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Transmedia and Transliteracy in Nemetical Analysis

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INTRODUCTION

The increasing diversification of interconnected media platforms, which provide a complex discourse, demands an effective use of the space that is now called "transmedia." This article provides terms and definitions for transmedia and for the new set of personal skills and abilities required to participate in it: "transliteracy." It also presents the nemetic system, which facilitates analyzing, tracking, and visualizing communication interactions in virtual transmedia environments.

Since humans started to use both gestural and oral codes to communicate, messages have been elaborated and expressed differently when different communication channels were in use. In recent times, with the dawn of radio and television, that fragmentation of content has become of interest to researchers (Steinberg, 2012), and has been identified as a characteristic of mass media (McLuhan, 1994).

With social media, content is fragmented across multiple virtual and physical platforms, with varying degrees of interaction that add complexity to social communication. Interactivity among multiple authors and multiple audiences generates dynamic "cross-media" seriality, "transmedia narrative" that has been studied from educational, entertainment, and sociological points of view (Dena, 2009).

Learning to use these media requires skills beyond the traditional listening and reading, to be able to integrate multiple messages in multiple codes, as an essential skill both for personal and professional communication. This transliteracy is a complex ability of intertextual navigation, the strategy for coding and decoding the multidiscourse in the digital ecosystem.

These recursive communication experiences are the subject of recent research (Duarte, 2014) that explores cognitive patterns in narrative that can be represented through geometric models, consolidating the use of the term "fractal narrative" in the transmedia context. The aim of this multilevel analysis is to take into account individual discourse (micro level), collective interaction (meso level) and community knowledge building (macro level). Interested readers will find a practical example of this in the documentation of the co-creative process that led to Daniel Durrant's representation of a NEME (Figure 2 of this article) (Nemetics Institute, 2015).

In December 2010, Mark Frazier had explored the fractal essence of digital discourse, and debated with Spiro Spiliadis, Daniel Durrant, and Michael Josefowicz the possibilities of expressing its complexity using a symbolic language (Frazier, 2010). After this early work with Ebdish (Emergent by Design'ish), the nemetic system has emerged as a more elaborated code to express and visual-

ize interactive communication processes in the transmedia ecosystem (De, 2014).

BACKGROUND: TERMS AND CONCEPTS

Transmedia

The term "transmedia" is attributed to Marsha Kinder, who in 1991 used it to refer to an emerging entertainment supersystem, involving intertextuality and multiple sources with different levels of interaction (Kinder, 1991). It applied to tools, processes, and concepts, and opened the door to media that had not been invented then, such as wearables, implants, or augmented reality devices.

In 2003 Henry Jenkins described a process of "transmedia storytelling" in which "each medium does what it does best, so that a story might be introduced in a film, expanded through television, novels, and comics, and its world might be explored and experienced through game play." (Jenkins, 2003) Later, he defined transmedia storytelling as a process "where integral elements of a fiction get dispersed systematically across multiple delivery channels for the purpose of creating a unified and coordinated entertainment experience." (Jenkins, 2007)

Probably the best-known example of transmedia storytelling is the Star Wars franchise. The fictional universe of Luke Skywalker, Yoda, Han Solo, Darth Vader, and Lord Sith is created through the synergy of films, books, role playing games, comics, video games, toys, and animated shows, to create a collective imaginary world. But transmedia storytelling is not limited to the entertainment world.

The notion of multiplatform narrative is expanding now to encompass every type of human communication, including marketing (Tenderich, 2014), political debates (Costanza-Chock, 2014), or personal learning networks (Richardson & Mancabelli, 2011). There is a need to identify the skills required to use transmedia, the processes

for teaching and learning transmedia skills, and the techniques to analyze transmedia production and its metadata.

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Transliteracy

The evolution from media to transmedia requires individuals to pass from personal linear communication skills and abilities (reading, writing, speaking, etc.) to intertextual skills. They include not only analogy, correlation, mental association, context awareness, or synthesis, but also empathy, engagement, and other emotional appreciations, essential to integrate and combine fragments of meaning into the holistic comprehension of a story.

