Automated Muses. A Semiotic & Philogenetic Approach

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ABSTRACT
Computational support tools, digital media, and socio-technical environments should expand and empower our creative processes and abilities.
Human-machine factors, usability issues as well as hardware and software design should be revisited from a more ample perspective as the information era tools may help users not only to build and represent their valuable and complex essences, but to enable innovative and creative results.
In this paper, evolutionary, historical, cultural and aesthetic factors, amongst others, are discussed and attempts to solutions are proposed through examples.

Keywords
Creativity, innovation and cognition; infographics and knowledge visualization; creativity and social computer support tools

INTRODUCTION
Whether offspring of memory titaness Mnemosyne by Zeus, or Samothrace born Harmonia, goddess of mental concord, by Cadmus; or springing from Uranus (Father Sky) and Gaia (Mother Earth), the Muses are, without any doubts, the ones in charge of igniting, administering and regulating the norepinephrine neurotransmitters in our 3mm sized grey cerebral cortex frontal lobe and beyond (including the connections with the limbus and its nucleus accumbens). They enable us, we refined Neanderthals, to excel in creative pursuits. Innovation at its simplest is just divergent thinking...

From Prehistoric Scriptorium to Virtual Tablets
Polychrome rock paintings, pictographs and petroglyphs were both an attempt by Cave Era artists to communicate with spirits, gods, other humans or simply themselves.

From the positive prints made with pigment applied to the hand and transferred to the rock; to the spraying tool and procedure around a hand, and thus obtaining a negative image; to the wet clay or charcoal drawings, and the involved tangible interaction with many other mineral pigments as manganese, hematite, malachite, gypsum, limonite, and various oxides; to the representation of fine lines, denoting the evidence of a production of more perfected animal hair brushes and crayons, some intent by the artificer is revealed to fulfill both his aesthetic requirements and practical necessities.

The act of rock removal, either by scratching, abrading, pecking, carving, drilling, incising and/or sculpting into stone surfaces, the direct interaction between the human and the parietal cave, his actual interface and undoubtedly the first human knowledge scriptorium, - message and media, "pur sang" content -, conveying and communicating meaning, and almost certainly and pragmatically, to mark territory, to record and depict historical, real or abstract events, or stories, or to help enact rituals, also determines the innovative and creative result.

From the 300.000 BC Homo Neanderthalensis stone-wedge made Moroccan Venus of Tan-Tan to more sophisticated human tool-work production such as the 24,000 years old red ochre tinted oolitic limestone Venus of Willendorff, which was the result of the prepared-core technique stone tools by first preparing common stone cores that can then be shaped into the desired implement, somewhat mysteriously, symmetry and attention were given to the shape of a tool. This represents a clear example of not only the growth of the human cognitive ability but the direct and intrinsic relationship between innovative creativity support tool and its creative results. As well, tool changes molded and modeled the dramatic transformations taking place within the core of the human culture evolution and development.

Further along in civilization, mischievous Euterpe, Calliope, Clio, Erato, Melpomene, Polyhymnia,

Terpsichore, Thalia, and Urania ruled our predecessors. The tools given by the nine Greek goddesses to the original gifted cave dweller determined not only the level of stimuli, motivation and innovation, but the ultimate creative original results. We know of those tools and that art made of or on stone or clay but have few decayed remnants of art made of less durable materials. Part of the story of our evolution as symbolic animals is lost.

Unless we obediently accept what great Picasso imprinted: "after Altamira, all is decadence", the non-physical entities, the utensils that we are currently designing for others to use and to better ourselves individually and collaboratively, to encourage and nurture creative mindsets and lifestyles should echo the evolutionary imperative. Particularly the computational support tools, digital media, and socio-technical environments should expand and empower our creative processes and abilities.

Cross-cultural and interpersonal factors in cognition and creativity and innovation

The denial of the notion of the number zero by the Ancient Greeks determined a trend and a way of thinking largely marking the evolution of Western theoretical developments and tools with its own defined Aesthetics and corresponding connotations until the Arabs and Indians introduced the numerically revolutionary concept. Similarly, the orientation of individual writing systems (Latin alphabet, Egyptian hieroglyphs, Hebrew or Arabic scripts, Chinese characters), the shape of the signs and the systemic constraints, also define a mental pathway or a way of thinking. It is doubtful that English would have evolved as it has to be such a dominant and adaptive language had it not been based on a forgiving alphabetic paradigm.

