INFORMATIVE EVIROMNMENTS Session 01
Chair: Sabrina Melis

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Learning Spaces as a Visuospatial Instrument for working with Complexity

Visuospatial Reasoning / Learning Space / Portfolios of Options / Sensemaking

Introduction
This abstract will introduce Learning Spaces as a visual representation of the "backbone" of a system and their use as heuristic, spatial instruments to facilitate designing in complexity, allowing us to engage with the Problem and design effective actions.

Complexity & Uncertainty
Human social systems are becoming more and more complex, and this acceleration of complexity that we experience today - and will experience exponentially more of tomorrow - has an important implication: it induces an extremely high degree of uncertainty. Uncertainty is not a property of the world; it is, instead, the experience we have of that world. This experience is the effect of our position with respect to the nature and dynamics of the world, and therefore of action in it. Uncertainty is the impossibility for us to discern, draw connections, give them significance, and thus represent to ourselves the possibility of an action, project and measure its outcomes.

The well-being and prosperity of countries, regions, cities, villages, social groups and people in general depend on their system engaging effectively in the process of designing policies and interventions, of problem-solving. They all look to articulate and socialise new intents, form collectively relevant decisions, attract and commit resources to specific and well-designed courses of action. Therefore, they have to come to terms with the inherent uncertainty that they suffer in the pursuit of their

goals. Collective and individual stakeholders that aim to enhance and accelerate Development prospects need capabilities, processes and tools with which to engage the complexity and resolve the uncertainty.

Learning & Learning Space

Given this uncertainty, we need instruments that allow us to aggregate distributed, in-system learning. Learning is a key human faculty and it is the effect of a co-implication of experience and reflection. Deliberately having an experience, designing it with an intent and discover and (re)form is the distilled purpose of making available to a system a Portfolio of experiences, a budget of possibilities. Strategic Learning is a discovery and generative space that bridges problems and solutions, the "in-between" where distributed experience and iterative sensemaking generate pragmatic intelligence and adaptive forms of knowledge for the design of actions in the world.

To engage with a complex system in an impactful way, we need a useful representation of it as a system, and this is what a Learning Space does: it articulates the object of an action so that the systemic nature and dynamics of it can be envisioned. The value of a Learning Space is its utility as a heuristic device, not its analytic exactness. It is a generative and action-oriented metamodel, a multidimensional representation of our emergent knowledge about that system. It serves a pragmatic practice inclined toward interpreting the situation and its complexity, accepting our uncertainty and the inherent time dynamics that any action "in there" must acknowledge.

Visuospatial reasoning

Manipulating and abstracting elements in our environment by making use of our spatial cognitive abilities is an innate capability that human beings have been evolving for millions of years. We process elements within space differently, from shape to size to colour to location etc, this allows us to quickly recognise patterns and relational dynamics. Complex problems are impossible for us to 'see' and therefore mapping them spatially using abstraction and visuospatial representations allow us to observe, understand and inhabit them.

Visuospatial reasoning, if induced and supported, is a basic function with which to abstract and draw inferences, and thus reduce complexity. It is this cognitive capability that a Learning Space ignites and leverages, which is then further downstream coupled with the other distinctive human quality: learning. To trigger and exploit this capability, a spatial landscape has to be imagined that provides

sufficient terms of reference with which to intervene and thus engage “with” the system and “in” it. Designers merely need this image to be “good enough” to initiate a process and enable actions to be designed and experienced.

Portfolios of Options

The system and emergent knowledge held within a Learning Space forms a Portfolio of Options. A Portfolio is a strategic learning mechanism, and is designed and managed to induce the evolutionary dynamics of learning in human systems, enhancing its layering effects. Options are constitutive elements of that Portfolio, their value is an expression of where and how it engages a space of intervention.

A Portfolio of Options initiates and structures social conversations, engages a system’s dynamics, forms actions and supports effective enactment. It achieves this by leveraging distributed and diversified activities, purposely designed experiences in the system’s space. Learning Spaces are a process of designing and dynamically managing Portfolios of Options, whether those Options are with respect to strategy and policy, development goals, the design of solutions, the locating and leveraging of investments or the instantiation of a Theory of Change.

Closure

To conclude, Learning Spaces leverage our innate capability as human beings for visuospatial reasoning helping us design and work in complex systems with high degrees of uncertainty.

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Letizia Bollini

The Betrothed next. Multimodal geo-storytelling and Emotional design: communicating the complexity of an historical urban identity through its soundscape.

geo-storytelling / multimodal interfaces / emotional design / soundscape design / cultural heritage

195 years ago Alessandro Manzoni, one of the most prominent figures of the Italian culture, published The Betrothed, in the ventisettana edition: I Promessi Sposi. Storia milanese del secolo XVII, scoperta e rifatta da Alessandro Manzon [The Betrothed. Milanese history of the 17th century, discovered and redone by Alessandro Manzon], the novel par-excellence of the Italian literature. In the narrative plot the lives and side stories of numerous characters intertwine with historical facts and places, thanks to multiple rhetoric inventions. In particular, the writer "displaces" in time – the events described take place between 1628 and 1630 – the actions of this various human tragicomedy that take place in the area between the Como lake and the city of Milan. But the city recounted and the events of the plague and Spanish rule are a metaphor for the author's contemporary Milan and an urban space undergoing great transformation. A city still traceable today in some landmarks but transfigured by recent urban interventions that have redesigned its spaces and its social and cultural vocation. By following in the footsteps of Renzo Tramaglino and his travels in Milan, it is possible to discover the vestiges of a remote and recent past, to connect totemic points of interest such as the Lazzaretto/Porta Venezia – the "LGBTQIA+ friendly," neighbourhood – or Porta Nuova – nowadays part of the business centre and hipster Isola-Garibaldi district – by retracing the narrative and human experience of the author and his characters and superimpose them on our own being situated in the same places, as a key to interpreting the complexity of an urban organism and its evolution.