The combination of these complex abilities can be understood as a new competency called transliteracy. Transliteracy has been defined as "the ability to read, write and interact across a range of platforms, tools and media from signing and orality through handwriting, print, TV, radio and film, to digital social networks." (Thomas, 2005)

In transliteracy, a coherent discourse is perceived through a series of transmedia fragments. It requires participants to move from discrete, perceptive skills to compound, intangible projective skills that can facilitate strategic thinking and collective problem solving. Interactions such as debating, negotiating, conciliating, or collaborating on social platforms are high value-added skills and become the energy for emerging collective creativity.

It would be impossible, for example, to understand the phenomenon of global warming and its varied impacts, without some comprehension of how the climate changes; the effect of human activity on the atmosphere; human migratory patterns; changes in food sources and food production due to changes in land, oceanic, and atmospheric conditions, and thus on refugee crises and terrorist activity, as well. No one medium or information source is capable of adequately presenting all these interrelationships, but if we are able, not only to "read" information from a variety of sources, platforms, and media, but to integrate it,

and understand it as a complex holistic tangle of phenomena, we are using transliteracy to gain a higher level of consciousness, or "mindfulness," about the subject.

Both transmedia and transliteracy are going to change the way we perceive learning and professional training, in universities and professional environments. Language and communication skills, necessary to understand and produce useful knowledge, are more and more related to the abilities to create, join, and maintain communities of interest, and build personal digital networks (Rajagopal, 2012).

Nemetics

Where transmedia is the framework for communication, and transliteracy is the skill for interaction, Nemetics is the analytic tool. Nemetics functions as a fractal meta-language that facilitates communication among researchers in different disciplines to debate about complexity. The multilayer nemetics system provides a methodology for connectivist action-research and action-reflection in transmedia, including several meta-codes for visualizing procedures and results.

The essentials of Nemetics can be summarized in a simple mnemonic acrostic, which describes learning in any context at any level. At its most effective it is:

- Notice without preconceptions (N).
- Engage without judgment (E).
- Mull before communicating or acting (M).
- Exchange in the appropriate way and time (E)

This basic path, (Notice. Engage. Mull. Exchange,) recalling the traditional Bloom taxonomy (Anderson et al. 2001), retrieves four action levels that may or may not be performed during interactions (after each verb, add the option, "or not").

The whole conversation is then conceptualized as a single identified process, a NEME that can be seen as a coherent unit, represented visually by the interactions that took place during the debate. The analysis of these nemes shows patterns and waves of exchange that offer extremely rich information (big data) both about the media environment and the participants. The basic initial model is the communicative sociogramme [Figure 1].
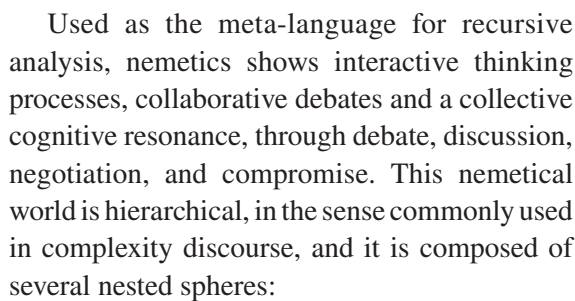
At the individual level, a NEME translates as a meta-cognitive routine; at collective levels, the study of NEME patterns can be useful for showing mental models that can serve as universals in further communicative analysis, and in designing debate strategies.

Taken as a unit, a NEME routine - that concludes with consensual knowledge - can be the starting point from which new debates can arise. This recursivity had already been studied in The Knowledge Forum, another international Computer Mediated Communication experience (Bereiter & Scardamalia, 2006), and has been identified as a path into high order thinking (HOT) processes (Rehage, 1994).

From routine building to big data analysis, nemetics includes the dimension of self-reflection, professional development, and organizational transformation. The obtained global vision contributes to leadership and resource management, focused on integrated learning - self and collective - and helps expand consciousness and engagement towards complex problem solving.

