

# BOOK OF ABSTRACTS

A CURA DI: STEFANIA CAPOGNA E MELISSA SESSA

## INTERNATIONAL CONFERENCE **TECHNOLOGY, ARTIFICIAL INTELLIGENCE AND EDUCATION TOWARDS THE FUTURE OF LEARNING**

Organised by RN24/SSTNET  
– Sociology of Science and Technology Network and RN36 –  
Sociology of Transformations: East and West

### 26 - 27 FEBRUARY 2026

LINK CAMPUS UNIVERSITY | Aula Magna "Franco Frattini" | Via del Casale di San Pio V, 44 - Rome



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International Mid-Term Conference European Sociological Association

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Organised by RN24/SSTNET – Sociology of Science and Technology Network & RN36 –  
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International Mid-Term Conference European Sociological Association

*TECHNOLOGY, ARTIFICIAL INTELLIGENCE AND EDUCATION  
TOWARDS THE FUTURE OF LEARNING.*

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## BRIEF PROGRAM

DAY I - 26 FEBRUARY 2026	
9:00-9:30	<b>Registration</b>
9:30-10:00	<b>Institutional Greetings</b>
10:00-10:15	<b>Program Presentation</b>
10:15-11:15	<b>Keynote I</b> <b>Ella McPHERSON</b>
11:15-11:30	<i>Break</i>
11:30-13:30	<b>Parallel Session I</b> <b>I PANEL: AI in Education</b> <b>II PANEL: AI &amp; Governance</b>
13:30-14:30	<i>Lunch</i>
14:30-15:30	<b>Keynote II</b> <b>Francesca POZZI</b>
15:30-17:30	<b>Parallel Session II</b> <b>III PANEL: AI Research &amp; Academic Issues</b> <b>IV PANEL: AI in Education</b>
17:30	<b>Closure</b>

DAY II - 27 FEBRUARY 2026	
9:00-9:30	<b>Registration</b>
9:30-10:30	<b>Keynote III</b> <b>Bernadette BRERETON</b>
10:30-10:45	<i>Break</i>
10:45-12:45	<b>Parallel Session III</b> <b>V PANEL: AI in Education</b> <b>VI PANEL: AI &amp; Citizenship</b> <b>VII PANEL: AI &amp; Health Inclusion</b>
12:45-13:45	<i>Lunch</i>
13:45-15:45	<b>Parallel Session IV</b> <b>VIII PANEL: AI &amp; Work</b> <b>IX PANEL: AI in Education</b> <b>X PANEL: AI &amp; Citizenship</b>
15:45-17:45	<b>PhD Session - PhD Panel</b>
18:00	<b>Closure</b>



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## ACKNOWLEDGEMENTS TO CHAIRS AND DISCUSSANTS

We would like to express our sincere gratitude to all the chairs and discussants who contributed to the success of this conference.

In a conference devoted to examining AI as a socio-technical phenomenon, the work of the chairs has been essential in connecting diverse contributions within and beyond sociology, fostering meaningful conversations between theory, empirical research, and practice.

We are equally grateful to the discussants, whose thoughtful readings and critical insights have deepened engagement with the complex issues addressed throughout the programme. They have strengthened the analytical depth of the panels, supporting authors in their arguments.

### CHAIRS

**Marco ANGELINI**, *Link Campus University*

**Federica CAGNOLI**, *University of Genoa*

**Andrea CAROSELLI**, *University of Milan*

**Eugenio DE GREGORIO**, *Link Campus University*

**Antonietta DE FEO**, *Roma Tre University*

**Valentina FEDELE**, *Link Campus University*

**Romina GURASHI**, *Link Campus University*

**Claudia HASSAN**, *University of Rome Tor Vergata*

**Maria Rosaria RE**, *Link Campus University*

**Emanuela PROIETTI**, *Roma Tre University*

### DISCUSSANTS

**Stefania CAPOGNA**, *Link Campus University*

**Ida CORTONI**, *Sapienza University*

**Luisa DE VITA**, *Sapienza University*

**Michela FREDDANO**, *INVALSI*

**Francesca GRECO**, *University of Udine*

**Pier Cesare GRIMALDI**, *Link Campus University*

**Barbara MORSELLO**, *Padua University*

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**Sara ROMITI**, *INVALSI*

**Massimiliano RUZZEDDU**, *Unicusano*

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**STEFANIA CAPOGNA**

## WELCOME MESSAGE

### Conference chair

Co-Coordinator of the RN24 (Science and Technology) of the European Sociological Association (ESA)

Associate Professor at Link Campus University, Rome (Italy)

Director of PhD LINK School

Rector's Delegate for Quality Assurance

Founder and Scientific Director Research Centre Digital Technologies, Education & Society at Link Campus University

Founder and Scientific Director of Quaderni di Comunità. People, Education and Welfare in Society 5.0, Eurilink University Press, Rome

Education Towards the Future of Learning brings together scholars, researchers, and practitioners to examine the ongoing transformations at the intersection of digital technologies, Artificial Intelligence (AI), and educational systems.

Hosted by Link Campus University and organised by the Research Networks RN24—Sociology of Science and Technology Network—and RN36—Sociology of Transformations: East and West, the conference is held on 26<sup>th</sup>-27<sup>th</sup> February 2026.

AI, understood as the set of computational systems capable of performing tasks that typically require human cognitive functions, has rapidly entered educational, academic, and professional domains. Its diffusion raises fundamental questions concerning knowledge production, pedagogical models, governance, ethics, and social inequalities. The contributions collected in this booklet reflect the plurality of these challenges and explore AI as a socio-technical phenomenon embedded in cultural, institutional, and regulatory contexts.

The conference program is structured around thematic panels addressing AI in education, governance, research, work, citizenship, and health inclusion. Such articulation highlights the need for intra-disciplinary depth within sociology and education studies, multidisciplinary dialogue with fields such as computer science, law, psychology, and philosophy, and transdisciplinary engagement with policy, professional practice, and civil society.

Across the abstracts, several cross-cutting issues emerge: AI literacy, data governance, inclusion and accessibility, algorithmic bias, academic integrity, and the transformation of teaching and learning environments. These themes resonate with contemporary debates in Science and Technology Studies (STS), the field analysing the mutual shaping of science, technology, and society, and with broader discussions on digital inequalities and the future of knowledge societies (Jasanoff, 2004; Williamson, 2017).

This booklet is intended not only as a record of the contributions presented, but also as a resource for ongoing scholarly dialogue. By bringing together diverse theoretical perspectives, empirical investigations, and methodological approaches, it seeks to foster critical reflection on how AI can be shaped in ways that are socially responsible, inclusive, and pedagogically meaningful.

February, 26<sup>th</sup> 2026

**Stefania Capogna**  
Conference Chair



**CARLO ALBERTO GIUSTI**

## INSTITUTIONAL WELCOME

### Rector of Link Campus University

Full Professor of Comparative Private Law

He was appointed by the President of the Republic as a Commendator of the Order of Merit of the Italian Republic. He is Vice President of the Regional Coordinating Committee of the Universities of Lazio (2021 - ongoing)

He is Vice President of the IV Section of the CONI Sports Guarantee Board (2021 - ongoing)

Public Profile: <https://unilink.it/en/university/organization/rector>

Distinguished colleagues, esteemed representatives of the academic community, honoured guests, ladies and gentlemen.

It is with great pleasure that I welcome you to Link Campus University on the occasion of the International Conference Technology, Artificial Intelligence and Education Towards the Future of Learning.

This conference brings together scholars from diverse disciplinary traditions and institutional contexts to address a question of strategic importance for universities worldwide: how to interpret and govern the transformations generated by Artificial Intelligence within educational systems and in society at large.

Artificial Intelligence—understood as a set of computational systems capable of processing vast amounts of data, identifying patterns, and supporting complex decision-making—has rapidly become a structural component of contemporary life. Its impact extends beyond technological innovation: it affects the organization of knowledge, the labour market, institutional governance, and the cultural foundations of our democracies.

Universities have a dual responsibility in this context. First, to advance rigorous scientific research capable of analysing the opportunities and risks associated with AI. Second, to prepare students to navigate an increasingly complex and data-driven world with critical awareness, ethical responsibility, and intellectual autonomy.

The theme of this conference is therefore fully aligned with the mission of Link Campus University. As an academic institution committed to interdisciplinary dialogue and international cooperation, we recognise that technological innovation must be accompanied by reflection in the human and social sciences. Only through such integration can we ensure that innovation remains oriented toward human development, social inclusion, and the strengthening of democratic values.

I wish to express my sincere appreciation to the Scientific and Organising Committees, to the Research Networks involved, and to all speakers who have contributed to shaping this rich and timely programme. Your presence testifies to the vitality of scholarly debate and to the importance of collaborative research across national and disciplinary boundaries.

I am confident that the discussions over these two days will generate valuable insights, foster new research partnerships, and contribute meaningfully to the broader public conversation on the future of learning.

I wish you all a productive and intellectually stimulating conference.

Thank you

**Carlo Alberto Giusti**



**EMILIO GRECO**

### Rector's delegate

Rector's Delegate for Didactics and University Information Systems

Head of the Department of Human Sciences

Member of the organisational and scientific secretariat of the international conference on Medicina del Trabajo Italia-Argentina.

Public Profile: <https://unilink.it/en/university/teaching-staff/emilio-greco>

Distinguished colleagues, esteemed scholars, representatives of national and international research networks, dear guests,

On the entire academic community of Link Campus University, I am pleased to welcome you to the International Conference Technology, Artificial Intelligence and Education Towards the Future of Learning.

This conference addresses one of the most significant transformations currently affecting our educational systems and, more broadly, our societies. Artificial Intelligence—understood as the ensemble of computational systems capable of processing data, learning from patterns, and supporting or automating decision-making processes—is no longer a distant prospect. It is already embedded in teaching practices, research methodologies, administrative processes, and professional trajectories.

In my role as Rector's Delegate for Teaching, I am particularly attentive to the profound pedagogical implications of this transformation. AI challenges traditional assumptions about learning, assessment, authorship, and academic integrity. It compels Higher Education Institutions to rethink curricula, teaching methodologies, and the very meaning of knowledge production. The question is not whether AI will shape the future of education, but how we will guide its integration in ways that preserve critical thinking, intellectual autonomy, and ethical responsibility.

As Head of the Department of Human Sciences, I also wish to underline the importance of a humanistic and sociological perspective in this debate. Technological innovation cannot be understood in isolation from its cultural, social, and normative dimensions. The human sciences provide the interpretative frameworks necessary to analyse issues such as inequality, inclusion, governance, and the redistribution of cognitive labour in AI-mediated environments.

This conference, organised within the framework of the Sociology of Science and Technology and the Sociology of Transformations research networks, exemplifies the kind of interdisciplinary and transnational dialogue that is required today. It brings together sociologists, educators, legal scholars, technologists, and policymakers in a shared effort to reflect critically on the future of learning.

I would like to express my sincere appreciation to the Scientific and Organising Committees for their work, and to all speakers and participants for contributing to this important discussion. Universities must remain spaces of rigorous inquiry and open debate, especially when confronted with transformative technologies.

I wish you all a fruitful and intellectually stimulating conference.

Thank you

**Emilio Greco**



**PIERCESARE GRIMALDI**

### Associate Professor Link Campus University

Associate Professor Link Campus University

Rector's Delegate for Artificial Intelligence & Translational Clinical-Scientific Research

Public Profile: <https://unilink.it/ateneo/docenti/piercesare-grimaldi>

Good morning, everyone. I would like to thank the organizers for promoting this conference dedicated to technology, artificial intelligence, and education — a topic that directly touches the future of learning, institutions, and society as a whole.

Artificial intelligence is not merely a technological matter; it is a transformation that affects the very way we learn and teach. It is a challenge that demands not only technical expertise but also a clear assumption of cultural and institutional responsibility.

In this landscape, the university is called upon to play a central role: not simply to chase innovation, but to help shape its direction — placing the individual, inclusion, the quality of education, and equity of opportunity at the very centre. Technology, and artificial intelligence in particular, must serve as an instrument in the service of human and social development.

This is why dialogue between research, the educational system, institutions, and the world of work is essential. Initiatives such as this conference foster the kind of exchange that is necessary to build thoughtful and sustainable educational policies — policies capable of responding to present-day challenges without losing sight of the core values of our community.

I wish to thank the speakers, the organizers, and all the participants for their commitment, and I extend my warmest wishes for a productive and enriching conference.

**Piercesare Grimaldi**



**MICHELA FRANCESCHELLI**

### ESA Chair of the Council of Research Networks

Associate Professor in Sociology  
 UCL Social Research Institute | Thomas Coram Research Unit  
 UCL Institute of Education  
<https://profiles.ucl.ac.uk/48054-michela-franceschelli>

#### Technology, AI and Education: Toward the Future of Learning, An Introduction

This address opened the conference in my capacity as the Chair of the Council of Research Networks of the European Sociological Association. The introduction set the stage for the conference by reflecting on the rapidly evolving relationship between technology, artificial intelligence, and education. While briefly situating the discussion within the broader work of the ESA and its Research Networks, the central aim was to introduce the conference's key questions about the future of learning.

