no info about a certain family member or aspects). Observing Watzlawick et al.'s (1967: 48) maxim "one cannot not communicate" it may further help to uncover cultural taboos or highly sensitive issues through much "reading between the lines." It is important to note that negative analysis can in fact be applied to all phases of the framework including the study of points of view, implied audiences and purposes, information organization and priming strategies, up to the analysis of the broader technological and cultural context.

Embedded point(s) of view or "voice" and implied audience(s) and purposes

As the previous phase involved a detailed analysis of "what" is being said or expressed through form and content, this next phase tries to further complement the inquiry into the cultural meaning of web

utterances with the question: "who" is really saying (the earlier captured and analyzed) "what" to "whom" with what "purpose"? This complex question is addressed in a meta-analytical way combining different expressive elements that have been identified before (for example modes of address, camera angles, personal and possessive pronouns).

The Point(s) of View (POV) and /or "Voice(s)" of a website are the result of a combination of many features; they can be manifold and even contradictory (for example pictures and texts originating from different people) or very consistent and unified. Obviously POV's reside in many aspects of the website (visuals, textual, design elements like templates etc.) and they don't easily "add up" to one dominant or unified POV, since many websites contain materials from very different sources (for example archive pictures, templates, journalistic texts). Yet the purpose of this phase is mainly to uncover what the dominant points of view (or "master narratives") are as expressed in the website as a "grand syntagma." So a website may, for example, present itself at first sight as a family website where different family members have their say, but after closer scrutiny it may become clear that one family member is really pulling the strings and using the website as a vehicle to propagate his or her political views to an outside audience. The POVs can be very manifest (using first person singular or plural, or a third person voice in text or adopting subjective, half-subjective and objective camera positions in images), but often it remains difficult to determine whose point of view in a metaphorical way is being expressed. The picture taker typically remains invisible and the expressed (or literal) standpoint is not necessarily a "position" in a more metaphorical sense. POVs and personae as described or depicted in texts and images may even be fictitious or false, (for example in family websites parents often "voice" the ideas and feelings of the younger children; in corporate and commercial websites copywriters often put some words in the mouth of some real or fictitious employee or customer). The nature and variety of the POVs may add a sub-textual meaning to the content (embody indicators of democracy, multi-vocality, openness, or conversely reveal autocratic traits). A meaning that is not always easy to determine, such as for instance the presence of multiple voices, can be interpreted as a sign of democracy or conversely a token of disorganization.

Paired to the analysis of POVs, is the effort to derive/determine the intended/implied primary (for example children) and secondary (for example their parents) audience(s) and connected to that the embedded goals and purposes, only some of which are explicitly stated (and true). This analysis will further add to an understanding of whose goals are served, whose values are propagated and who is to benefit from expressing them.

Again, purposes and audiences can be explicitly stated, but they can also more indirectly be derived from "expected visitor/user behavior." Website offerings, particular features (feedback areas, polls) types of address, expressed POVs, etc. may hold indications of expected behaviors such as, subscribing to views, buying a product or service, being converted. Thus implied audiences can be identified / constructed in terms of economic status or class (for example "well to do" consumers), conviction (non believers-believers), specific age groups (young children, elderly persons), other characteristics (same name bearers, nationality, hobby, health condition), etc.

This phase thus interrogates and complements "first impressions" (phase 1) with a more in-depth analysis of manifest and latent aims. It also implies comparing explicitly stated purposes/audiences with latent/secondary ones. For example, family websites today are not limited to celebrating family events and values, but often include as secondary (or primary) goals: showing off technical or creative skills, selling products or oneself (for example by including a résumé), or voicing political and religious opinions (Pauwels, 2008a). As this research phase, like the preceding one usually involves a rather "sub-textual" reading of all elements and their interplay, it consequently may involve much interpretation.