Nemetics helps express a new way of thinking about human communication that involves co-creation in complex adaptive/creative environments, and is being developed by the International Nemetics Institute: Care is taken not to define the discipline or its boundaries very rigidly. This is because once it is rigidly defined it also rigidly limits the development of the subject, its evolution and expanse it might cover. In short, any rigid definition would limit the discipline's adaptability to future changes in human conceptual understanding and knowledge or application in a different domain than what is envisaged right now. (De, 2012)
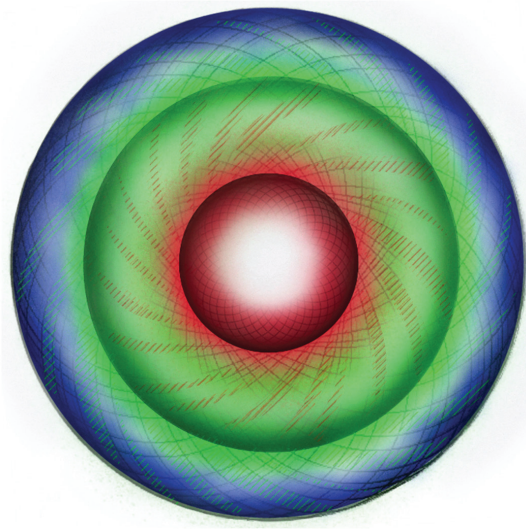
Figure 1. Communicative sociogramme. The graph represents a network of 40 Twitter users whose recent tweets contained "nemetics," or who were replied to or mentioned in those tweets, taken from a data set limited to a maximum of 18,000 tweets. The network was obtained from Twitter on Monday, 06 July 2015 at 22:51 UTC.

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Used as the meta-language for recursive analysis, nemetics shows interactive thinking processes, collaborative debates and a collective cognitive resonance, through debate, discussion, negotiation, and compromise. This nemetical world is hierarchical, in the sense commonly used in complexity discourse, and it is composed of several nested spheres:

- NEMES,
- nemiString,
- nemiTube,
- nemiPlex,
- nemiCell,
- nemiShape.

Avoiding bottom up or top down hierarchies, the nemetic language works as in concentric spheres, from inside to outside, and from outside to inside. Any sphere can be seen as a NEME, where the proximate inner sphere is the source of energy. The proximate outer sphere is the source of constraints [Figure 2]. In addition, there are flows of energy within and between spheres.

This nemetic code can be used as a common language to shape complexity, and the fuzziness of the code is the source of its strength. It has allowed networks to research and exchange about innovation, education, history, political economy, design, or art across the fields of different disciplines, specialities and cultures. Nemetic research

Figure 2. Spheres of nested complexity
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itself evolves by reproducing experiences of transliteracy in transmedia spaces.

NEMETICS RESEARCH ON TRANSMEDIA AND TRANSLITERACY

Context Analysis

In transmedia, the process is the product. Emerging experiences can be identified on the Internet by studying interaction sequences, exchange paths, and conversational structure, in augmented communication situations.

Nemetics should be understood as an ongoing process that is also a series of products. Context analysis becomes part of the production, and shows the internal process of collective debate and creation:

The power of transmedia is to make collaboration on even serious academic documents simple with almost no strain. No meetings. No phone calls. No schedules. Everyone works in their personal time. Inserts into any number of places. Goes away and waits for a response. (Josefowicz, 2015)

The International Nemetics Institutes provides a collaborative space for debating and exploring complexity from different scientific disciplines, by developing training and learning scenarios for hands-on problem solving in business, education and management fields. The main aim of this initiative is both process and product oriented. The process, begun in 2010, is an emergent intentional learning community that publishes blogs and social media posts, and performs open debates on twitter and other synchronic channels, offering the publication of a print newspaper and presentations in face-to-face training courses. The products include the founding of The International Nemetics Institute (TINI), based in Kolkata, India, and its subsidiary, The Nemetic Institute of Art and Science (NIASK).

Case Study

The creation of the International Nemetics Institute is itself the result of collaborative interaction in the transmedia sphere with proactive intentions. The main aim was to provide a professional environment for Nemetics training and Nemetics community building. With a wide presence on the web, the International Nemetics Institute emerged from debates on Twitter, reflections on Google Plus forums, exchange of visual ideas in PowerPoint presentations, and dynamic groups of interest on LinkedIn. The Institute building process, in itself, is an example of collective transmedia emergence.