The accelerating integration of generative AI has deep implications for pedagogical practices, learning and knowledge production by challenging established assumptions about authorship, expertise, academic integrity, and feedback evaluation. Rather than approaching AI as a neutral technological innovation to be either embraced or resisted, the address proposed understanding it as embedded in power relations, political economies, and systems of governance and within institutional pressures. One key question addressed was not whether AI will determine the future of learning, but rather what role social actors, institutions, and systems of governance will play in shaping that future, and what the implications will be for social inequalities.

At the same time, the address recognised some of the opportunities. The future is not fixed. If education is to remain a public good, the introduction invited participants to approach AI neither in dystopian nor celebrative terms, but with sociological imagination. The conference was framed as a space to begin this conversation collectively.

**Michela Franceschelli**



**ANA DELICADO**

### Researcher University of Lisbon

Principal Researcher at the Institute of Social Sciences (ICS), University of Lisbon, and a Visiting Assistant Professor at Instituto Superior Técnico.

Public Profile: <https://alteracoesclimaticas.ics.ulisboa.pt/en/docente/ana-delicado/>

It gives me great pleasure to attend this inaugural session of the International Conference Technology, Artificial Intelligence and Education Towards The Future Of Learning, a joint organization between the Research Network 24 Science and Technology and the Research Network 36 Sociology of Transformations: East and West.

As a longtime member of the European Sociological Association and former coordinator of the Executive Board of RN24, it is quite stimulating to see sociologists, as well as researchers from other fields, coming together to discuss such a cutting-edge topic as AI in education. Over the years I have watched how digital sociology has become a very significant field within our discipline, but that is just a reflection of what is happening in contemporary society, where the pervasiveness of digital technologies has had such a profound impact. Artificial Intelligence is just the latest iteration in a series of disruptive technologies, starting with the Internet, that have changed our world comprehensively. It remains to be seen if it turns out to be the most significant or even the last technology, given its supposed potential to destroy human civilization as we know it.

As sociologists, we have a professional but also moral duty to look at AI critically, with a scientifically sustained analytical approach. There is far too much hype and enthusiasm surrounding AI and academia is also embarking on it. AI companies push AI tools for research and education through a narrative of techno enthusiasm that disguises not just their profit-making motivations but also the many flaws and unreliability of these tools, not to mention their astronomical costs in terms of energy, water, and other resources. Some researchers and educators have embraced these tools without thinking twice, without due diligence and critical reflection, without properly investigating their limitations and drawbacks.

And that is what sociologists are for. To see through the hype, to deconstruct over optimistic narratives, to produce sound knowledge on the social impacts of technologies, to open the “black box” of how they operate, how they reproduce and enhance social bias, and what actual purposes are they designed for. The mantra of technological CEOs has become “move fast and break things”. We must respond by saying “research carefully and speak up, so that good things are not broken”.

The programme of this conference is very enticing and my only regret is not being able to be there and watch it all. I wish you a very fruitful discussion in the next two days.

Greetings from the former coordinator of the Executive Board of ESA RN24.

**Ana Delicado**



**MAURIZIO MERICO**

### Professor University of Salerno

Full Professor of Sociology of cultural and communicative processes and Director of the Department of Political and Social Studies at the University of Salerno.

Public Profile: <https://docenti.unisa.it/005651/en/curriculum>

I am delighted to convey the greetings of the section on “Sociology of Education” of the Italian Sociological Association (AIS-EDU) to the International Conference “*Technology, Artificial Intelligence and Education: Towards the Future of Learning*”, organised by RN24/SSTNET – Sociology of Science and Technology Network and RN36 – Sociology of Transformations: East and West, and hosted by Link Campus University.

AIS-EDU brings together senior and junior academic and non-academic sociologists focusing on changes in formal, informal and non-formal education processes, socialisation processes, and education and training policies. Its main objectives are to develop theoretical and methodological tools for the analysis of educational processes, the empirical analysis of structural and subjective phenomena and processes, the promotion of debate, and the design and implementation of training for all those involved in education systems.

These elements immediately highlight how the link between the three issues at the core of the conference – *Technology, Artificial Intelligence and Education* – is nowadays a critical reference point for the development of the debate that is taking shape within AIS-EDU. This is also evidenced by the fact that the conference will involve, both in coordinating sessions and presenting contributions, a large group of AIS-EDU members.

Technology and AI are challenging education and learning in new ways. In this regard, it is really important that the conference draws scientific attention to a set of issues – I would say – of fundamental urgency, both in terms of analytical perspectives and daily practice: among others, how technology and artificial intelligence are transforming reference frameworks, policies, practices, relationships and, not least, inequalities in education and learning.

For all these reasons, I wish to sincerely thank, on behalf of AIS-EDU, ESA-RN24 and RN36, Link Campus University, and in particular Stefania Capogna and everyone who contributed to the organisation of the Conference for their remarkable and important work.

AIS-EDU has chosen to dedicate the three-year period 2025-2028, which I will be coordinating, to the theme of “care”, understood in its several meanings. In this regard, I am confident that the decision to dedicate the Conference to the relationship between *Technology, Artificial Intelligence and Education* will offer those who study educational processes and those who work in educational institutions on a daily basis the opportunity to gain updated and noteworthy knowledge, useful to take care of education of current and future generations.

**Maurizio Merico**



FRANCESCO ANTONELLI

### Professor University “Roma Tre”

Full Professor of General Sociology at the Department of Political Science, University “Roma Tre”, where he coordinates the three-year degree courses in “Political Science” (L36) and “Politics, Cooperation and Development” (L37). Current Coordinator of the Section “Sociological Theories and Social Transformations”, also founder of the Section “Gender Studies”.

Public Profile: <https://scienzepolitiche.uniroma3.it/persona/d0dDUFN-jUm1SMWE5SzJ4Z25wUUJkSUZUc3cydWk3dU85aHg1MzU1SkQrdz0/>

Four major Challenges for Sociological Theory facing Artificial Intelligence.

I am pleased to bring you the greetings of the Theories of Sociology and Social Transformations Section of the Italian Sociological Association.

The program of these two days clearly shows that artificial intelligence is not simply one technological innovation among others. It has become a social infrastructure that increasingly shapes work, knowledge, education, institutions, and everyday relationships. As the panels on education, governance, work, and citizenship suggest, we are facing not only new opportunities but also profound redefinitions of skills, inequalities, and forms of social participation.

From the perspective of sociological theory, I believe this scenario poses at least four major challenges.

The first concerns the categories we use to interpret change. Artificial intelligence accelerates processes we already know well — rationalization, digitalization, globalization — yet it also introduces qualitatively new elements: cognitive automation, algorithmic mediation of social relations, automated knowledge production as well as emerging new kinds of relations: relations between humans and non-human actors. All this requires theoretical effort if we want to avoid both deterministic enthusiasm and purely defensive interpretations.

The second challenge is educational and cultural. It is not enough to learn how to use artificial intelligence; we need to develop critical literacy, reflexive capacities, and collective responsibility. AI literacy, in this sense, is not just a technical competence — it is a civic and social one.

The third challenge concerns inequality. As sociologists, we know that every innovation distributes opportunities and risks unevenly. Access to technologies, the ability to govern them, and the capacity to benefit from them are socially stratified processes. This is why the relationship between AI, education, and welfare — also highlighted in the broader theme of this conference — becomes particularly important.

Last but not least, an emerging problem is about the relationship between Artificial Intelligence and security policies as well as military agencies: as the Pentagon’s pressures on Anthropic are showing these days, this will be one of the main problems for the future of our society.

Events like this are valuable because they foster dialogue: between disciplines, between empirical research and theoretical reflection, and across national and European contexts. This dialogue helps sociology maintain its critical and public role in understanding ongoing transformations.

**Francesco Antonelli**



MELISSA SESSA

### Coordinator of the RN24 of the European Sociological Association (ESA)

Coordinator of the RN24 (Science and Technology) of the European Sociological Association (ESA).

Administrative Officer at the Institute for Geohydrological Protection of the National Research Council of Italy (<https://www.irpi.cnr.it/>)

Technology, Artificial Intelligence and Education: Towards the Future of Learning is an international midterm conference devoted to mapping the key sociological and interdisciplinary debates emerging from the entanglement of AI and educational systems. Hosted by Link Campus University and jointly organised by ESA RN24 and RN36, the event (26–27 February 2026) offers a focused venue to discuss how AI is reconfiguring learning environments, institutional governance, and the infrastructures of knowledge.

The scientific programme is structured around a set of interconnected research lines that approach AI not merely as a technical tool, but as a socio-technical infrastructure embedded in institutions, cultural imaginaries, and regulatory frameworks. Across panels, AI is examined through the lenses of Science and Technology Studies (STS), sociology of education, and transformation studies, with attention to the ways algorithmic systems reconfigure power, expertise, and inequality. A first core line addresses AI in Education: from AI literacy and prompt design to formative feedback, accessibility in digital learning, and the risks of exclusion in higher education. Contributions explore how AI-mediated learning environments reshape pedagogical relations, assessment practices, and students' cognitive and affective experiences, including critical issues such as decision fatigue, disengagement, and digital divides. A second line focuses on AI, Governance, and Data Regulation, analysing ethical concerns, privacy and data governance, and regulatory convergence (including compliance strategies around GDPR and the EU AI Act). Here, AI becomes a site where institutional accountability, corporate practices, and public policy intersect, raising questions about transparency, responsibility, and inclusive governance. A third line examines AI, Research, and Academic Issues, with discussions on the “social of scholarship,” academic practices, qualitative inquiry and analytical labour, and the implications of AI for lifelong learning systems. This strand highlights how AI is transforming epistemic cultures, research workflows, and the infrastructures of knowledge. Complementing these, the programme develops broader societal trajectories: AI and Work (impacts on labour and training, hybrid work environments, and emerging inequalities, including gendered pathways), AI and People/Citizenship (ethics, care, emotions, vulnerability, smart homes, and citizen science), and AI and Health Inclusion (from cognitive adaptivity to field trials and social-empathetic robotics). Keynotes further consolidate these research directions: E. McPherson reflects on generative AI and scholarship; F. Pozzi addresses systemic change when AI meets education; and B. Brereton focuses on gender equality and inclusion in higher education.

Overall, the conference positions AI as a transformative arena where education, governance, work, citizenship, and health inclusion co-evolve. The contributions collected in this booklet document this plurality of perspectives and aim to foster intra-disciplinary depth, multi-disciplinary dialogue, and transdisciplinary engagement with policy and professional practice.

Melissa Sessa



**ROMINA GURASHI**

### Associate Professor Link Campus University

Board member of the RN 36 (Sociology of transformations: East and West) of the European Sociological Association

President of the Albanian Sociological Association (ALBSA)

Member of the Scientific Council of the section of Sociological Theories and Social Transformations of the Italian Sociological Association (AIS)

Associate Professor of General Sociology at Link Campus University, Rome (Italy)

Public profile: <https://unilink.it/ateneo/docenti/romina-gurashi>

*Distinguished colleagues, dear participants, dear friends,*

It is a great honour and a genuine pleasure to address you today on behalf of the Research Network 36 – *Sociology of Transformations: East and West* – of the European Sociological Association. Our coordinator, Professor Matej Makarovic, is unfortunately unable to be here today, and I am glad to convey the greetings of our network on his behalf.

Allow me, first, to say a few words about who we are as a network, because I believe the connection between RN36's mission and the spirit of this conference is not merely circumstantial; it is, in fact, deeply structural.

RN36 positions itself as a platform for scholars interested in the field of social transformations, particularly in Eastern and Central European countries, and in the broader dynamics of European integration. Our network has long been devoted to exploring the driving forces of social change, i.e. what produces them, who bears their costs, and what new configurations of inequality, identity, and institutional order emerge in their wake. We ask, persistently and rigorously, what happens when societies are confronted with forces they did not fully choose, forces that arrive from outside, or from above, or from the logic of systems that evolve faster than the communities they are meant to serve.

### **Artificial intelligence is, today, precisely such a force.**

The countries of Central and Eastern Europe, and of Asia, have experienced a broad variety of transformation paths leading to very different results: from relative prosperity to economic decline, from democratisation to hybrid or autocratic regimes, from Euro-Atlantic integration to the reassertion of traditional political and cultural divisions. These divergent trajectories were already the object of our analytical attention long before the current technological turn. But what AI adds to this picture is something qualitatively new: a layer of transformation that cuts across all these trajectories simultaneously, regardless of political regime, regardless of economic model, regardless of whether a society considers itself part of the “West” or of the “East.”

This is precisely why a conference that places AI at the intersection of education, governance, and knowledge production is so relevant to the work of RN36. Education is not a neutral domain. It is one of the most powerful mechanisms through which societies reproduce themselves, their values, their hierarchies, their vision of what counts as knowledge and who is entitled to produce it. When artificial intelligence enters the classroom, the university, the examination hall, or the curriculum design room, it does not simply introduce a new tool. It introduces a new set of power relations, a new set of dependencies and, crucially for our network, a new set of asymmetries between East and West.