Analysis of dynamic information organization and spatial priming strategies

This phase focuses on analyzing the structural and navigational options and constraints (the "dynamic" organization as opposed to static layout and design features) of websites, as well as their priming strategies and outer-directed features with respect to steering preferred readings and conduct, and exercising control. Navigational structures tend to embody thought patterns (e.g. "linear" and explicitly guided patterns often associated with low context cultures, as opposed to "more subtle or obscure" ways in high context cultures (Würtz, 2005: 23).

Researchers should both look at the overall information architecture/organization and to the place or position of different bits of information in that structure[1]. The structure (menus, internal links, navigational tools) may allow for free roaming of the website or exhibit a tight order and set of rules that visitors should follow. The content as linked with its spatial hierarchy/rhetoric (for example items with more or less space occupied in the website, items on the homepage or buried deeper into the website, the order and flow of elements, pathways and vectors) may express a social or cultural hierarchy as well. For example, if in a family website the father's interests (hobbies, past, opinions) occupy more space and need fewer "clicks" to find, this may be interpreted as a reflection of more traditional (less equal) gender roles. The numbers of layers one has to pass may sometimes be indicative of the importance or sensitivity of the item ("burying" as the counter strategy to "priming"). And even search engines (their options and undisclosed algorithms) may be considered potentially significant in terms of control and materialized cultural preferences (for example when going first for commercial links, or most popular links, or blocking certain content).

Contemporary websites often use (or are being flooded by) a gamut of priming tools and strategies ("most viewed videos," "news," "eye catchers," banners, pop-ups, internal links) of a very different nature and origin. They may also make use of numerous control mechanisms: passwords, counters, rules of conduct, forms of censorship, copyright disclaimers, change, copying or printing blocking, privacy invading practices (cookies, or tools that capture part of the identity of the visitor). The use of each of these items can potentially tell us something about the value and belief system of its originator (trust-distrust, respect-disrespect, generous-self serving). Other outer directed features may include: chat rooms, bulletin boards, email contacts, Wikis, blogs, guest books, forms, YouTube video links, ads, dynamic links/updates (for example weather updates, financial info, web cam images). It may be important to study the nature and sought degree of "interactivity" carefully. What exactly is the visitor or user of the website allowed to do, or expected to do: just select content (menus), place an order, post a reply, add content, change content, engage in one to one, one to many, or many to many communication? Are they allowed to leave the website at any point? Or are connections with the rest of the internet highly constrained?

The study of external hyperlinks in particular is often very rewarding as these virtual "affiliations" are further and clear indicators and expressions of particular interests, preferences, value systems, and aspirations (political, religious, commercial, educational, etc.).

The control over the look, functionality and contents of the website may be exercised by one person or distributed over several persons and groups (as with, for example, Social Networking Sites: SNSs).

Contextual analysis, provenance and inference

When researching websites it is not only key to identify the most significant cultural indicators, but furthermore to attribute these traits to cultural actors (culture of software producers, community of users, peer group or sub cultures, personal preferences) and to find out how this all amalgamates in extremely complex multi-authored cultural expressions. Indeed, all inferences with respect to possible cultural significance and meaning need to be based on a solid insight into the origin and circumstances

of the different constituting elements. However "authorship" and "origin," and in this case the question of who to attribute certain choices to is an increasingly complex matter with websites, not only because of the multi-authored nature of many sites (especially SNSs), but also because of the supporting technologies of multiple sources (which are themselves forms of materialized culture) and the strongly intertextual and globalizing aspects of contemporary media.

Design and infrastructure may be political in its consequences (and even in its inception), to the extent that it precludes certain uses or users (e.g. because a certain expensive tool is needed or when a particular knowledge or skill is required) or stimulates a certain conduct or choice. Thus technologies and platforms in and by themselves (templates, browsers, programming languages, data base structures, graphic tools), with (and without) certain functionalities already embody certain cultural norms. And the same goes for the specific application of these technologies and their interaction with the set up and purpose of the website (enable or constrain). These culturally significant aspects of infrastructure to a large extent remain invisible as they are very much embedded in other structures, social arrangements and technologies and in their routine application. As Star (1999, p. 382) observed, it is only when infrastructure breaks down or malfunctions that its presence and impact is noticed.