Overview

The process that led to the emergence of the Institute is best described by the term synchrodipity (Robertson, 2011), used to express the combination of synchronicity and serendipity that describes the starting sequence.

Main steps and key players:

- It was generated on the *Emergent by Design Blog*.

- It evolved into the Ebdish wiki (Michael Josefowicz, Daniel Durrant & Mark Frazier).
- Planning conversations emerged on twitter, under the hashtag #nemetics, with references to texts, images, sound, and videos.
- The dynamic conversations attracted international experts in Red Deer, Alberta, Canada (Sean Grainger), and Kolkata, India (Dibyendu De), Barcelona, Catalonia (Ray Gallon, Neus Lorenzo), and in Paris, France (Rotana Ty).
- Conversations expanded to Google Plus forums and LinkedIn groups.
- Mashups and image galleries are complementing textual discourse.
- Face to face meetings have taken place in different countries.
- Simultaneous conversations are flowing through different platforms, expanded into mind mapping, wave tank experiments, and 3D modeling.

Transmedia Environments

Nemetics presence can be tracked across several platforms and co-creation spaces:

- **Blog:** http://rgbwaves.com/category/nemetics/
- YouTube Channel (TINI. The International Nemetics Institute):http://www.youtube.com/channel/UCAes2xe3XVYTiaOyCCkdoTA)
- **Google Plus (+RapidInnovationOrg):** https://plus.google.com/+Rapidinnovation Org/about),(+google.com/+Nemeticsinstitute Global)
- **Twitter:** @NEMETICS
- **LinkedIn:** https://www.linkedin.com/pub/international-nemetics-institute/84/14/3b3
- **Collaborative Organization:** The Transformation Society, http://www.transformationsociety.net/ publishing on Slideshare (http://www.slideshare.net/TransformationSociety/presentations) and on Twitter as @TransformSoc.

Different literacies are being developed in each one of these platforms, and across all of them, resulting in a new collaborative transliteracy.

Results: Analyzing the Behavior of Complex Creative Systems

The process has led to several results:

- From the transmedia debate, a research community has emerged and aggregated.
- The discipline of nemetics has been built across a network of connections, shaping an analytical tool set to engage wicked problems, such as the creation of an International Institute.
- A glossary of nemetic terms has been mapped to the nervous system, using a biomimicry model of communication in the tradition of memetics (Dawkins, 1989). Where a meme is a replicator in the cultural and cognitive context, equivalent to the gene in biology, the NEME is a replicator in the context of Complex Creative System (CCS).
- The same tools used to analyze the complexity of biology, are also used to analyze any other organic complexity. In nemetics, the model is the nervous system. Under this paradigm, a set of fractal analogies can be derived for studying transmedia co-creation and collective resonance:
  - The NEME is like a neuron. (In Transmedia it can be a shared idea, a closed dialogue, a formulated hypothesis...).
  - Bundles of NEMEs, called nemiStrings, are neural networks. (It can be an open debate, teamwork, group action, shared discussion…)
  - Bundles of nemiStrings are nemiTubes, like the nerve bundles found in the spinal column. (Communication exchanged in simultaneous discussions, joined teams from different

platforms, augmented information management on several channels...)

- ◦ A nemiShape is the well-bounded interaction of the elements above, like the brain functioning within the skull. (It could be the community engaged in the same disciplinary debate, a social group sharing an aim, a formulated paradigm wherein debates can evolve).

- This structured landscape of neurons generates a complex creative system that is organically evolving, transforming, and reshaping itself, reproducing the recursive evolution of conversations, debates, and concept creation.

- Further results include mathematical representations of this complexity, diversification of narrative, and integration of meaning: mind maps, 3D animations, and visualized fragmented dialogues.

Current Hypothesis

Nemetics analysis provides a common code to researchers in different fields.

The recursive, fractal nature of NEME means that any level of complexity can be categorized as a NEME to clarify analysis. In a different discipline, for example, history, a singular event is a NEME at the level of events. Zooming in, the event devolves to vibrant nemiTubes of a diversity of social consequences, economic resonances, and cultural impacts. Following the fractal principle of self-similarity, an economic consequence is also a NEME on the level of analysis of consequences, and zooming in still further, consequences would have nemiTubes of market fluctuations and policies. In Geography, the metaphor can include trophic layers, like soil, plants, or animals (Provenza et al, 2013).