Consider, for instance, the question of digital infrastructure. The integration of AI into educational systems presupposes a level of technological endowment (hardware, connectivity, data governance frameworks, institutional capacity) that is far from evenly distributed across Europe, let alone across the globe. The complex systemic changes and simultaneous reforms in different spheres, stimulated by technological developments, have historically created social acceleration in post-communist so-



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cities, with “speeding up” constructed as a natural condition of social life and seen as a main factor of successful transition, but with profound socio-cultural implications, including social stress, polarisation between winners and laggards, and tensions between agents of acceleration and resistance.

This diagnosis, developed by scholars in our network to describe the post-1989 transformations, has lost none of its pertinence. If anything, it has gained new urgency. The race to adopt AI in education risks reproducing and amplifying the very inequalities it might ostensibly be designed to address.

But the challenge is not only infrastructural. It is epistemological and political. Who designs the algorithms? Who trains the models? On whose data? In whose language? With whose conception of intelligence, of merit, of learning? These questions are not technical, they are sociological in the deepest sense. And they are questions that the East-West lens of RN36 is particularly well equipped to interrogate. The dominant paradigms of AI development are, at present, concentrated in a small number of countries and corporations. The educational systems of Central and Eastern Europe, of the post-Soviet space, of the Global South, are largely in the position of adopters, not designers, of these technologies. This is a position that carries with it not only logistical challenges, but risks of cultural and cognitive dependency that deserve to be named and analysed with the rigour that sociology can bring.

An in-depth exploration of transformations in this region can produce significant new lessons and ideas and the complex questions surrounding AI adoption deserve to be discussed in a way that goes beyond mainstream perspectives, exploring areas that may appear peripheral but are in fact more debatable and complicated than they seem. This conference does exactly that.

At the same time – and I want to be careful not to present a purely dystopian picture – artificial intelligence also carries genuine transformative potential that our network must take seriously and study without prejudice. In countries where educational systems have historically suffered from underinvestment, bureaucratic inertia, or political interference, AI tools can open new pathways for access, personalisation, and quality. In societies where educational credentials have been gatekept by social class or geography, digital platforms powered by AI can (under the right conditions) democratise opportunity. The sociological question in this sense is precisely: under what conditions? And who decides what those conditions are?

These are the questions that RN36 will continue to pursue in the months and years ahead. We are convinced that the sociology of transformation is not a retrospective discipline, it does not only look back at the post-communist transitions of the 1990s or the financial crises of the 2000s. It looks forward, with the analytical tools that decades of comparative research have sharpened, at the transformations that are unfolding now, in real time, in classrooms and universities, in ministries and boardrooms, in the daily lives of students and teachers across an increasingly unequal continent and world.

On behalf of the entire board of RN36, I wish this conference every success. The quality of the programme, the breadth of the perspectives gathered here, and the generosity of Link Campus University in hosting us are all signs that this is a conversation worth having and one that will, I am sure, leave us all with more questions than answers. In our field, that is the highest compliment.

**Romina Gurashi**

# I DAY - 26 FEBRUARY 2026

## GENERATIVE AI AND THE SOCIAL OF SCHOLARSHIP

Keynote Speaker: **E. McPHERSON**



**ELLA MCPHERSON**

**Queens' College – Deputy Head of Cambridge's School of Humanities and Social Sciences**

Professor of the Sociology of Media and Technology; Deputy Head of the School of Humanities and Social Sciences; Co-Director, Centre of Governance and Human Rights; Fellow at Queens' College; Special Adviser (2020-2021) to the House of Lords' Digital and Communications Committee for their Freedom of Expression Online Inquiry; Awarded The Pilkington Prize (2022) for excellence in teaching by the University of Cambridge.

### **AcademAI Beware: Generative AI and the Norms of Scholarship**

The generative AI zeitgeist draws on familiar techno-promises that buoyed technological developments in the past. The efficient techno-utopias painted by these promises always have villains: the techno-resistors, painted as laggards and luddites. In this talk, I will unpack this dynamic with respect to generative AI and the academy, showing how AI-resistance is not 'backwardness', but rather arises from a fundamental urge to protect the norms of our sector. I will address, in turn, how generative AI may impact the norms of academic freedom, trust, praxis, decoloniality, sustainability and discovery, concluding with a call to AI-luddism that places the responsibility for the academic externalities created by generative AI back where it belongs.

## I PANEL: AI IN EDUCATION

Chair: **C. HASSAN**, *University of Rome Tor Vergata*

Discussant: **S. CAPOGNA**, *Link Campus University*

### WHEN MACHINES LEARN, HUMANS MUST LEARN BETTER: AI LITERACY AND THE FUTURE OF EDUCATION

**Alice CARDINALE**, *Sapienza University of Rome*

**Mariella NOCENZI**, *LUMSA University of Rome*

Artificial Intelligence (AI) is rapidly reshaping multiple sectors of human life, bringing with it new opportunities, uncertainties, and risks. One of the most significant effects of AI on contemporary societies is automation: its capacity to learn from data and make decisions enables the automation of a wide range of tasks (Wong et al., 2025). Within this scenario, the labour market is already facing a profound transformation. Routine and repetitive forms of work are likely to be delegated to AI systems. Since such tasks are often carried out by individuals with lower levels of formal education, this shift risks exacerbating existing social and economic inequalities. While transforming existing jobs AI is also creating new ones.

Responding to this backdrop, this abstract seeks to examine how education systems must revise their curricula in order to prepare students for a future in which AI plays a pervasive role. The authors argue that learning processes should focus on the development of two domains: AI literacy and human capacities that AI cannot replicate (World Economic Forum, 2023).

The first domain comprises a solid technical understanding of how AI and its algorithms operate. This should be complemented by the cultivation of computational thinking, which enables learners to attain a deeper comprehension of AI and to use it more effectively. Such knowledge and competences must be accompanied by an awareness of the risks associated with AI, including issues of inclusivity arising from biased datasets; accessibility of AI technologies; transparency in algorithmic decision-making; clarity regarding data usage; and the reliability of information generated by AI tools (OECD, 2023; Tlili et al, 2023).

The second domain refers to abilities that remain fundamental prerogatives of human intelligence. First of all, critical thinking: a high-level cognitive process that enables learners to move beyond passive or superficial engagement with complex topics; to interrogate their own assumptions, theories, and perspectives; to avoid taking information or its sources for granted; to integrate insights from multiple disciplines; and to navigate uncertainty and complexity. Additionally, creativity—understood as the capacity to generate original ideas, adopt unconventional approaches, and tackle problems from fresh perspectives—is essential. Finally, emotional intelligence remains a key human competence, encompassing the ability to perceive, understand, regulate, communicate, and employ emotions effectively (Mollik and Mollik, 2023).

To align curricula with a labour market increasingly shaped by AI, a key first step is the proper training of teachers. AI literacy should begin with educators, enabling them to adjust their pedagogical methods. Teachers should also take part in interdisciplinary research on the meaningful integration of AI in education. Currently, most research is led by STEM scholars, who often lack the pedagogical, sociological, and practical expertise needed to design AI tools suitable for learning contexts (OECD, 2023; Bates et al., 2020). This situation may lead schools to adopt technologies created by Big Tech for non-educational aims, reinforcing neoliberal and neo-managerial logics in education (Viteritti et. al., 2024). To counter this risk, Educational Institutions could adopt the SUSEDI Consortium's Framework, which provides a holistic and participatory model that can be adapted to different goals - here, supporting the gradual and well-grounded integration of AI within educational systems.



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**SUSEDI project:** <https://susedi.projectsgallery.eu/>

The SUSEDI Project ("Route to Transformation of Educational Institutions through a Whole Institution Approach to Sustainability - Sustainability in Educational Institutions, funded by the European Education and Culture Executive Agency-EACEA) aims at entirely rethinking every educational institution (formal, nonformal and informal) with the goal of imprinting it integrally to be "sustainable" that means the transformative force in education, impacting learning experiences, administrative tasks, and personalized feedback of the newest technologies improves collaborative teacher-student learning, intelligent tutoring systems, automated assessment, personalized learning and, so learning outcomes, efficiency, and global access to quality education. Some results of the SUSEDI project are in line with the objectives of the Conference and this proposal will be Presented.



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## TAIL SENSITIVITY OF LLM OUTPUTS UNDER PROMPT PERTURBATIONS

**Andrej NOVAK, Mateja KOVAČIĆ, Zagreb School of Economics and Management**

Large language models increasingly generate numeric datasets for classroom labs and scientific simulations. We present a single-protocol evaluation across four models and three prompt styles, measuring how prompting and decoding affect heavy-tail behavior in rank–size settings and risk-relevant summaries. Using distributional model comparison above a data-driven threshold and a tail-risk suite (outlier share, normalized AURC across exceedance levels, severe-exceedance rates, and high-quantile stretch), we find that prompt wording is the dominant driver: natural prompts yield more realistic heavy tails, while constrained prompts produce visually straight—but statistically brittle—slopes with thinned extremes; decoding choices have secondary effects. A nested, domain-grounded pilot (cities, web traffic, company size) run under the same protocol replicates these patterns, supporting external validity. The research synthesizes actionable guidance for educators and practitioners on generating and validating LLM-derived numbers, with a workflow that can be adopted in teaching and in safe downstream use.



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## FORMATIVE FEEDBACK THROUGH LARGE LANGUAGE MODELS ON NARRATIVE AND EXPOSITORY TEXTS IN GERMAN: STRENGTHS, LIMITS, AND PROMPT DESIGN

**Christoph PESCHAK**, *Private University College of Teacher Education of Christian Churches Austria*  
**Sandra Pia HARMER**, *University College of Teacher Education Vienna*

Differentiated feedback on student texts is essential for advancing writing skills. It must address text quality and writing development (Ossner, 2006; Becker-Mrotzek & Böttcher, 2014; Festman et al., 2023) and go beyond correcting formal linguistic accuracy. In an AI-supported learning environment, it is therefore necessary to examine whether, and to what extent, large language models (LLMs) such as ChatGPT can support these practices.

Drawing on Peschak (2025), this qualitative study examines ChatGPT's feedback on 344 narrative and expository texts written by students in grades 2 to 6, focusing on its conduciveness to learning. The feedback was analyzed using qualitative content analysis with categories deductively derived from a literature review (Becker-Mrotzek & Böttcher, 2014). For ethical reasons, the student texts were taken from the corpus of a longitudinal study on writing development (Augst et al., 2007).

The analysis shows that ChatGPT's feedback partially meets criteria for competence-oriented writing instruction and learning-oriented feedback. ChatGPT comments on content-related aspects of the texts and poses or answers text-specific questions, approximating the questioning, dialogic stance expected of teachers. However, the quality and precision of the feedback largely depend on the length, complexity, and coherence of the source text on the one hand and the quality of the prompt on the other hand. These constraints can be reduced by using detailed, criterion-based prompts structured according to the CREATE framework (Barrett, 2024), which elicit more target group-oriented, text-type-specific feedback.

This shows that teachers need solid meta-knowledge about text quality and a clear awareness of their students' needs in order to design and interpret effective prompts. Where these conditions are met, LLMs like ChatGPT can ease teachers' workload in routine feedback while supporting differentiated, learning-oriented responses to student writing.

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## THE SONIFICATION OF CHEMICAL DATA AS A TOOL FOR STEM EDUCATION AND INCLUSIVITY

Giovanna TRANFO, *AIDII*

### Introduction

Chemistry is often considered a visual and quantitative science, rooted in symbols, equations, and molecular models. Yet beyond its traditional representations lies an underexplored sensory dimension: sound. The “sound of chemistry” can be experienced both literally and metaphorically, via the sonification of chemical data. This interdisciplinary approach connects chemistry with music, data science, and auditory perception, offering novel ways to analyze, interpret, and communicate molecular phenomena.

### The sound of chemistry

Literal sounds in chemistry arise during physical and chemical transformations: the hiss of a reaction releasing gas, the sharp pop of hydrogen ignition, or the crackle of a thermite reaction, reflect real-time changes in matter and energy.

However, a more complex method of “hearing chemistry” is through sonification, the process of mapping scientific data to sound. Sonification of chemical data translates properties such as molecular vibrations, bond strengths, or physicochemical properties into audible frequencies. For example, vibrational modes of molecules in infrared spectroscopy can be downscaled into the human hearing range, producing distinct tonal signatures like musical chords. Similarly, amino acid sequences in proteins have been mapped to melodies, enabling researchers to “hear” structural patterns or misfoldings.

### Future Perspectives

Sonification offers alternative learning pathways for visually impaired students, introduces musical learners to molecular science, and makes abstract concepts more tangible to the public. Different examples show how this goal can be achieved and how it has been used: to explore how music could be used to generate new molecules, or molecules can provide an inspiration for the generation of new music. The integration of music with STEM disciplines can promote more cooperation and empathy among the students, and an engaging and active scientific learning experience.