Human-machine factors and usability

These issues should be revisited from a more ample perspective wherein less structured protocols should be followed. The flexible, multi-connected, unpredictable, ludicrous, even absurd human mental processes and associations should be imitated and introduced in the design of the hardware and software of computer and web-based tools. It should be also considered the user's mental development and the various stages in life, his educational and ethnical background, his natural language, as well as his multiple geographies. Imposing the software designer's sensibilities on all users locks them in to a limited set of interactions and blocks innovations unknown.

Consider two examples:

Thesaurus

With Macintosh systems in general and Claris Works Thesaurus in particular, synonym and antonym tools are more semantically, syntactically and pragmatically richer than the ones on Microsoft Word. Its friendlier repertoire provides the user in charge of creating a literary discourse, whether when poetry or a technical piece, with more options and freedom. Perhaps this explains its dominant popularity among the creative elite.

Adobe Photoshop and creativity computer support cousins

The richer the spectrum where to choose from in the visual, oral, tactile or multiple sensor repertoire and included variables, for example, the colour palette, and the more direct, quicker and friendlier and interactive the access and protocol towards a said colour and corresponding application, the better and more creative the potential results. But the very richness can be daunting at first approach. As in any alphabet, pictograms in the tool bars and menus should be learned prior to their use. To assist new users, software tools and interfaces should convey more concise and universal meaning for a quicker communication and interaction with the user. But lo, here is the paradox – standardization promotes adoption but hinders adaptation.

Google, Yahoo, Wikipedia: Babel or the Gates of Heaven?

Plato was right when stating that we were exposed to too much information and too little knowledge. Search engines are a dominant form of communication in developed and developing countries. However, they tend to adopt not only a monopolistic posture but direct us to a confusing result. The credibility of the content is arguable as well as the tangled ends or the illogical unnatural high time consuming linkages that conduct nowhere. Text mining and visualization techniques mainly based on infographics, semantics, cognitive and perception principles are a promising way of limiting information as well as exposing new knowledge.

Knowledge must be mutable or it becomes dogma. To move us beyond our jumbled and confused present, search tools need to be considerate of but not restrictive to our cultural and human developmental perspective as well as our politics and ethics. Multilingual content management issues should also be revisited to match our polyglot population.

Social Digital DNA

The latest applications on social tools that may help users to build and represent their valuable and complex semantic identities within local and global communities, wherein like in a person's digital DNA, it can be enhanced and recombined within social networks to significantly extend his presence, memory and creativity. Tools supporting our personal evolution in the digital dimension have not yet shown inherent limitations though users can and do impose self-selection boundaries.

Mapping Knowledge. Visualization

Attempts and methods known as organic information design models for examining and presenting both very large data sets as well as dynamic sources of data are proving to be effective for the user.

Whether on the web or on a papyrus, probably one of most potentially effective visualizations of knowledge would be a hybrid Fractal model where content is "travelling" on a series of interconnected and concentric fractalic helicoids colliding with other intersected helicoids.
These 3D surfaces, changeable in size and width, and in motion, with corresponding traceable added nodes and arcs, allow us to better represent history, legacy, and in a way, time. Apart from the other important issues, when you are dealing with distilling, organizing, sourcing, searching, or gathering, large amounts of complex information, dimensionality adds design to the data. Imagine a series of concentric hurricanes with all their drops of water well interconnected and cutting them into longitudinal, transversal and diagonal slices or layers: How many ways are there to understand the hurricane?

During the Late Middle Ages and Proto - Renaissance, artists instructed us to perceive the world from a different perspective. The new revolutionary code, stated by Alhacen in 1015, though proper to the vision of a Cyclopes - according to many theorists, was based on the human mental and cognitive capacities of remembering and storing data, perceiving and recognizing physical or abstract objects then processed by inference, wherein the visual or any kind of stimuli and as a whole is taken in very short intervals allowing recognition. Assuming that the tools we create and our sensors as extensions of our human brain, knowledge is properly interpreted as a projection of our minds. Perhaps, creativity support tools applied to knowledge visualization should be based on algebra and algorithms of the vision of a creative and brainy, high resolution, compound eyed Cyclopes Antarctic Krill.

Corollary

The lack of freedom experienced in the virtual environments as well as the unilateral thinking process involved and the amounts of unnatural obstacles to sort, undermines and limits the creative process by diminishing motivation, refraining spontaneity, ultimately blocking innovation and tending to generate cliché results affecting not only the Fine Arts and Social disciplines, but the entire Science and Technology worlds, with the consequent irreversible reduction in the production of true innovative products. It causes lethargy in the evolving cultural human development, and directly affects the various economies.

In order to amend this unfortunate situation, it urges us to restate the problem and to invoke, of course, the gracious though latent Muses in their newly digitalized Delphi.

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