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Center for Educational Changes and Potentials in Digital Transition

Event of the Permanent Seminar

Processi di soggettivazione e materialità digitali

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SEMINAR REPORT

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INTRODUCTION

Subjectivation processes and Digital Materialism

CAPTED Permanent Seminar 2024-2025

The seminar aimed to problematize the relationship between **subjectivities** and **digital technologies**, specifically focusing on the plural, situated, and materially agent dimensions of **digital worlds**. The seminar begins with an introduction by the director of the department of Human Sciences for Education of the University of Milano-Bicocca **Cristina Palmieri**, who highlights some ethical dilemmas we are dealing with today, such as the events in Gaza and the contemporary debate on "**Remaining Human**". Following on, **Professor Alessandro Ferrante** introduces the theme of post-humanism so that it can frame the following conference contributions. The Chair **Professor Gambacorti-Passerini** ties together the introductory contributions, stressing the need to overcome a "**hypostatized and absolute" model of humanity** that has had critical consequences on recent research and understanding of society. A broader reflection is thus encouraged in favour of the interdependence of the environment and its elements that need to be at the centre.

COGNIZING OTHERS: HUMAN FUTURES WITH OUR NONHUMAN SYMBIONTS

Summary of the speech by Nancy Katherine Hayles

(University of California and Duke University)

The first discussant, UCLA **Professor K. Hayles**, refers to her latest book, questioning the assumption of the superiority of human cognition, identifying **anthropocentrism** as one of the causes of the environmental and climate crisis. Hence, cognition is defined as a process of interpretation of information for meaning. However, it is not something exclusive to humans, since it is present in all living biological organisms, including plants and bacterial cells. To make her point she brings up the concept of the **Umwelt**, whereby

each species constructs the meaning of its own world, based on its neurological and physiological capabilities. This leads to the definition of **Biosemiotics**, which expands the concept of cognition beyond consciousness and the human context. Hence she defines the modes of cognition, using the **SIRAL criteria** (sensing, interpreting, responding, anticipating, and learning), which underlie the concept of an actor, distinct from that of the agent (e.g., a tornado does not interpret the environment). However, reflecting on becoming subjects today requires necessarily considering non-humans, particularly technological non-humans. Humans in this view should be considered as an integral part of a **cybernetic system** constituted by complex relations between organisms, artifacts, and machines. Accordingly, digital technology structurally depends on and is bound by the material configuration in which it is inscribed, making relations between subjects and digital machines always connected to spaces, times, bodies, and objects. Thus, the question becomes whether Large Language Models are to be considered as actors or agents. Indeed, although generative AI has a conceptual Umwelt, based on a language model and mathematical abstractions, this has no relation to the physical world. However, their evolution is making them move from determinism to flexibility, interpretation, and anticipation, which is leading them toward fully cognitive processes.

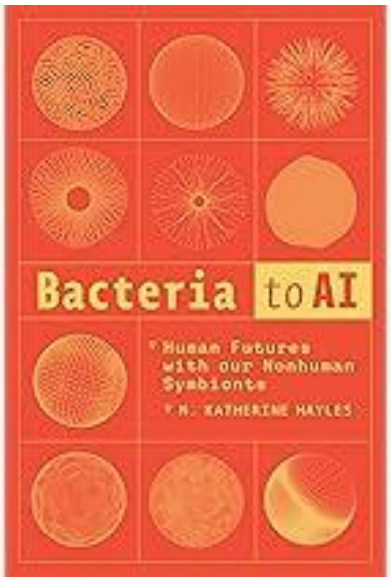


Figure 1: Professor Hyles latest book (2025)

Therefore, the current phase in which we are living can be defined as **Technosymbiosis**, in which Homo Sapiens has created a new agent with advanced cognitive abilities, and the evolutionary trajectories of both will be deeply interconnected. Although this relationship would seem symbiotic, it's likely to imply not only cooperation but also parasitism. To address this complexity, it is necessary to adopt an **Integrated Cognitive Framework (ICF)**, which reflects on cognitive assemblages, i.e. collectivities of humans and non-human actors with distributed agency, rather than individualism or free will.