## II PANEL: AI & GOVERNANCE

Chair: **M. ANGELINI**, *Link Campus University*

Discussant: **F. GRECO**, *University of Udine*

### EXPLORING STUDENTS' ETHICAL AND PRIVACY CONCERNS IN THE ADOPTION OF ARTIFICIAL INTELLIGENCE

**Ariela MORTARA**, **Rosantonieta SCRAMAGLIA**, *IULM University*

Artificial Intelligence (AI) is increasingly embedded in educational environments, driving innovations in adaptive learning, automated grading, and predictive analytics. While these technologies promise personalization and efficiency, they also introduce critical ethical challenges related to student privacy, data governance, and algorithmic accountability. Recent research indicates that AI-driven educational systems often collect vast amounts of behavioral, academic, and biometric data, frequently without transparent consent or clear data ownership protocols (Salloum et al., 2024).

Ethical analyses in the learning analytics literature highlight three primary domains of risk: (1) surveillance and erosion of learner autonomy, (2) algorithmic bias and opacity in decision-making, and (3) secondary use of educational data by third parties (Slade & Prinsloo, 2013; Marin et al., 2025).

This contribution presents some results of a broader research project aimed at exploring the social impact of the introduction of smart technologies, investigating how they are transforming people's daily lives, both in their private and professional spheres. Based on a quantitative methodology, the study was conducted through a self-administered questionnaire distributed online via the Survey-Monkey platform. Between November and December 2024, a total of 9,457 questionnaires were collected using a snowball sampling approach (Gabor, 2007; Handcock & Gile, 2011), among them 2,736 Italian university students. Beside the perception and knowledge of Artificial Intelligence and the actual use in everyday activities, the questionnaire investigates concerns related to responsible AI use, including ethical awareness, privacy issues, and cognitive bias.

AI-related concerns were also examined through several items of a 7-point Likert-scale measuring attention to ethical principles, privacy awareness, and perceptions of algorithmic bias. Students showed moderate sensitivity to ethics ( $M = 4.33$ ) and privacy ( $M = 4.24$ ), with no gender differences. However, concern about social biases (gender, ethnic, religious) was lower ( $M = 3.15$ ), suggesting a general underestimation of algorithmic bias risks.

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## NAVIGATING REGULATORY CONVERGENCE: STRATEGIES FOR CORPORATE COMPLIANCE WITH GDPR AND THE EU ARTIFICIAL INTELLIGENCE ACT

**Federica DE STEFANI**, *Link Campus University*

The European Union has progressively developed a comprehensive digital regulatory framework aimed at governing technological innovation while safeguarding fundamental rights. Within this context, the General Data Protection Regulation (GDPR) and the Artificial Intelligence Act (AI Act) represent two central and increasingly interconnected pillars.

Although the GDPR regulates personal data processing and the AI Act focuses on artificial intelligence systems, their practical application within corporate environments reveals a growing phenomenon of regulatory convergence. AI systems frequently process personal data, generate automated decisions, and may significantly affect fundamental rights. As a result, organizations face a dual regulatory dimension, requiring compliance with both data protection obligations and AI governance requirements.

Both instruments are grounded in a risk-based and preventive regulatory logic. The GDPR introduced accountability as a structural principle, requiring organizations not only to comply but to demonstrate compliance through documentation, governance mechanisms, and impact assessments. Similarly, the AI Act classifies AI systems according to risk levels and imposes differentiated obligations, emphasizing risk management, technical documentation, and human oversight. Privacy by design and risk management by design reflect a shared anticipatory approach to regulation.

This contribution argues that regulatory convergence should not be addressed through fragmented compliance structures. Separate assessments and silo-based governance models generate inefficiencies and legal exposure. Instead, companies should adopt integrated governance frameworks capable of simultaneously addressing privacy risks, discrimination risks, systemic risks, and reputational risks.

Particular attention is devoted to contractual governance and human oversight, which emerge as critical elements in managing regulatory exposure, especially when AI systems are sourced from external providers.

The central thesis advanced is that regulatory convergence, if strategically managed, can transform compliance from a regulatory burden into a competitive asset. An integrated approach to GDPR and AI Act obligations strengthens organizational coherence, enhances trust, and supports a European model of responsible innovation.

Navigating regulatory convergence is therefore not merely a compliance exercise, but a strategic governance challenge for companies operating in the age of artificial intelligence.



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## DIGITAL LAW, DATA GOVERNANCE AND ARTIFICIAL INTELLIGENCE

**Fernanda FAINI**, *Pegaso Digital University*

Information technology, initially an aid to human activities, has managed to transcend its ontological essence as a mere tool in the hands of man, becoming a multifaceted means capable of bringing about a profound transformation of human existence, accompanied by new needs and unprecedented critical issues. These aspects are particularly evident in the case of artificial intelligence, which is the subject of particular attention in European and national regulations. In this context, artificial intelligence is only theoretically “neutral”, since in its instrumental value it acquires the meaning that humans give it when using it, exposing the rights provided for by the legal system to potential vulnerabilities. In order to govern artificial intelligence, the law is called upon to achieve a difficult balance based on flexibility and adaptability, capable of ensuring the effectiveness of legal rules without limiting the potential of technological evolution, but at the same time solidly founded on predictability and legal certainty, without allowing technology to dominate regulation.

This raises ontological and legal issues closely related to the technical characteristics that dominate artificial intelligence, including the structural and linguistic opacity of computer code, the difficulty for humans to understand (black box) machine learning and deep learning algorithms, the related difficulty in explaining the results obtained by the machine, as well as potential errors and biases and risks of “hallucination” by generative AI such as ChatGPT, which was recently “brought to court” before judicial bodies that issued the first rulings on the matter. Algorithms can lead to technical problems, but also to related ethical, social and legal issues due to the presence of possible errors and poor-quality data, bias and prejudice, as well as potential human manipulation; as a result, they can be a harbinger of discrimination, inequality and disparity. In this context, with the aim of protecting rights and removing, or at least mitigating, vulnerabilities, a complex and not always homogeneous legal framework aimed at regulating artificial intelligence has taken shape in recent years, consisting of hard law and soft law, the analysis of which allows to highlight the characteristics, strengths and critical issues of the legal-philosophical model of technology governance designed by the legislator. This contribution aims to analyse the current configuration of European and national legal regulation on AI, its distinctive features and the directions that are emerging for the future. Specifically, the contribution aims to examine the philosophical, ethical and legal model of technology governance that is emerging in these areas, examining governance and emerging critical issues.



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## INNOVATING MUSEUM ACCESSIBILITY THROUGH CROSS-SECTOR PARTNERSHIPS: THE SCAAUT BUSINESS MODEL

**Nadia CIPULLO**, *Link Campus University*

European museums face mounting pressure to operationalize accessibility mandates while managing constrained education budgets. Traditional approaches prove resource-intensive and non-scalable. This paper presents SCAAUT (Smart Creative Activities for Autism Understanding), analysing how museums can integrate AI-driven adaptive technologies through innovative cross-sector partnerships spanning cultural institutions, gaming industries, clinical centres and technology providers.

SCAAUT addresses a concrete market opportunity: with 1 in 100 European children diagnosed with Autism Spectrum Disorder, museums must serve this growing audience while the accessible tourism market approaches €142 billion by 2027. The project develops a sustainable business model combining EEG-based neurophysiological monitoring with gamified “treasure hunt” experiences, creating measurable value for multiple stakeholders. Museums gain scalable accessibility solutions integrated into existing educational operations rather than parallel programs. Gaming studios access cultural sector innovation opportunities while contributing user engagement expertise. Clinical partners obtain real-world data for autism research within naturalistic settings.

From an organizational perspective, the project demonstrates how museums can orchestrate complex multi-stakeholder ecosystems. The governance structure balances research rigor with operational sustainability, ensuring post-pilot integration into museum budgets. Artist-led co-design methodology positions creative professionals as core innovators rather than decorative additions, addressing the persistent challenge of authentically integrating creative industries into technology development.

SCAAUT’s economic evaluation through Quality-Adjusted Life Years (QALY) methodology provides museum leadership with quantifiable evidence for accessibility investments, reframing cultural access from compliance cost to health intervention with measurable returns.

The project raises critical questions about data governance, privacy protection in cultural contexts, and ethical AI deployment with vulnerable populations.

Museums implementing such technologies must navigate GDPR compliance, institutional ethics protocols, and family consent frameworks while maintaining educational missions and visitor trust.

This research illuminates pathways for cultural institutions to leverage emerging technologies through strategic partnerships, sustainable business models, and evidence-based impact assessment in an era demanding both innovation and accountability.



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## OBJECTIVE AND SUBJECTIVE CULTURE IN PLATFORM SOCIETY

**Tiziano CENSI**, *Leoniano Theological Institute*

This contribution examines how digital platforms reshape the relationship between information and knowledge, showing how platform capitalism produces a growing disconnection between these two dimensions. Drawing on Simmel's distinction between objective and subjective culture and spirit, I argue that digital platforms not only intensify what Simmel described as the tragedy of culture: the modern condition in which the realm of objective cultural products grows beyond the individual's capacity for subjective appropriation.

In platform capitalism, however, an additional discontinuity emerges. Most of the data processed by platforms never becomes part of objective culture. Instead, it remains at the level of objective spirit, circulating as operative informational flows used for prediction, optimization, and real-time coordination rather than for meaning-making or shared cultural knowledge. As a result, much of the information mobilized by digital platforms is socially inaccessible and remains in the form of purely operational data.

This dynamic is reinforced by the infrastructural position of platforms, which places them at the center of data governance. Platforms control the collection, storage, and processing of immense volumes of data within opaque algorithmic systems and data centers. These infrastructures function as black boxes: they centralize information and convert everyday interactions directly into economic value. Social information is thus immediately subsumed under economic and profit-oriented logics.

The contribution argues that we are witnessing an increasingly sharp distinction between information and culture, in which the so-called information society diverges ever more from being a knowledge society. Whereas in classical modernity the problem lay in the proliferation of objective culture, today we confront a tendency toward the production of operational information that is transformed into economic output but rarely into knowledge.



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## TOWARDS INCLUSIVE AI: REGULATORY AND ETHICAL CHALLENGES

**Marianna FORLEO**, *EQAVET National Reference Point – INAPP*

**Laura EVANGELISTA**, *EQAVET National Reference Point – INAPP*

**Concetta FONZO**, *EQAVET National Reference Point – INAPP*

Artificial intelligence (AI), in recent years, is becoming one of the most persuasive and transformative technologies in history, with profound consequences on economic models and social dynamics. Its growing use in different areas raises criticisms and doubts related to the protection of fundamental rights and privacy and equal access to digital opportunities.

This paper aims to analyse, through a critical analysis, the ethical, legal and social implications of AI. The goal is to understand how algorithmic systems, not being neutral tools, can reproduce and amplify pre-existing power asymmetries and inequalities. A careful analysis of concrete cases and recent European regulations on artificial intelligence aims to highlight how the algorithms on which artificial intelligence systems are created can generate discriminatory biases, questioning fundamental rights such as privacy, non-discrimination and equal treatment.

Particular attention is given to the Artificial Intelligence Act, adopted in 2024 as the first European attempt to regulate the use of AI to protecting human rights and empowering producers and users. The regulatory analysis is accompanied by a reflection on the social consequences of automation and the need to integrate principles of justice, equity and accessibility into algorithmic design and implementation processes. The article therefore proposes a model of “inclusive and human-centric AI” with the aim of promoting a more democratic and participatory digital society.

In conclusion, the work identifies the main future challenges for the ethical governance of artificial intelligence, underlining the urgency of internationally coordinated regulation and public policies oriented towards the protection of rights and the promotion of inclusion.

## WHEN AI MEETS EDUCATION: NAVIGATING PROMISE, PERIL, AND SYSTEMIC CHANGE

Keynote Speaker: **F. POZZI**



**Francesca POZZI**

**Director of the Institute for Educational Technologies of the National Research Council**

Director of the Institute for Educational Technology - CNR, PhD in Languages, Cultures and Information and Communication Technologies from the University of Genoa. Researcher at the Institute for Educational Technologies of the National Research Council, of which she was appointed Director as of 01/03/2025. Co-editor since 2016 of the journal 'Italian Journal of Educational Technology (IJET)' (formerly 'Tecnologie Didattiche'). Member of the Teaching Board of the Doctorate in Digital Humanities at the University of Genoa

### **When AI meets education: navigating promise, peril, and systemic change.**

Starting with an historical perspective on the evolution of the Educational Technology field, the talk will tackle the potential and risks behind use of general-purpose technologies, such as AI, to target learning objectives, and specifically will discuss the added value of AI to target transversal learning objectives. In the end, we will reflect on the barriers that are evident in today educational systems to manage the change and discuss the options available.