The concept of "narrative fractal" is transposed, in nemetics, as a "nemiPlex." This nemiPlex is a complex of connected NEMEs that work the

way an enzyme works in biology, as a catalyzer of processes. The existence of a nemiPlex in the system catalyzes the process of the emergence of nemiStrings and nemiTubes. Importantly, a nemiPlex is strongest when it results from a diverse collaborative effort.

This is similar to what Lakoff refers to as a "metaphor" that facilitates an actor in "creating meaning." The metaphor is an at-hand "explanation" for a new event (Lakoff, 2003). In nemetics a metaphor is seen as a constellation of concepts that are triggered by the need to interact (Exchange). It points to the fact that knowledge flows in networks of people while information resides in static web resources. Good transliteracy practice in a well-developed nemiPlex can speed up transmedia integration, for example, in High Performance Teams or Intentional Communities.

FUTURE RESEARCH DIRECTIONS

Nemetic Analysis of transmedia spaces helps understand the emerging communication systems in complex environments, and to design formal and informal transliteracy learning. Several action-reflection itineraries can be developed, in formal and informal training, for improved efficiency in identifying leadership, team dynamics, and coordination applied to transmedia communication. The main objective is social action.

Future benefits will come from applying results to personal and professional fields that are now emerging in the hybrid physical-digital environment:

- Interacting with wicked problems (favoring useful and valuable emergences from inherently chaotic systems)
- Designing and planning organizational action (using big data to adapt social behavior)
- Integrating gamification into professional fields (creating new transmedia spaces)

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- Aggregating expanded connections and Internet of Things (new kinds of transliteracies)
- Relating personally and professionally to wearables and bionic implants (facing ethical and moral issues in collective debates)
- Developing lifelong learning environments (dynamizing and moderating MOOCs, eLearning platforms and mLearning communities)

These lines of research tend naturally towards the creation of a transformation society, where collaboration and self-emerging initiatives generate and explore transmedia learning environments.

CONCLUSION

Examples such as the creation of The International Nemetics Institute are useful to tell the story of transliteracy emergence and transmedia evolution and develop an academic corpus for integrating both transmedia and transliteracy into the communicative disciplines.

The increasing proliferation of communications platforms and modalities resulting from emerging technologies means that transmedia and transliteracy are going to become ever more important. Nemetics provides a simple model for understanding and integrating both transmedia contexts and transliteracy skills, and for working in complex adaptive/creative systems.

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KEY TERMS AND DEFINITIONS

Intertext: A coherent text that shows a relationship to one or more other texts, where "text" is understood to mean any type of communicative content, typically forming a connected piece of work (includes images, sounds, video, etc.).

NEME: Mnemonic acronym for the fractal learning process of complex creative systems: Notice, Engage, Mull, Exchange.

Nemetics: A fractal code, evolved into a meta-language to facilitate communication among researchers in different disciplines in order to debate about complexity.

Synchrodipity: The compound interaction of synchronicity and serendipity, to produce a sense of discovery, delight, or well-being, and a sense of connectedness between people, ideas and actions, derived from the flow and the interconnectivity of all things.

Transliteracy: The ability to read, write, and interact across a variety of communication tools, media, and platforms, from text, orality, signing, or drawing, through handwriting, print, TV, radio, and films to electronic networks and social media on digital platforms. It is a necessary complex skill for receiving, interiorizing or producing Transmedia.

Transmedia: Complex communication interaction based on multimedia, multimodal, multi-platform, intertextual human communication, in which each medium or platform has a distinct role to play in communicating the complete content. This interaction acquires meaning with each participating element by rebuilding the fragmented discourse.

Wicked Problem: A problem that is difficult or impossible to solve, because of incomplete, contradictory, and changing requirements that are difficult to define, identify, or recognize. It often involves stakeholders who have radically different worldviews. In addition, complex interdependencies make it so that the effort to solve one aspect of a wicked problem may reveal or create new problems.