Finally, the difference between analog computation and digital computation is discussed. The future of technology is foreseen as the combination of these two areas, through natural computation. As for LLMs and their environmental impact, although larger models have a

significant impact, the expectation is that we will be moving towards diversification: smaller, democratic and sustainable models that can be adapted to specific community needs.

POSTHUMANIST PEDAGOGY AND DIGITAL CULTURE

Summary of the speech by Roberto Marchesini

(Centro Studi Filosofia Postumanista)

The second speaker is **R.Marchesini**, a philosopher, an ethologist, and a **zooanthropologist**, who introduces his reflection looking into **animal subjectivity**, defining a subject as "the bearer of interests that concern it". He emphasizes that interests should not be confused with purpose or aim, but manifest themselves in the form of animal exuberance, through its emotions and motivations. Following on, desire is not considered as something that arises from some lack, but rather from the pleasure of doing an action. Hence, objects are only a source of dissatisfaction, while actions give us satisfaction.

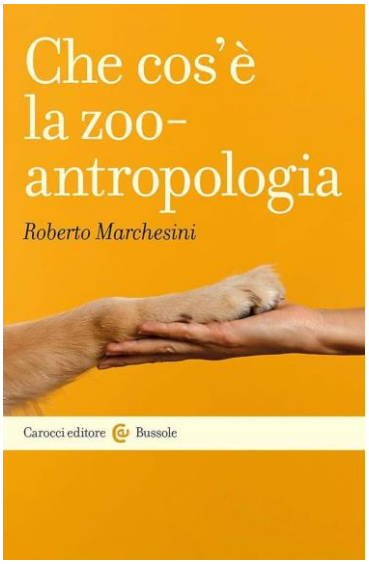


Figure 2: About zooanthropology.

This discourse is then tied to the concept of **Umwelt**, to criticize the static and strictly human species specific view. Animals are agents like humans, that do not merely occupy a niche, but construct it, modifying the environment. Accordingly, the speaker criticizes then goes on to define the humanistic conception of technology, rooted in the myth of Epimetheus and Prometheus, which sees man as lacking natural gifts and technology as a compensation for some dearth. On the contrary, he states that technology does not compensate for anything because **technology creates needs** rather than absolving a need.

Followingly, a contrast is drawn between the analog experience, typical of the generations born in the 1960s and 1970s, characterized by greater conviviality and relationships also with nature, while the experience of the new generations is perceived as isolated from the world and distracted by technology and media. This disconnect leads to negligence and an

emotional detachment towards the environmental crisis, particularly the erosion of biodiversity. Therefore, **sentimental education** is suggested as a way to feel the world and to have empathy towards the world.
Therefore, intelligence needs to be redefined, no more as an information management process, but as "being enthusiastic, going deep, and asking questions". Indeed, **Post-humanism** is a great transformation that recognizes human beings not as Vitruvian, solipsistic men, but as the "hybrid fruit" of relationships. The human body itself is to be seen as a **"forest of beings"** and their relationships and culture becomes the result of the interactions with otherness. The idea of "Remaining human", the speaker concludes, needs to move towards "the safeguarding of relationships", with a pedagogical approach that puts **relationships first.**

LEARNING SUB/OB-JECTS IN A MORE-THAN-HUMAN WORLD: EDUCATIONAL ROBOTICS, FROM PROMISES TO PRACTICES

Summary of the speech by Assunta Viteritti

(Università La Sapienza, Roma)

Professor Assunta Viteritti, is an educational sociologist and scholar, and continues the discussion focusing on the theme of **Technosymbiosis**, focusing on **Robotics**, of which she gives some anecdotal references. She emphasizes the need to reflect on the link between subjects and objects in learning, starting from the assumption that humans are never alone, as they live in an intrinsically **socio-material** and **non-neutral world**. To understand the issues with Technosymbiosis and technological innovation, the speaker mentions the damage caused to children by new Israeli weapons, which induce the production of unknown bacteria in the body. This phenomenon highlights the need for urgent research to understand **how technology is conditioning life** and nature in a dangerously unpredictable way.