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## III PANEL: AI RESEARCH AND ACADEMIC ISSUE

Chair: **V. FEDELE**, *Link Campus University*  
Discussant: **P. C. GRIMALDI**, *Link Campus University*

### AI, MICROLEARNING, AND THE SOCIAL FABRIC OF LIFELONG LEARNING: OPPORTUNITIES AND INEQUALITIES IN THE ITALIAN CONTEXT

**Alessandra PEDONE**, *INAPP*

This paper examines how artificial intelligence is reshaping lifelong learning in Italy through the diffusion of microlearning formats and AI-supported tutoring systems. Drawing on empirical evidence from institutional desk research on continuing training and digital skills development, the study analyzes how AI-mediated microlearning tools offer new opportunities for personalized learning pathways, flexible upskilling, and targeted support for adults with heterogeneous needs.

From a sociological perspective, these developments are embedded in broader transformations affecting educational governance, technological infrastructures, and patterns of social inequality. While AI-enabled microlearning has the potential to lower barriers to participation, especially for workers with limited time, discontinuous careers, or low initial skill levels, it can simultaneously reproduce or even widen inequalities when digital literacy is insufficient, socio-economic conditions limit access to devices and connectivity, or organisations lack the capacity to implement high-quality, data-driven learning environments.

The analysis highlights three critical dimensions:

- Pedagogical transformation, as AI-driven adaptivity reshapes teaching and learning interactions;
- Governance and ethics, including privacy, algorithmic transparency, and the need for robust human oversight;
- Inclusion, with attention to how design choices influence who benefits and who is left behind.

The paper argues that AI-enhanced microlearning can support more inclusive lifelong learning ecosystems only if embedded within human-centred governance frameworks that balance innovation with equity, accountability, and collective responsibility.

## DIGITAL INCLUSION IN THE AGE OF AI: EXAMINING APPROACHES TO ENSURE EDUCATIONAL EQUITY FOR STUDENTS FROM DIFFERENT SOCIOECONOMIC BACKGROUNDS

Franco CAMPITELLI, Nicola STRIZZOLO, *University of Teramo*

Integration of artificial intelligence in education is poised to stimulate the emergence of innovative technologies which will lead to improved student performance<sup>1</sup>. While cutting-edge solutions will create personalized learning trajectories, it could also exacerbate the so-called “digital divide”<sup>2</sup>. Such a result, referred to as the “digital divide,” can be down to a combination of factors, such as the difficulties in adopting technology in low-resource areas and the socio-economic inequalities among students’ homes<sup>3</sup>. By examining socio-economic factors that affect education, this project sets the stage for understanding the theoretical underpinnings of educational equity, irrespective of students’ social realities. First, public and private investment must be focused on providing broadband internet, even in areas designated as “white areas”<sup>4</sup>. Generative AI tools have rendered the traditional “sense of study” obsolete<sup>5</sup>. To address this challenge, continued education and development of these skills is essential to build a digital society: improving AI skills, including those of students and teachers and providing them with the skill set necessary to navigate new technologies with care and efficiency<sup>6</sup>. AI has made rote memorization or writing standardized essays, as obsolete as ever, driving universities to put attention on developing people who can think logically, critically and understand emotional intelligence, as well as build good communication skills and lifelong learning<sup>7</sup>. Moreover, there is the problem of “algorithmic bias”<sup>8</sup> which arises due to the training of AI systems on imbalanced data, and which could exacerbate prevailing social and ethnic inequalities<sup>9</sup>. The following discussion will investigate Universal Design for Learning (UDL), a methodology (or framework) that can be used to develop learning environments that are accessible and inclusive for students with a wide range of linguistic and neurodiverse learning needs<sup>10</sup>. As a result, the implementation of the tools necessary to help guarantee transparency, equity and accountability should be initiated by the educational staff with the participation of the institutional and civil society<sup>11</sup>.

<sup>1</sup> P. Shah, *AI and the Future of Education Teaching in the Age of Artificial Intelligence*, Jossey-Bass, 2023

<sup>2</sup> M. Trucano, *AI and the next digital divide in education*, <https://www.brookings.edu/articles/ai-and-the-next-digital-divide-in-education/> (14/11/2025)

<sup>3</sup> P. Shah, *op. cit.*

<sup>4</sup> Le “zone bianche” riguardanti internet sono aree a bassa densità di popolazione dove nessun operatore privato ha previsto investimenti per infrastrutture a banda larga.

<sup>5</sup> I. Bogost, *Il mondo è già cambiato*, Internazionale, 2025.

<sup>6</sup> S. Gonzales, *AI literacy and the new Digital Divide - A Global Call for Action*, <https://www.unesco.org/ethics-ai/en/articles/ai-literacy-and-new-digital-divide-global-call-action>. (14/11/2025)

<sup>7</sup> I. Bogost, *op. cit.*

<sup>8</sup> Il bias algoritmico si riferisce al verificarsi di risultati distorti a causa di pregiudizi umani che alterano i dati di addestramento originali o l'algoritmo AI, portando a output distorti e potenzialmente dannosi.

<sup>9</sup> Il bias algoritmico si riferisce al verificarsi di risultati distorti a causa di pregiudizi umani che alterano i dati di addestramento originali o l'algoritmo AI, portando a output distorti e potenzialmente dannosi.

<sup>10</sup> E.K. Nartey, *Generative AI in Higher Education Guiding Principles for Teaching and Learning*, Volume 1, CRC Press, 2025

<sup>11</sup> S. Gonzales, *op. cit.*

## AI PLAY, PLAYFUL SOCIETY. CO-CREATING BOARD GAMES WITH GENERATIVE ARTIFICIAL INTELLIGENCE

Giulia CONTI, *University of Modena and Reggio Emilia*

Ignoring the ease of access to, and the widespread use of, generative artificial intelligence (AI) tools among today's student cohorts is not only futile but potentially harmful. A more intellectually honest stance, fully consistent with the mission of education, is to acknowledge that such tools cannot realistically be prevented or banned. The key question is therefore not whether students will use them, but how.

How, then, can educators foster productive approaches grounded in curiosity and critical thinking? Kangas and Heljakka use the term AI Play to describe playful, co-creative forms of knowledge-making that integrate playful learning processes with generative AI (Kangas & Heljakka, 2024; see also Kangas et al., 2017; Kangas & Siklander, 2023), and they propose a protocol for bringing AI literacy and AI fluency into university classrooms.

Against this background, this contribution reports on a teaching experiment conducted within a Blended Intensive Programme (BIP), an Erasmus+ short mobility format combining online learning with an intensive in-person phase. The BIP provides a particularly suitable setting for experimental, highly collaborative pedagogies in which AI use is not merely permitted but becomes an explicit object of pedagogical design.

The course, titled *Sociology in Play*, took place in Reggio Emilia in May 2025 and involved undergraduate and postgraduate students from several European Union countries and across different degree programmes. Its intended outcome was the design of a board game. Working in groups with the support of multiple generative AI tools, participants developed key competencies in producing textual and visual materials, iterating and refining design ideas, and supporting brainstorming, for instance when defining game mechanics or selecting the game title and character names.

This intentional use of AI speaks to a broader debate on whether generative technologies amplify or redistribute human creativity, and on the tension between enhanced individual creative capacity and the risk of collective homogenisation (Rafner et al., 2023; Doshi & Hauser, 2024). *To paraphrase boyd, AI is here to stay... now what?*

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## LEARNING WITH AI, LEARNING ABOUT AI: EVIDENCE FROM UNIVERSITY TEACHING AND EMPLOYER ENGAGEMENT

**Massimiliano RUZZEDDU**, *University of Niccolò Cusano*

The current literature about AI's impacts on labour markets, has generally foreseen that AI is not necessarily reducing the number of available job positions, yet it is profoundly reshaping the skill and competencies required of workers. Thus, the critical challenge becomes workers' capacity to adapt to new tools and to engage in continuous learning. In this regard, AI-based training systems are facing a double challenge. On the one hand, the social need is strong for AI-trained labour offer on the other AI and sway the training evaluation processes by providing automated outputs. This dual challenge reshapes both educational practices and policy strategies, raising questions about how institutions can support firms and workers in this new environment. In my presentation I will share some case studies, based on my teaching activity, related to those challenges. Namely, I will show cases of students using AI both as a tool and an object of studies; as well as cases of students training in AI through interaction with future employers. The overall aim is to distill these experiences into a set of good practices that can guide both educators and organizations in designing effective, responsible, and forward-looking AI-related training pathways.



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## AI, QUALITATIVE INQUIRY, AND ANALYTICAL LABOR: INSIGHTS FROM MAXQDA

**Piotr BINDER**, *PhD, Institute of Philosophy and Sociology, Polish Academy of Sciences*

Qualitative data analysis software has been part of methodological practice for more than four decades, with MAXQDA itself emerging in the mid-1990s. These tools were initially designed to strengthen the systematic and transparent dimensions of qualitative inquiry - responding to recurring critiques of insufficient rigor or overly essayistic forms of analysis - without replacing the interpretive labor central to this tradition. The growing integration of generative AI is now significantly reshaping this landscape.

Drawing on examples from MAXQDA AI Assist and the Tailwind platform, the paper examines how AI-supported analytical functions organize qualitative work along three interconnected dimensions. First, automated summarization, topic detection, and coding assistance promise substantial acceleration. Nevertheless, they can disrupt the ethos of qualitative research, which holds that immersion, close reading, and iterative engagement constitute core methodological commitments. Second, while QDAS historically enhanced transparency by documenting analytic steps, AI-driven features reverse this logic by embedding interpretive operations within opaque, model-directed processes - a tension that directly shapes researchers' practices and decisions about disclosure. Third, these shifts carry ethical implications regarding authorship, accountability, and responsible reporting, as well as epistemic consequences for the status and validation of AI-generated interpretations.

The paper argues that these developments mark a transformation not only in qualitative workflows but also in the broader organization of analytical labor in academia. They raise questions about how foundational principles of qualitative inquiry should be reinterpreted in the context of AI-assisted tools and how methodological training should adapt, given that QDAS have never become a universal standard and lack widely recognized "best practices". Rather than debating whether AI ought to be used, the central challenge becomes determining how to integrate it in ways that preserve - and critically rethink - the intellectual foundations of qualitative research.



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## IV PANEL: AI IN EDUCATION

Chair: **M. R. RE**, *Link Campus University*

Discussant: **S. ROMITI**, *INVALSI*

### **AFFECTIVE ALGOAGENTS AND THE MAKING OF THE SOCIAL SELF IN ALGOMORPHIC SOCIETIES**

**Edmondo GRASSI**, *San Raffaele Open University of Rome*

In contemporary learning environments, generative models operating within AI infrastructures have moved beyond the status of mere technical tools, becoming emerging actors that participate in shaping how individuals feel, think, and relate to themselves and others. Building on the notion of algomorphic societies and the concept of algoagents, this paper explores how generative and predictive systems contribute to the formation of the social self in education.

I argue that these systems operate as affective infrastructures: they distribute attention, recognition, and anxiety; they modulate expectations of productivity and performance; and they script forms of dependency, trust, and vulnerability. In this sense, AI in education should be understood not only as a set of tools for personalisation, but as a network of actors that co-produce subjectivity, temporal experience, and moral responsibility.

The paper develops three main points. First, it outlines a typology of educational algoagents (cognitive assistants, monitoring systems, generative companions) and the specific affective regimes they enact. Second, it shows how these regimes may reinforce or challenge existing inequalities in terms of emotional labour, self-presentation, and access to recognition. Third, it proposes an algomorphic epistemology of education, calling for a transdisciplinary dialogue between sociology, philosophy, media studies, computer science, ethics, animal and postcolonial studies in order to rethink key categories such as learner, autonomy, care, and agency.

By reframing AI as an affective actor in the production of the social self, the paper aims to contribute to a critical vocabulary that can support more reflexive policies and pedagogical practices in the future of learning.



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## TECHNOLOGY, ARTIFICIAL INTELLIGENCE AND EDUCATION TOWARDS THE FUTURE OF LEARNING

**Gerasimos VONITSANOS**, *University of Ioannina, Greece*  
**Ioanna MOUSTAKA**, *Ionian University, Greece*

Digital Twin technologies are increasingly recognised as effective tools for analysing, interpreting, and optimising educational environments. This study presents the development of an AI-augmented Digital Twin of a real classroom in the Department of Informatics & Telecommunications of the University of Ioannina, designed to represent and examine student engagement, spatial behaviour, and learning processes with high fidelity. The Digital Twin will combine a detailed spatial model of the classroom with an agent-based simulation framework, enabling virtual student agents to occupy different positions, interact with equipment, collaborate in group settings, and follow varying trajectories during both theoretical and laboratory activities.

The simulation environment is linked to Learning Management System (LMS) records, behavioural observations, and classroom interaction logs, producing a multimodal dataset that computational methods can use to detect behavioural patterns, anticipate learning needs, and support the design of personalised learning pathways. By modelling heterogeneity in digital competence, learning pace, prior knowledge, and participation behaviour, the Digital Twin functions as an analytical and predictive mechanism, identifying students who may benefit from additional instructional guidance, differentiated tasks, or alternative learning arrangements.