The ability to construe useful information from the embedded cultural signifiers of websites rests for an important part on the assumption that one knows who or what exactly is responsible for choices and how these different choices combine to deliver intended and unintended effects. When sources are mentioned or detected one should further investigate their authority, trustworthiness, and whether they are up to date (the "last updated on" clause referring to the whole website provides a first yardstick). Clearly one cannot assume that website creators are fully aware or knowledgeable of all aspects and effects of combining different communication elements (e.g. texts and images, font types, lay out templates). In that respect the overall meaning of the resulting website may transcend the conscious intentions of the (different) creator(s).

Essentially the proposed analytical framework provides a structured overview of the many website aspects that may potentially carry culturally specific meanings in a broad sense. As such it should only be considered as a starting point for further investigation of how values, norms and expectations are inscribed into technical systems (the "politics of artifacts" cf. Winner, 1986) and the ways they are put to use.

OPERATIONALIZING AND DECODING CULTURE

The crucial part of researching websites as cultural expressions remains the valid operationalization ("material translation") of a particular research interest (e.g. status display, gender roles) or of a predefined cultural framework (cf. Hofstede's five dimensions) or theory into the most indicative and duly observable/measurable aspects of a website. The presented framework of website signifiers in the previous section may help researchers to make more and better use of the many layers of potential meaning that reside in the rich multimodal nature of websites. However, it cannot help them to automatically identify the most significant parameters that will then serve as a set of "cultural markers" for a specific research question. Nor does it provide a shortcut to cultural interpretations of the paradigmatic choices and their specific intramodal and cross modal combinations.

The visual, verbal and auditory parameters of websites are in principle finite in number—though not necessarily fixed or static in nature—as new features or options of existing parameters may be added (paradigmatic aspect), while on the other hand the combination of choices that can be made within each of the parameters are virtually limitless (the syntagmatic aspect). Thus the already extensive list of possibly significant parameters of websites needs to be regularly updated. Also it is important to understand that paradigmatic choices don't necessarily add up or work together to compose a well balanced and

consistent syntagma. Websites may well contain very hybrid and even contradictory cultural expressions. Analyses of websites as cultural constructs need to involve both the mono-modal and the multimodal meanings as a result of both deliberate and inadvertent multiauthored choices and combinations.

Consequently each research project using this framework will benefit from the development of a more customized model for selecting and codifying the most significant parameters for a specific research question or interest.

To avoid being forced to look at all of the possible signifiers of a website or in other words, to reduce the efforts to more manageable proportions, new research can at times be based on choices made in previous research or depart from an ''on face'' value selected set of parameters that seems to be most indicative of a given cultural issue. Further research on specific cultural (off and online) settings as well as pretests may gradually help to identify the most salient and expressive aspects of websites (in some cultures or for some cultural aspects) and generate/inspire appropriate hypotheses or advance more plausible interpretations.

Specific input from the culture under study (the ''emic'' viewpoint) as well as a multidisciplinary scholarly knowledge (the ''etic'' viewpoint) will always be needed throughout the research design and in particular when trying to attribute cultural meanings to the findings. Otherwise findings risk being funneled by certain static preconceptions of culture and as a result possibly the most unique aspects may not be recorded as they typically tend to escape the other culture's concepts.

Extreme caution needs to be observed for ready-made cultural interpretation schemes. To give just one example: color (background color, color of type, colored pictures..) often is an important cultural indicator (in a symbolic, iconic or indexical sense) but the existing cultural classifications linking ''this color'' with ''that (universal) meaning'' have very limited use. Using simple lists of meanings of color (as do e.g. Badre, 2001 and Fletcher, 2006) for different cultures is not recommended because those colors' meanings are depending on the precise context of their use. For instance, in the table that Badre (2001: 3) is using in his study, the color ''red'' signifies ''danger,'' or ''stop,'' while Fletcher's table (2006: 268) lists as possible cultural connotations for the same color ''love,'' ''adventurous,'' ''happy'' ''inexpensive'' etc. It is clear that even in the same culture the same color may have widely different meanings according to the context (traffic, religion, fashion, entertainment, health, politics) and to a certain extent even to different members (based on past experiences, preferences, specific expertise and interests, affiliations, etc.).