She then moves to the field of education and looks at the **evolution of objects** such as teaching boards, focusing on the importance of materialism, situated understanding and subjectivity. Building on **Foucault's ideas** she notices how the relationships and uses of teaching boards, together with the spaces and architectures built around them, have changed, and have significantly adapted and shifted its functions and purposes.

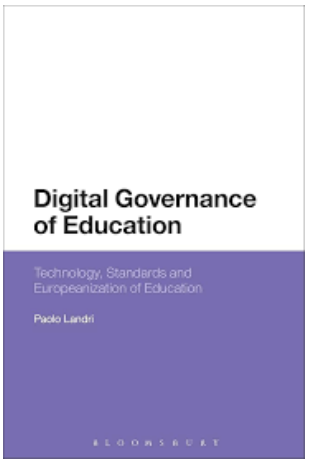
Similarly, she analyzes **robots** and how their use has changed, noticing how teachers have gone from not getting their potential to forgetting about them to realizing how they are more easily used by newer generations due to **technological familiarity** that is achieved outside schools. This reveals how school has become a hybrid and permeable space, where expertise is the result of **human-non-human assemblages** and external playful practices.
Finally, she questions the relationship between **gender and robotics and AI** showing that **chatbots are not neutral**, but reflect the choices of those who design them. Some examples are Cortana with a stereotypical female identity and Copilot with a masculine neutral, abstract, professional tone that suggests a masculinization of the production process. Another example is the robot Sofia (Hanson Robotics), which is considered as sexy, sexualized, while the school version Little Sofia is infantilized, showing **techno-capitalist imaginaries.**
The conclusion, echoing Asimov, is that robots are currently "poor robots" and babysitters, but could in the future serve as "the only bulwark against the destruction of humanity".

MORE-THAN-HUMAN EDUCATIONAL GOVERNANCE

Summary of the speech by Paolo Landri

(CNR- IRISS)

Paolo Landri structures his intervention around the proposal of a **More-Than-Human (MTH) approach** to educational governance. He seeks to highlight new ways of empirically interrogating the rationalities that underpin the use of artificial intelligence in education, to explore the forms of cognition privileged within human-technology assemblages, and to demonstrate the potential value of the MTH approach in developing an affirmative critique capable of **reimagining educational governance** beyond reductionist frameworks in the context of neoliberalism.



Landri underscores the need to complexify prevailing understandings of assemblages between humans and data, thereby expanding the notion of *synthetic governance* proposed by Gulson, Sellar, and Webb. In particular, he emphasises the impossibility of excluding **political and affective dimensions** when analysing the entanglements of the human and the non-human.

Figure 3: Landri's 2018 work explores the ways in which digital technologies are changing the experience of education

Through the More-Than-Human approach, Landri identifies **three thematic dimensions** through which experiences of educational governance shaped by human–data assemblages may be examined:

- **Post-anthropocentrism**, understood as a decentring of the human within educational governance. Here, the human is conceived as an assemblage continuously in the making;
- **Human–technology symbiosis**, as a lens through which to question the types of relationships that emerge (e.g., parasitic, extractivist, or generative);
- **Affectivity**, which becomes central given the MTH approach's call to move beyond representational models of knowledge, to account for the emotional and affective dimensions mobilized in the governance of education. The reference here is to the work of Brian Massumi.

Drawing on the British case of the algorithm used by OFQUAL to assign A Level grades during the Covid-19 pandemic, the Italian experience with the algorithm for allocating teachers in the *GPS*, and *IAQOS*, the artistic project created by Salvatore Iaconesi and Oriana Persico in Rome, Landri highlights both the critical issues and the potential inherent in different forms of human-technology assemblage. While the first two cases underscore the risk of **exacerbating social inequalities**, fostering asymmetrical symbioses in favour of algorithms, and generating negative affective experiences, the third case suggests the emergence of a **convivial and democratic mode of governance**, pointing to possibilities for AI models not exclusively driven by technicality and efficiency.