A central contribution of this work lies in its focus on educational disparities within a single physical teaching space. The model incorporates diverse learner profiles, including students with limited digital confidence, reduced prior exposure to computing, or constrained ability to engage synchronously. Scenario-based analyses illustrate how variations in seating layout, distribution of laboratory resources, hybrid teaching configurations, or instructional pacing influence different groups unequally - highlighting latent obstacles and informing more inclusive pedagogical decisions. AI-supported Digital Twins can offer substantial value for refining classroom design, strengthening adaptive instruction, and promoting more equitable participation in computing education. The study positions Digital Twins as emerging infrastructures for evidence-informed teaching, contributing to the advancement of personalised and inclusive university learning environments.



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## ACCESSIBILITY IN DIGITAL LEARNING: OPPORTUNITIES AND CHALLENGES

Eliseo SCIARRETTA, Emilio GRECO, *Link Campus University*

Digital technologies are proving to be exceptional tools to be used in the fields of education and training, offering the chance of bridging space and time distance and experimenting with new teaching methodologies.

However, every new technology comes with a certain degree of digital divide, and actions need to be taken in order to prevent new forms of exclusion. Accessibility, the discipline that ensures that products and services can be used with no discriminations by everyone, and in particular by people with any kind of disability, becomes vital in this context, too, along with the other parameters of inclusive learning.

The first goal of this contribution is to provide an overview of the accessibility opportunities that can arise from digital learning: for some time now, digital tools have enabled the design of learning paths providing a level of customization never achieved before, and allow for a more effective accommodation to the diverse needs of all users. For example, compare the opportunity to enlarge the font size in digital books, which makes reading easier for those with low vision, with the difficulty of reading a paper book, where the publisher decides the settings.

Today, moreover, our society is on the edge of a forthcoming revolution, because Artificial Intelligence has the potential to completely overturn our perspective on how we learn and how we use technology, provided that its accessibility is also considered. And this is probably the greatest among the challenges experts of the field need to face, challenges that will be examined as the second goal of this contribution: beyond the use of AI, great attention must be paid to policies and the creation of appropriate standards that can grant the creation of accessible learning tools.



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## TEENAGERS AND DIGITAL TECHNOLOGIES. A COMPARISON AMONG THE PERSPECTIVES OF HIGH SCHOOL STUDENTS, TEACHERS AND SCHOOL HEADS

**Alba Francesca CANTA, Alvise MATTOZZI, Linda TONOLLI, Polytechnic of Turin**  
**Viktorija KONIDARI, Hellenic Open University**

Based on data collected through structured interviews administered in the framework of an Erasmus+ European project about digital literacy, disinformation and technologies (Progetto DRONE), the present contribution intends to compare views on the use of digital and online engagement among teenagers by teenagers themselves, high school professors and school leaders. We can consider the three groups as concerned public (Marres 2012) expressing their views on the question of young people's use of digital technologies in different spheres, including school ones. By comparing different versions of the issue, we will propose a reflection on possible dialogue among these three different concerned publics. While for school leaders, digital represents the natural environment of young people and offers them easy access to the various social worlds, perceiving young people as passive agents in this world (Clark, Leigh Star 2012), for teachers this relationship is more complicated. If this world has quick and easy access, it also represents a supportive tool, used critically and often consciously, and a new way of interacting, both at school and outside. An additional element emerges from the adolescents' perspective: the virtual one represents one among the possible worlds of one's daily life that does not necessarily replace the others but coexists. It is constantly evolving, astonishing but frightening at the same time, and while it is true that it is easy to access, it also represents new challenges and opportunities for young people to think critically, be constantly active agents, and enable new social relationships and new ways of interacting with peers and adults.

Finally, our analysis explores the ground on which education could not serve merely as a passive receptor of technological interventions, but rather as an active participant in co-creating shared "new pathways for teaching and learning but also (that) pose concern about ethics, inclusivity and governance", as the call says, for a better education environment.

## II DAY - 27 FEBRUARY 2026

# TRANSFORMING GENDER EQUALITY AND INCLUSION IN HIGHER EDUCATION IN IRELAND

Keynote Speaker: **B. BRERETON**



**BERNADETTE BRERETON**

### Dundalk Institute of Technology - ESA Chair of the Council of Research Networks

Sociologist, elected Research Chair of the European Sociological Association (ESA). Editor of Student Engagement in Higher Education journal (SEHEJ). Co-founder of VISTA Self-development programme (women in higher education). President's Award for Research Excellence - DkIT, 'Research Ally' award - Royal Irish Academy (RIA), keynote speech

UNESCO education conference, one of 9 final nominees - NFTL Teaching and Learning Research fellowships, NFTL Teaching Expert

### **VISTA Sistas': the personal and sectoral transformative powers of VISTA: a mid-career self-development programme for women in higher education.**

Systemic inequalities in higher education find many women at mid-career (often having spent time out of the workplace) struggling to find their career identity and pigeon-holed into restrictive roles and self-identities. Facilitated by professional coaches and senior sponsors, a customised, modular programme at higher level fostered a growth mindset to build professional skillsets, career plans and peer networks for participants. A blended delivery method promoted interactivity, reflection, self-reflection, engagement, network building and collaboration. An on-line hub and toolkit of resources also supported learning. Reported benefits lay in the areas of autonomy; career; learning and development; networks; organisational support and self-insight. Participants responded positively to the provision of a safe space encouraging reflection, discussion and networking with fellow female professionals with relatable career experiences across the sector. They reported enhanced self-awareness, improved goal-development, more effective career planning, better strategic thinking, faster decision making and boosted network building. Additionally, valuable insights were afforded through the focus on recognition of personal strengths and values, building empowerment and confidence. Structured access to senior sponsors was also reported to have positive effects. Institutional and sectoral benefits included greater inclusivity leading to improved workplace morale, enhanced inter-institutional collaboration and the sharing of best practice.



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## V PANEL: AI IN EDUCATION

Chair: **A. CAROSELLI**, *University of Milan*  
Discussant: **I. CORTONI**, *Sapienza University*

### PLAYING THE CITY: GAMIFIED URBAN PARTICIPATION AS A MODEL FOR CITIZEN SCIENCE-BASED LEARNING

**Ilaria IANNUZZI**, *Unitelma Sapienza University*  
**Melissa SESSA**, *Unitelma Sapienza University*

This contribution reframes urban gamification as a living laboratory for rethinking educational engagement in the age of AI. In many smart cities, gamified platforms encourage residents to map risks, report issues, co-design solutions, or interact with public infrastructures through challenges, missions, and narrative prompts. Although often associated with security governance, these experiences function as forms of informal civic learning, where participants acquire knowledge by actively producing data, interpreting feedback, and collaborating within a technologically mediated environment.

Drawing on examples such as “Hello Lamp Post”, “Play the City”, and other participatory urban-gaming initiatives, the paper shows how game-based interaction can foster STEM literacy, collective problem-solving, and distributed knowledge production — all core components of citizen science. These practices reveal how engagement, motivation, and learning are enhanced when users experience themselves as co-authors rather than passive recipients of information.

The paper argues that urban gamification offers valuable insights for education systems seeking to integrate AI, data-driven tools, and participatory methodologies. Specifically, urban games demonstrate how to design feedback systems that promote cooperation instead of competition, how to scaffold inclusive access through low-threshold technologies, and how to cultivate reflective rather than merely performative participation.

By treating the city as a pedagogical space, the contribution proposes a conceptual bridge between gamified civic participation and citizen-science approaches to education. It suggests that the educational potential of AI technologies is best realized when learners — like urban players — are invited to generate data, co-create meaning, and shape their learning environments. The paper thus positions urban gamification as an innovative blueprint for future forms of AI-enhanced, participatory education.



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## CRITICAL THINKING, DECISION FATIGUE, AND COGNITIVE DISENGAGEMENT IN AI-MEDIATED LEARNING: A CROSS-SECTIONAL STUDY ON STUDENTS' USE OF GENERATIVE TOOLS

Vanessa DONADEL, *Luiss University*

Marco ZUIN, *Professor, Salesian University Institute Venice*

In AI-mediated education, student engagement depends not only on motivation or access to technology, but also on cognitive vigilance. This study explored how Critical Thinking (CT), Decision Fatigue (DF), and Mindset affect students' reliance on generative AI tools during academic tasks. A sample of 122 university students reported how frequently they relied (5-point Likert scale: 1 = Never; 5 = Always) on unmodified AI-generated output during various academic activities (e.g., Idea Generation, Text Composition, Text Revision, Information Search, Feedback). Higher scores reflected a tendency to use AI-generated content without personal intervention. Moderation and regression analyses were conducted.

Moderation analyses revealed negative associations between the Reflective Skepticism (RS) subdimension of CT and passive use of AI output in Text Revision ( $\beta = -.12, p = .040$ ) and Feedback ( $\beta = -.17, p = .011$ ). The interaction between RS and DF was significant (Text Revision:  $RS*DF: \beta = .031, p = .011$ ; Feedback:  $RS*DF: \beta = .038, p = .003$ ), indicating that decision fatigue moderates the effect of critical thinking. Simple slope analyses showed that RS had a protective role only under low decision fatigue, which dissipated under high cognitive load. This suggests that cognitive exhaustion dampens the self-regulatory function of critical thinking, fostering cognitive disengagement even among reflective students.

Multiple regression demonstrated that RS had a significant negative effect on passive AI use for Idea Generation and Information Search ( $\beta$  ranging from  $-.12$  to  $-.19, p < .05$ ). Conversely, Fixed Mindset showed a positive and significant effect ( $\beta = .086, p = .021$ ) on passive use during Text Generation. DF did not directly predict AI use but acted as a moderator in critical thinking dynamics.

Overall, findings invite a reconsideration of "AI engagement" as a balance between cognitive effort and self-regulation, encouraging reflective engagement rather than passive dependence on AI-generated content.

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## INEQUALITIES IN THE DEVELOPMENT OF ARTIFICIAL INTELLIGENCE AND THEIR CONSEQUENCES FOR INEQUALITY IN EDUCATION

**Uroš V. ŠUVAKOVIĆ**, *Faculty of Education, Department for Philosophy and Social Sciences, University of Belgrade*

Regarding education, artificial intelligence (AI) brings revolutionary changes since the approach itself to learning is changing: the emphasis is not on human memorizing data, but it is necessary to master the skill of obtaining data from artificial intelligence; data personalization by student's interest is possible etc. The teacher's position is also changing: the teacher is no longer the deliverer of ready-made knowledge, in line with the role in the previous ex cathedra model, but the one who encourages critical thinking and, with younger age groups, the one who dedicates more attention to students' socialization. Non-formal and informal education, as well as LLL, are becoming more important because they are encouraged by technology. In the further course of AI development (from narrow AI [NAI] to general AI [GAI], and then also artificial superintelligence [ASI]), it is possible to imagine the disappearance or drastic decrease in the need for the existence of certain professions, including that of teachers.

Nevertheless, nowadays it is already clear that not only the development, as well as the application of AI are unevenly proceeding in global frameworks. According to Kissinger, the USA, China, Russia and India are taking the lead, while the EU is seriously lagging behind. Such delay of the EU can be explained primarily by the establishment of stricter regulations in this area, as well as the lack of means for developing own technologies. However, speaking of the AI application, the Global South is lagging behind on the largest scale, which indicates the continuation (and deepening) of differences in the approach to education between the developed countries and the underdeveloped ones.

Yet, the following question arises: Due to the lagging behind in the AI application, will there be an even larger delay in education provided by national educational systems of those countries? It is difficult to expect that the most developed countries will not use the advantages in their own AI development as a global comparative advantage. Therefore, it is important that all countries should immediately be involved not so much in the development of AI technology – since it definitely remains the privilege of the richest – but in its application in different spheres of life, including education, thus trying to prevent the deepening of already existing inequalities in education. In that context, in its Artificial Intelligence Development Strategy to 2030, Serbia highlights the importance of the development of AI application in the sphere of education, while the Centre for Robotics and Artificial Intelligence in Education (CRAIE) within the Faculty of Education of the University of Belgrade regularly organizes teacher training for the AI use in education which has been attended by several thousands of teachers. This represents Serbia's attempt to keep up with the changes brought by AI in education.



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## EXPLORING SOCIO-CULTURAL AND ETHICAL DIMENSIONS OF AI ADOPTION IN ACADEMIC PRACTICES

Maria Chiara DE ANGELIS, *Link Campus University*

Academic research and teaching are being profoundly reshaped by the rapid digital revolution, with technologies such as AI, IoT, robotics, big data, and digital platforms transforming every stage of both research and the teaching–learning processes. In particular, generative AI poses significant epistemological and ethical challenges that affect research organization, collaboration, dissemination, and evaluation, as well as the dynamics of teaching and learning.

This study examines the impact of artificial intelligence on academic practices, with a strong focus on ethical considerations in creative, research, and educational processes. It emphasizes the urgent need for robust digital and AI literacy skills, encompassing not only technical proficiency but also awareness of the social, environmental, and fairness implications linked to the digitalization of educational and scientific activities. Adopting a qualitative, multi-level framework, the study involved international focus groups with scholars from six countries to examine the social, cultural, and ethical aspects of AI integration in higher education.