The Betrothed next, here introduced as a case study, is a pilot project developed in three phases – the a geo-based urban augmented narrative (2011-15), the time-machine based on historical cartographies (2015-18) and in this last hypothesis the multimodal and multi-sensorial experience (2018-20) – of a mobile app aimed to discover the city of Milan according to an explorative and emotional perspective.

In particular, the paper presents the last experimental round focused in conceiving, prototyping and assessing the the creation of a hypothetical urban soundscape crossing the tree historical thresholds – the novel (17th century), the author (19th century) and the contemporary city – to emotionally activating and interacting with people at a visceral level. The research, after exploring the state of the art and investigating the evolution of interface and interaction ecosystems in the cultural and intangible heritage field, focuses on the design of the acoustic and sound component in digital artefacts to enrich, according to a multimodal and synesthesic approach, the concept of generous interfaces. Two aspects are investigated as potential drivers: on the one hand, the construction of urban identity through its soundscape and specific sound-marks – here declined in a historical perspective – on the other hand, the holophonic recording or the so-called three-dimensional sound.

The project recreates three possible hypotheses of 3D sound-marks linked to one of the geolocalised points of interest – the Lazaretto – declined according to the three historical layers that can be experienced by the users thanks to a contextual/site-specific interaction. Thanks to holophonic sound that creates an embodied and “directional” flows, people have an immersive experience aimed at visceral activation in terms of emotional engagement as a privileged way of reflecting and decoding complexity of the place. Using a mock-up, the application has been tested and evaluated using qualitative research methods. In particular, user testing tasks/personas-based to evaluate the efficacy, efficiency and satisfaction of the experience according to a quick&dirty and the thinking-aloud protocol were carried out. The participants were then involved in a final in dept narrative interview to understand and evaluate the emotional involvement elicited by the acoustic component of the interaction. Experimental results were analysed and clustered in an attempt to formalise and model guidelines to be further developed. But above all to further understand and explore a transition from a vision and task-based conception of digital interactions in favour of a complex and ecosystem approach of multimodal directing in digital design and interactions.

Chiara Albanesi

Writing connections - How writing impacts on designing informative experiences

design research / ethnography / participatory design / sense-making / digital methods

This paper explores the practice of writing within the design process, decoding its role and impact in facing multiform challenges and contexts. The goal of this study is to illustrate its potential as a strategic tool to create, enable and envision connections in the ecosystems we design for.

The practice of ethnography represents both the research methodology through which the reflections here developed were collected and shaped, and the perspective on the role of writing (Matera, 2015)in creating and shaping the relationship between the researcher and the researched context, which inspired this analysis.

The investigation is based on observations, autoethnography and unstructured interviews connected to design projects developed in recent years, where design research and service design were intertwined with digital ethnography (Rogers, 2013b) and information design explorations.

Starting from the design "project" as a touchstone (Ladner, 2014), the analysis deconstructs the embodied, and most of time overlooked, act of writing, as a design practice that originates rules and structures (grammar), defines roles (authorships), and ultimately shapes informative environments.

In this arena (De Sardan, 2005), words are considered a good continuously exchanged, between the observed communities, who share them for self-representation and participation, and the designers, who interpret, shape and use these words (data, information) for the sake of project effectiveness.

By looking at the role of words and writing in each phase of design process, from data collection to synthesis and communication, from discovery to delivery, the study will examine the impact of designers' semantic decisions, with the aim of identifying a classification of meanings and values behind this practice, such as accessibility, participation, influence, sense-making.

The purpose of this classification, and of the study itself, is to raise awareness around the potential and effects of this practice in influencing connections within the projects arena/ecosystem, around writing as a design tool, and to suggest directions to enhance its potentials.

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Andreas Metzner-Szigeth

2CO and the Interplay of Images, Imaginaries and Imagination in Science Communication

visual communication / generation of understandings and insights / epistemic communities / inter- and transdisciplinarity / ordering complexity meaningful

Tables, graphics and IMAGES – e.g. representations of small but complex macro-molecules in ‘gestalt’ of the Watson-Crick Double Helix or of even more immaterial objects like bits and bytes sliding down a curtain of strings as green drops – play an important role in SCIENCE COMMUNICATION. This applies to processes of communication between sciences and the public as well as to those between or within scientific disciplines. The function of IMAGINARIES as associative complexes is to simultaneously shape and limit our understanding of scientific findings. The idea of gene expression within the relationship of DNA and entire organisms is an example here. Another is that of data mining with regard to the retrieval of information from networks of signal transmission. IMAGINATION, finally, points to personal and collective resources that enable creative minds to figure out how to recognize unknown phenomena or such not yet conceived nor

determined in distinct structures. Albert Einstein who wrote about a dream in which he was riding on top of a sun beam during the time he was struggling to elaborate his theory of relativity, is an example here.

How can we detect and observe the generative dynamics unfolding within the interplay of images, imaginaries and imagination in science communication? What are suitable ways of analyzing and understanding its patterns and movements? Which kind of opportunities do we have to make good use from our insights?

Taking up these issues my contribution will be trefold: First, there will be presented an overview about structure and contents of an anthology that I am publishing as responsible editor with Casa Editrice Leo S. Olschki, Florence. Second, there will be introduced essential parts of my paper about Exploring the Interplay of Images, Imaginaries and Imagination in Science Communication that represents the lead chapter of the book, outlining an approach. Third, there will be discussed how the Interplay of Images, Imaginaries and Imagination in Science Communication can refer, resonate and enrich COmmunicating Complexity as the core topic of the conference.

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