According to Landri, the More-Than-Human approach lends itself to a research program oriented towards understanding the quality of the intertwining between technical and human elements, thereby opening up possibilities for avoiding extractive or destructive forms of assemblage. The author concludes by inviting the research community to focus greater attention on design practices that foster **convivial interactions** between humans and technology experiences that risk remaining insufficiently known and undervalued.

OTHER INTERLOCUTORS? MORAL SUBJECTIVITY AND THE ETHICS OF DISCOURSE AFTER MACHINES BEGIN TO SPEAK

Summary of the speech by Paolo Monti

(University of Milano-Bicocca and CAPTED member)

Paolo Monti, Professor of Moral Philosophy, examines the **interlocution** between humans and Large Language Models, highlighting the relationships among **subjectivity, authorship**, and **responsibility**.

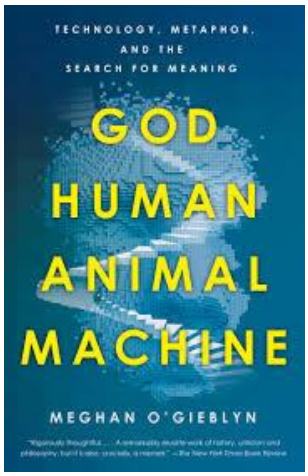


Figure 4: Monti refers to Meghan O'Gieblyn to highlight the oracular character of LLM interlocutors

Beginning with the cases of Eugene Torres, Sophie Rottenberg, and Jaswant Singh Chail, the author shows how LLMs, through the development of **mimetic capacities**, become interlocutors capable of exerting a strong influence on our ways of thinking and evaluating in terms of values and norms, and consequently also on our decision-making. Lacking a body and an identity, Large Language Models reproduce interlocutors with an **oracular character**, activating the divine, human, animal, and mechanical dimensions through which humans have traditionally sought to define their own subjectivity, or that of others, by means of distinctions or analogies.

The capacity of Large Language Models to generate texts, images, and representations confronts us with the expression of an authorial property traditionally associated with subjectivity and responsibility. With LLMs, authorship no longer corresponds directly to a **subjectivity embodied** in a particular context and history. The absence of the author and of the moral subject thus opens a **crisis in the interpretation of authorship** and produces a **responsibility gap**.

Monti asks what forms of subjectivity these new forms of authorship assume. The case of Angie Wang could lead us to consider LLMs as "stochastic parrots," following Emily M. Bender's characterization, which stresses the extent to which these models imitate human discourse on the basis of probabilistic mechanisms without any understanding of meaning.

Drawing on **Shannon Vallor's work**, Monti underscores how this dynamic leads such models to express themselves in essentially **conservative ways**.

LLMs are therefore **anthropomorphic linguistic machines** that emulate human linguistic interactions without any relation to lived experience. From this perspective, LLMs cannot be regarded as moral agents, neither active nor passive, but, in line with **Bruno Latour**'s framework, may be considered **actants**. Actants that steer an alignment of values. Interaction with LLMs cannot thus be regarded as human interaction because, **as Jürgen Habermas** notes, there is no attempt at mutual understanding, and the interlocutors, human and LLM, do not share the same form of **embodied vulnerability**. According to Monti, such interactions can instead be interpreted as a form of action generated through the mediation of a dispositif. The systems with which we interact are expressions of **specific dispositifs** that draw on the potential for discursive interaction embedded in LLMs and articulated through the technologies operating within particular practices.