Thematic analysis revealed tensions between innovation opportunities, such as improved collaboration and skill development, and risks like the frictionless phenomenon, digital inequality, and decreased critical thinking. Participants emphasized the need for transparent AI governance, strong critical literacy, and hands-on learning with AI tools.

The findings argue that the adoption of AI represents a profound epistemological and cultural shift, demanding reflective and ethical institutional responses rather than merely technical adjustments. This work contributes to current debates on AI's evolving academic role and offers recommendations to foster ethical, inclusive, and critically aware engagement among researchers, educators, and policymakers. Ultimately, the study encourages continuous critical reflection on the integration of AI in knowledge production and dissemination, advocating for university strategies that address subjectivity, inclusivity, and the broader implications of digital transformation in research and higher education.



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## VI PANEL: AI AND PEOPLE AND CITIZENSHIP

Chair: **A. DE FEO**, *Roma Tre University*

Discussant: **D. POLIANDRI**, *INVALSI*

### COMMUNITY ENGAGEMENT THROUGH CITIZEN SCIENCE: A PARTICIPATORY EXPERIENCE IN CHIAVARI (GENOA, ITALY) TO ADDRESS CLIMATE CHANGE AND ITS IMPACTS

**Paola SALVATI**, *CNR IRPI, Perugia*

Citizen science is increasingly used to engage the public in research activities, also with the aim of raising awareness and promoting actions to counter climate change and foster sustainability. In these contexts, participatory science initiatives often operate in multidisciplinary settings, involve citizens and stakeholders, and encourage active participation in the definition of adaptation actions. This contribution aims to describe the citizen science activities carried out in the Municipality of Chiavari (Metropolitan City of Genoa), where multiple collaborations were established with the Municipal Administration, the local Civil Protection unit, and an upper secondary school to launch training and engagement programmes starting in 2023.

The activities include theoretical–practical lessons on climate change and its impacts, with a specific focus on geo-hydrological hazards, as well as tutorials on how to contribute to participatory projects and develop tools for data collection. The work also includes the development of a web app to report floods and inundations, with particular attention to past events for which photographic or video documentation may be available. The web app provides a form to describe key characteristics of flood events (flow velocity, water depth, etc.), producing a real-time web map of reports. The application is based on KoboToolbox, an open-source software for creating geolocated reports. Students use it through their mobile devices and/or desktop/laptop computers. Initial field activities have already been conducted, enabling data collection also based on interviews (and narratives) from local residents who experienced the 2002 and 2014 events. The campaign proved meaningful for students, who were also able to reconstruct a local historical memory that - due to their age - had been vague and distant to them. The skills developed through participatory and training activities allow students to compare the collected information with the (limited) data already available to the authorities.

This contribution describes the full workflow of the activities, from youth engagement to the development of the web app. The work is carried out within the H2020 I-CHANGE project (Individual Change of Habits Needed for Green European transition).



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## THE EUROPEAN CLIMATE-NEUTRAL CITY AS A SOCIOTECHNICAL IMAGINARY. POLICY, TECHNOLOGY, AND IMAGINATION IN URBAN CLIMATE CHANGE MITIGATION

Caterina BRACCHI, *Catholic University of the Sacro Cuore*

The goal of the present research has been to investigate how cities are implementing their climate strategies with a particular focus on climate change mitigation, understood as the efforts needed to drastically reduce the concentration of GHGs in the atmosphere, to reach climate neutrality or net-zero emissions by a given year (Seto et al., 2021). While urban mitigation efforts are often understood as a mainly technological and development challenge, the research departs from the assumption that the road to urban climate neutrality is rather a sociotechnical transition, affecting all aspects of urban life, to be aided through technical and technological advancements (Frantzeskaki et al., 2017). Given the all-encompassing effects that climate neutrality transitions can have in the urban (social) structure (e.g. de Jong et al., 2015), this research goes beyond traditional policy analysis, by adopting the theoretical and methodological approach of sociotechnical imaginaries (STIs) (Jasanoff & Kim, 2009; 2015). The present work has been aimed, therefore, at investigating whether European cities in their road to climate neutrality through the Horizon Europe Mission “Climate-neutral and Smart Cities” are indeed envisioning a specific sociotechnical imaginary of the climate-neutral city, and what the main discourse informing this STI entails for the European city of the future.

The analysis, conducted by means of discourse analysis on policy documents developed in the framework of the Mission with the help of the QDA software Nvivo, is conclusive and confirms the main hypothesis that urban climate neutrality in the European context indeed represents more than a simple environmental policy goal, but rather the sociotechnical imaginary of the future European city, one based on the optimistic ecological modernisation assumptions (Hajer, 1995), whereby existing or arising issues of justice and inequalities can primarily be tackled through participation, while connecting environmental and development objectives.

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## THEATRE, STATISTICS AND CRITICAL PEDAGOGY TOWARDS DATA LITERACY IN THE ALGORITHMIC SOCIETY

**Elena SORBA**, *Università IULM, Milan, Italy*  
**Elisabetta RISI**, *Università IULM, Milan, Italy*

In data-saturated societies, numerical indicators shape how we understand education, health, environment, and governance. Yet public discourse rarely questions the origins, uses, or epistemic assumptions behind these numbers. This paper reframes statistical literacy as a critical competence that goes beyond calculation, focusing on how data are produced, represented, and politically mobilized. Following a sociological and pedagogical perspective, we argue that enabling citizens to interrogate the construction of numbers is central to democratic life. Statistics are not neutral tools, but social artefacts. Teaching how data are negotiated, which decisions underpin their production, and what narratives they authorize or silence, is therefore crucial. Drawing on the tradition of critical pedagogy (Freire, Giroux), and on recent approaches to data ethics and algorithmic governance (Markham, 2020), we explore how quantitative education can support forms of epistemic agency and civic awareness. In particular, we consider how performative strategies—rooted in embodied, affective and narrative practices—can help learners access complex statistical concepts, not by simplifying them, but by situating them within lived experience.

Theatre has long served as a space for public knowledge, where abstract ideas become shareable and debatable. We argue that such a space can contribute to data education not merely as a means of “popularization,” but as a mode of inquiry. We present an educational initiative that combines statistical reasoning with dramaturgical elements, focusing on how concepts like variability, inference, and correlation can be collectively explored and contested. This interdisciplinary approach repositions data literacy as a form of cultural and political participation. It offers a model where understanding numbers means understanding power, and where learning to read statistics becomes a way to reclaim agency in algorithmically mediated worlds.



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## AI-DRIVEN PERSONALIZED LEARNING AND THE NEW FRONTIERS OF EDUCATION: A CRITICAL SOCIOLOGICAL AND STS PERSPECTIVE

Gianluca SENATORE, *Sapienza University*

The increasing integration of Artificial Intelligence (AI) into educational systems is profoundly reshaping pedagogical practices, institutional arrangements, and learning experiences. Among the most prominent developments, AI-driven personalized learning is widely promoted as a response to inefficiencies, standardization, and educational inequality. Through algorithms, learning analytics, and adaptive platforms, these technologies promise individualized learning pathways and data-informed pedagogical strategies. However, from a sociological perspective, these transformations require critical scrutiny beyond technological determinism and solutionist narratives.

This paper adopts an interdisciplinary framework combining Science and Technology Studies (STS), critical sociology, and the theoretical contributions of Michel Foucault and Pierre Bourdieu, in order to conceptualize personalized learning as a socio-technical dispositif rather than a neutral pedagogical innovation. From an STS perspective, AI systems are analyzed as assemblages of infrastructures, institutional logics, and power relations. Through a Foucauldian lens, algorithmic education is interpreted as an emerging form of data-based governance, in which personalization operates as a technology of surveillance, classification, and normalization. Simultaneously, Bourdieu's framework is employed to examine how algorithmic mediation reconfigures cultural capital, habitus, and symbolic power, potentially reinforcing existing inequalities behind discourses of individualization and efficiency.

Rather than merely enhancing learning outcomes, AI-based systems participate in redefining what counts as legitimate knowledge, performance, and merit. Personalized learning therefore emerges as a contested domain, where narratives of inclusion coexist with new mechanisms of exclusion driven by digital divides, data bias, and algorithmic opacity.

The paper argues that AI-driven personalization should be understood as a cultural and political transformation of education, rather than a purely technological upgrade. By locating educational AI within broader socio-economic and epistemic structures, this contribution advocates a reflexive approach to innovation that places issues of power, inequality, and governance at the center of debates on the future of learning.



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## AI FOR EVERYONE: AN INCLUSIVE AND GENTLE METHOD FOR AN IN-DEPTH INTRODUCTION TO AI

Pierpaolo FERRANTE, Edvige SORRENTINO, Enrico LO SCRUDATO, Giovanna TRANFO, *INAIL*

While artificial Intelligence (AI) exponentially expands learning opportunities, a successful implementation requires thorough understanding also to non-specialists. Overcoming the cultural and emotional barriers commonly associated with transformative innovations remains the primary challenge. This contribution presents a pilot experimental methodological approach, developed for an INAIL research workshop and based on everyday analogies, micro-narratives, and guided interactions with AI tools. All the professionals of the Department of Occupational and Environmental Medicine, Epidemiology and Hygiene were invited, and 26 expressed interest in participating. The training module, tested on 19 professionals (94% female; mean age 53; 50% in research or administrative positions), includes:

1. **Analogical teaching:** artificial neurons and neural networks, weights and training are introduced through analogies with familiar activities, such as baking a cake. Analogies follow a controlled progression to foster intuitive understanding.
2. **Transition from natural models to artificial models:** the narrative moves from biological to artificial neural networks, up to Large Language Models, presented as predictive language systems. Visual diagrams and bridging questions support the formation of coherent mental representations.
3. **Active practice through prompt engineering:** after describing an acronym-based prompt structure, participants used precompiled prompts, evaluated outputs, and created vertical chats, to build basic operational skills.

At the conclusion of the workshop, participants were asked to fill in a structured questionnaire designed to assess the interest stimulated for future use. While for 94% of attendees this was their first AI-focused event, all expressed satisfaction with materials and technologies use, and 86% found the content exceeded expectations. Before the workshop, 72% rarely or never used generative AI (primarily ChatGPT); afterwards, all participants reported increased interest in AI tools and related events. These findings suggest that hands-on, analogy-driven methodologies can reduce entrance barriers to AI among non-specialists. Subsequent follow-up activities should be used to reinforce new insights.



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## VII PANEL: AI AND HEALTH INCLUSION

Chair: **M. FRANCESCHELLI**, *UCL Social Research Institute*

Discussant: **B. MORSELLO**, *Padua University*

### ARTIFICIAL INTELLIGENCE AND THE LIMITS OF KNOWLEDGE

Marina CIAMPI, Tito MARCI, *Sapienza University*

The paper examines the relationship between knowledge, intelligence, and technology in the context of contemporary developments in artificial intelligence. Rather than interpreting AI as a new form of intelligence, the study argues that it represents a novel mode of technical agency that increasingly substitutes human cognition and decision-making. Through a dialogue with Virilio, Minsky, Searle, Floridi, and Bodei, the paper discusses the benefits and risks of autonomous machines, highlighting the ethical and political implications of the digital revolution. By retracing the genealogy of modern calculative reason, it shows how technical power - initially conceived as an instrument of emancipation - has evolved into a potential tool of domination and alienation. Ultimately, it claims that genuine knowledge cannot be reduced to computational capacity or predictive efficiency, but requires awareness of human finitude, vulnerability, and responsibility.



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## RETHINKING LEARNING FUTURES: SOCIOLOGICAL PERSPECTIVES ON AI, COGNITIVE ADAPTIVITY AND EDUCATIONAL TRANSFORMATIONS

Sara PELLEGRINI, Riccardo MANCINI, Riccardo SEBASTIANI, *Link Campus University*

The acceleration of digital technologies and artificial intelligence is profoundly transforming educational systems, generating unprecedented opportunities while also introducing new challenges related to equity, adaptivity, and participation. In light of these transformations, this research addresses a central question: how can AI support educational processes that are inclusive, cognitively adaptive, and socially equitable, while preventing the reproduction of existing inequalities and strengthening students' agency?

The purpose of the study is to analyze the sociological, cognitive, and ethical implications of AI integration in learning environments, drawing on evidence from research on cognitive flexibility, metacognition, and goal-choice mechanisms. Recent studies highlight that students' ability to define, monitor, and reformulate learning goals depends on the transparency of the context and the quality of support offered by digital artefacts - dimensions that become crucial in AI-enhanced educational systems.

The specific objectives of the research are threefold:

1. to investigate how adaptive learning environments influence self-regulation, considering task complexity and contextual variability;
2. to examine the impact of intelligent technologies on educational inequalities, with attention to gender, socio-economic background, and digital competencies;
3. to evaluate ethical and governance implications, focusing on algorithmic transparency, data protection, and emerging European regulatory frameworks.

The expected outcomes aim to determine whether and how AI can become a genuinely inclusive educational infrastructure - capable of enhancing complex cognitive processes such as adaptation, decision-making, and metacognitive monitoring - while simultaneously ensuring equity and access.