A type of ''grounded theory'' approach (Glaser and Strauss, 1967) is recommended as cultural knowledge (etic and emic) should inform the construction of categories / concepts and empirical observations should be used to revisit those categories / concepts. This approach is slower and more demanding than research that starts from preconceived cultural dimensions and operationalizations, but it may prove to be more culturally ''thick'' and better suited to uncover more specific and possibly unexpected aspects of culture. So in conclusion, a broad cultural and multimodal literacy or competency will be required to succeed.

CONCLUSION: CHALLENGES AND REWARDS

The internet is, apart from an impressive technological achievement, also a vast cultural accomplishment, a set of practices and options that reflect the culture of its production and that continues to exert an impact on subsequent uses by and within different cultures. The internet is not considered here simply as a data repository that merely reflects distinct offline cultures or a venue that embodies a confined world of experiences and expressions. It is a highly hybrid multi-authored cultural meeting place, connecting off line and online practices of different cultures in transition. To some extent it can be considered a cultural agent in its own right, exemplifying processes of globalization and glocalization in an unparalleled manner.

More than a decade ago Weare and Lin noted with respect to websites that ''the newness of this multimedia genre and the continued evolution of design standards have outstripped our understanding of the syntax, semantics, and logic of multimedia messages, complicating the development of valid categorization schemes for Web-based messages'' (2000: 289) and to a large extent this observation still stands.

The emphasis in this article was not on how to produce culturally appropriate or sensitive websites in a global economy to construct ''happy customers'' (as Marcus and Gould, 2000 and many others are pursuing based on Hofstede's dimensions of culture). Departing from a very broad conceptualization of culture and a very broad and detailed look at the different multimodal elements that constitute web-based communicative utterances, the main idea was to contribute to the development of a more refined and elaborate analytical tool for disclosing cultural aspects.

As the framework only proposes a checklist and a multimodal methodology for discerning cultural indicators, analyzing websites with all of their cultural aspects will remain a very arduous and specialized task, which will involve in depth and specific cultural knowledge and a host of technical and arts-based competencies. Ultimately, what researchers can get out of websites also depends on what they bring to it in terms of specialized and integrated knowledge and skills. An anthropological linguist for instance will be able to derive much more information from the textual parts than the average social scientist and likewise, visually literate scholars will discover many layers of meaning in the visuals, that will go largely unnoticed by the majority of website researchers.

But it is also clear that every researcher and every research is limited in scope and culturally positioned (e.g. regarding: research focus, chosen methods, selection of samples, etc.). One way to reduce potential ethnocentric biases in conceptualizing and researching culture is to be more self-reflexive and thus to be more critical and explicit about one's choices and the reasons that might feed them. But of course this self-critical introspection and communication will always be limited by one's cultural background and experiences and thus it will necessitate a critical examination and confrontation with thinkers and representatives of different cultural legacies.

On a final note it could be argued that the very demanding nature of website research is well compensated by the unmatched data richness and availability of websites, which can be regarded true multicultural vaults of largely untapped information. Moreover, the gradually acquired cultural and multimodal competencies while trying to disclose these sumptuous repositories can also be employed in scholarly communications and media uses, so that social and cultural sciences themselves can become more multimodal, interdisciplinary and technologically savvy.

Notes

1 Djonov (2007) made a useful contribution to understanding the complex interactions between content organization, webpage and navigation design in her work on ''website hierarchy.'' This body of work could further inspire the development of a more sophisticated tool for cultural analysis, but is currently geared more towards designing websites in terms of optimizing user orientation.

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