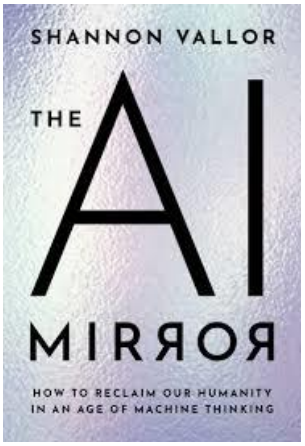


Figure 5: Shannon Vallor's work cited by Professor Monti

Monti stresses that several dynamics involving LLM systems (the spread of fake news, massive consumption of natural resources, and the dismantling of human services) are, from an ethical standpoint, profoundly human, thereby warning against strategies that deploy such systems uncritically within neoliberal contexts.

The author concludes by invoking **Hannah Arendt** to provocatively emphasize the risk that human beings, seeking to eliminate all anthropocentric assumptions in their encounter with the non-human, may ultimately come face-to-face only with themselves and the objects of their own making. At the same time, Arendt also points to the possibility that human beings may have created something so remote from themselves as to become incomprehensible to them.

CONCLUSIONS

Summary of the speech by Andrea Galimberti

(University of Milano-Bicocca)

The conclusions are presented by Andrea Galimberti, who emphasises the **decentralisation exercise** carried out throughout the seminar in relation to the dominant discursive logic which, not without reason, tends by default to **anthropomorphise algorithms** and LLMs. This decentralisation made it possible to address a wide range of issues, including the very idea of subjectivity when moving away from a logocentric perspective and opening up to a semiotic dimension, as was done during the day. From a post-luhmannian standpoint, Galimberti proposes the term ***artificial communication*** as an alternative to *artificial intelligence*.

The intertwining of the technological dimension and the dimension of animality strongly recalls the work with which **Norbert Wiener** founded cybernetics in the 1940s. The **Technosymbiosis** explored during the seminar drew attention to broader assemblages. The author highlights three among the various issues of particular educational relevance: distributed agency, algorithmic opacity, power dynamics.

As the boundaries between human, non-human, nature, culture and technology become blurred, it becomes necessary to think in terms of **distributed agency**. This leads to the transformation of a series of traditional categories, such as authorship, responsibility and subjectivity, whose connotations change in relation to the shifting possibility of recognising oneself as the effect of an operation perceived as one's own, thereby transforming individuality and self-recognition.

Algorithmic opacity, linked to the difficulty of understanding the black box at the heart of technologies. This opacity seems to generate a sort of aura around algorithms, leading to **technocratic dogmatization** and naturalisation. The operation of algorithms is thus presented as unbiased, free from prejudice and impartial. The inability to understand them makes it difficult to adopt a critical stance and transforms their use into an act of faith;

The third issue highlighted by Andrea Galimberti concerns **power**, which was mentioned several times by previous speakers, who stressed its importance. We speak of the intentionality of algorithms, the choices regarding **what to include and what to exclude in a dataset**, the criteria for evaluation and relevance, and the need to understand how the market and the neoliberal vision operate. The author again refers to the work of Norbert Wiener that introduced **the issue of control** in relation to the mechanisation of humans. The issue of power cuts across the forms of governmentality that change and transform themselves within Technosymbiosis, exposing subjects to what **Christopher Nguyen** calls "**value capture**". By participating in media ecologies, subjects are exposed to prefabricated, decontextualised values that intercept and reshape our deliberative capacities. These are subtle forms of governmentality, and it is important to highlight their critical aspects and focus on those forms that move **beyond parasitic logics toward mutualism.**

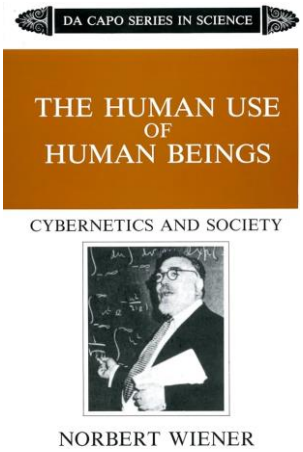


Figure 6: Galimberti invokes Norbert Wiener's work to draw attention to the issues of control and power.