This conference represents a valuable opportunity to discuss such evidence, fostering dialogue among sociology, educational sciences, and technology, and contributing to the definition of future models of learning that are human-centred, sustainable, and socially just.

## THE USE OF ARTIFICIAL INTELLIGENCE IN INCLUSIVE LEARNING: FIELD TRIALS

Barbara LETTERI, *University of Sassari*

Over the last year, partly due to the numerous training courses funded by the PNRR (National Recovery and Resilience Plan), there has been considerable debate in the world of education, especially among teachers, about whether or not to use artificial intelligence (AI) tools. These tools are undoubtedly capable of performing exceptionally well, such as producing texts, images, objective tests and many other cognitive products typically created by humans. Furthermore, these technologies are now integrated into the informal and non-formal learning tool that we all have at our disposal, the smartphone, and therefore, whether we like it or not, everyone finds themselves using them. This contribution aims to illustrate research carried out in the Learning Technologies laboratories of the specialisation course for teacher support held by the Universities of Sassari, Modena and Reggio Emilia, and Trieste. The research aims to formulate reflections on the impact of the individual applications examined with regard to: the design of materials for use in the classroom; personalisation and the possibility of adapting methodologies to the different needs of students; methods of assessing students' academic progress; the possibility of offering tutoring to students to "train" them in learning.

The research involved administering a qualitative-quantitative questionnaire to a sample of approximately 180 students to gather their opinions on the use of AI as a support for disability. A number of classroom experiments were also carried out during direct training activities by 63 teachers undergoing continuing professional development at lower secondary schools. This research involved the use of numerous AI applications that are used on a daily basis in education. The results of this research revealed the strengths and weaknesses of these applications in the inclusive teaching and learning process, as it raised the question of how much this innovation can really be a compensatory and inclusive tool for students with Special Educational Needs (SEN), whether it is easy or difficult to use, very or not very intuitive, inclusive or discriminatory, or whether it is even excessively compensatory at the expense of the autonomy of individual students. This experiment therefore aimed to understand the role of artificial intelligence in inclusive teaching/learning processes.

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## **SOCIAL EMPATHETIC COGNITIVE ROBOTICS FOR AUTISM (SECRA): A PROTOCOL DESIGN INVOLVING PARENTS OF CHILDREN WITH AUTISM**

**Tindara CAPRÌ, Francesco Pio SORTOLANO, Giorgia TODARO**, *Department of Human Sciences, Link Campus University*

**Paola CHILÀ, Flavia MARINO**, *I.R.I.B. Institute for Biomedical Research and Innovation, C.N.R. National Research Council*

The main aims of the research project, called Social Empathetic Cognitive Robotics for Autism (SECRA), were two: (a) to develop robust cognitive and socio-emotional protocols for robot-assisted therapy tailored for children with Autism Spectrum Disorder (ASD), and (b) to evaluate whether a robot can improve cognitive and socio-emotional skills in these children across different settings: therapy labs, schools, and home environments. To achieve these objectives, this research project used the QTrobot (LuxAI S.A.), an expressive humanoid robot developed for the treatment of autism. In the second phase of this research project, we developed the socio-emotional protocol involving parents of children with autism and we tested it with a parent involved in the lab setting. Results showed an increment in social behaviors of children when the parent was involved in interaction with QTrobot. We present the three preparatory steps carried out to develop the protocol and the pilot study for testing it. This project is the first research using parents in the therapy setting and indicates that the use combined of social robots and parents can enhance attention and engagement, increase imitation, and promote social and communicative interactions, crucial for children with autism who often face challenges in these areas. This project is funded by the European Union-Next Generation EU.

## VIII PANEL: AI & WORK

Chair: **E. PROIETTI**, *Roma Tre University*  
Discussant: **L. DE VITA**, *Sapienza University*

### THE IMPACT OF ARTIFICIAL INTELLIGENCE ON WORK AND LIFELONG LEARNING

**Adele BIANCO**, *"G. d'Annunzio" University of Chieti-Pescara*

Work and technological development have been closely intertwined throughout human history (Pfeiffer, 2010). Today, artificial intelligence (AI) stands out as one of the most influential technologies shaping work and its future trajectories. It represents a radical force for transformation across productive sectors and within social, cultural, and economic relationships. Work is inevitably affected by these changes, which manifest both quantitatively—through impacts on employment levels—and qualitatively, in terms of the space and autonomy that technology affords the human workforce.

This paper examines the transformations AI imposes on work and addresses whether automation might herald the “end of work,” given its superior efficiency and effectiveness compared to human labor. Since the mid-2010s, the most pessimistic forecasts have painted an alarming picture (Frey & Osborne, 2013), though subsequent analyses have revised these predictions (Pfeiffer, 2010).

Understanding how AI affects the labor force—which must be appropriately and continuously updated and trained—remains crucial.

Workforce training concerns both current workers, who face increasingly extended working lives, and younger generations, who must learn to leverage effectively the technologies with which they have grown up.

The urgency of this issue stems from the risk of labor market polarization. The persistence of the digital divide, combined with the coexistence of high-level qualifications that resist automation and routine skills easily replaced by AI, will necessitate new strategies for managing unemployment and underemployment driven by technological innovation.

This scenario presents two critical challenges. First, rising social inequality threatens to marginalize those unable to reintegrate into the labor market, particularly as older generations must remain economically active longer. Second, an emerging shortage of professionals equipped with skills aligned to evolving market demands poses risks to economic vitality. Only a systemic approach to lifelong learning—one engaging both senior workers and younger generations—can counteract labor market polarization and ensure an equitable transition toward an AI-driven economy. Achieving this requires targeted training policies and coherent, forward-looking

corporate strategies. Without such measures, the consequences are severe: diminished competitiveness, especially for aging and structurally rigid societies less capable of adapting to ongoing transformations. Ultimately, this threatens to weaken national economic competitiveness and foster marginalization within the global economy.

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## EDUCATING FOR ARTIFICIAL INTELLIGENCE: LEARNING PATHWAYS, GENDER, AND EMERGING DIGITAL INEQUALITIES

**Federica FORTUNATO**, *IULM University*  
**Simonetta MUCCIO**, *IULM University, LIUC University*

Artificial Intelligence (AI) is profoundly reshaping education and the labour market, redefining required skills and learning processes. Within this transformation, gender remains in Italy a structural axis of inequality (EIGE, 2022), influencing both educational experiences and professional trajectories. Despite women's higher educational attainment, this advantage has not yet translated into equal job opportunities or career access. The diffusion of AI thus risks reinforcing existing

technological divides and widening disparities, generating new forms of symbolic and cognitive vulnerability (OECD, 2023; UNESCO, 2023).

This paper presents results from an interdepartmental study conducted at IULM University (2025) on 2,536 Italian university students. Using internationally validated instruments – the GAAIS Scale (Schepman & Rodney, 2022) and the PGWB Index (Grossi et al., 2006) – the research analyses the relationship between perceived competence, emotions, and subjective well-being with respect to gender and field of study (STEM vs. non-STEM). It also examines issues related to responsible AI use, including ethical awareness, privacy concerns, and cognitive bias.

Findings reveal a pronounced confidence gap: female students report lower perceived competence in using AI-based tools, combined with higher anxiety, ambivalence, and lower agency. However, this gap narrows substantially among women in STEM programmes, who show levels of familiarity, confidence, and well-being comparable to male peers. Engagement in scientific and technological domains thus appears to act as a powerful rebalancing factor, fostering empowerment and mitigating gender disparities in access to and use of AI technologies.

Experimental evidence further indicates that guided, reflective exposure to AI tools in educational settings—regardless of discipline—can reduce the confidence gap, underscoring the central role of schools in promoting inclusive and critical AI literacy. From a sociological perspective, fostering AI literacy as a transversal competence is essential to building equitable, participatory, and digitally confident learning environments.

## A MULTIMODAL AI-BASED VIRTUAL ASSISTANT FOR ADAPTIVE ERGONOMIC TRAINING IN HYBRID WORK ENVIRONMENTS

**Giuditta SIMONCELLI, Laura DE ANGELIS, Sara ANASTASI, Cataldo LA GIOIA, INAIL - Department of technological innovations and safety of plants, products and anthropic settlements**  
**Emma PIETRAFESA, Agnese MARTINI, INAIL - Department of Occupational and Environmental Medicine, Epidemiology and Hygiene**

### Introduction

In hybrid workplaces, the employer's inability to anticipate the environments in which work activities are carried out complicates the management of occupational risk prevention. Risks become fluid and variable, influenced by the multiplicity and virtuality of workspaces and by the overlap between living and working environments. This dynamic configuration requires multidisciplinary expertise in occupational safety and health (OSH), making it difficult to design comprehensive and context-specific training programs. Traditional OSH courses, although addressing both general and specific risks, cannot fully cover the variability of hybrid work contexts, where workers—according to Italian Law No. 81/2017—are required to cooperate with employers in identifying hazards.

### Materials and Methods

Within the 2022–2024 research activities, the INAIL BRIC SWILSS project (Sistema Wearable Intelligente per Lavoro Smart Sicuro) developed a multimodal virtual assistant based on generative artificial intelligence (AI). The system complements traditional OSH training by providing personalized and adaptive recommendations for remote and agile workers. It integrates four modules:

1. visual recognition of the workstation via PC;
2. ergonomic evaluation engine comparing data with reference standards;
3. feedback generator based on Large Language Models (LLMs) and Retrieval-Augmented Generation (RAG) framework;
4. adaptive learning layer that adjusts the complexity of feedback according to user interaction.

### Results

The assistant supports adaptive learning along three dimensions: cognitive, behavioural, and motivational. Written feedback reinforces cognitive processes through neural recycling, simultaneously activating motor, sensory, and conceptual mechanisms. This integration of individual ergonomic assessment and learning transforms risk reduction and correction into an active educational process.

### Conclusions

The AI assistant represents an innovative application of artificial intelligence to occupational safety and digital ergonomics training. By combining explainability and adaptivity, it supports a continuous, human-centered learning process that merges the technical dimension of prevention with the pedagogical dimension of lifelong education, thereby redefining OSH training for hybrid work environments.

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## DIGITALISING CARE, RECONFIGURING WELFARE: THE CESU+ MODEL AS A DIGITAL PUBLIC PLATFORM FOR LABOUR FORMALISATION

Massimo DE MINICIS, *INAPP*

Care work is a rapidly expanding sector in European labour markets, driven by demographic ageing, increased female labour participation and the growing demand for long-term assistance. In both Italy and France, it constitutes a strategic domain for labour and economic policies, yet remains structurally characterised by high levels of informality, unstable employment relations and a workforce largely composed of migrant workers. Within this context, care work represents a paradigmatic case of low-wage employment embedded in fragile and fragmented wage regimes. This paper analyses the French Chèque Emploi Service Universel (CESU+) as an innovative public policy instrument capable of reshaping the institutional architecture of wage regulation in the care sector. By operating through a state-managed digital platform, CESU+ intervenes directly in the construction of a new wage regime for care work, redefining the relationship between pay, social contributions, employment continuity, and social rights. In doing so, it operationalises Accornero's (2001) insights on the transition "from work to works", reflecting the structural shift towards a post-Fordist, service-based and multi-employer organisation of labour. From a political economy perspective, CESU+ demonstrates how public digital Platform can transform care work from a marginal, informal and poorly regulated segment into a formally governed labour market embedded within national systems of social protection. The model promotes the stabilisation of employment relationships, ensures continuity of social security contributions, provides fiscal incentives and reinforces the formal recognition of working seniority, thereby reshaping the conditions under which wages are produced, distributed, and legitimised. The paper argues that CESU+ constitutes a form of institutional innovation that reconfigures wage regimes in low-paid service sectors by integrating mechanisms of flexibility within a framework of collective regulation and state intervention. It highlights how the governance of care work through public platforms may contribute to redefining wage-setting mechanisms, mitigating precarity and strengthening the economic and social position of contingent workers within contemporary welfare economies.



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## IX PANEL: AI IN EDUCATION

Chair: **C. FONZO**, *INAPP*  
Discussant: **M. FREDDANO**, *INVALSI*

### PEER REVIEW AS A COLLABORATIVE METHODOLOGY FOR QUALITY AND LEARNING IN VOCATIONAL EDUCATION

**Laura EVANGELISTA**, *Link Campus University*  
**Concetta FONZO**, *INAPP*

This paper reports on an ongoing research project that investigates how Peer Review can enhance quality assurance in Vocational Education and Training (VET). Anchored in the EQAVET European framework and the 2020 Council Recommendation, the project analyses how collaborative evaluation among peers supports institutional learning, reflexivity, and continuous improvement within educational organizations.

The research adopts a mixed qualitative design integrating documentary and comparative analysis of European and national quality frameworks with task and job analyses aimed at defining a competence framework for professionals engaged in quality assurance. The study, currently in progress, has completed its desk analysis phase, identifying key conceptual tensions between accountability-oriented and learning-oriented models of quality and identifying the main professional roles involved in the Peer Review cycle — design, self-assessment, peer visit, and redesign. Building on this groundwork, the ongoing stage focuses on the definition of a competence framework that articulates the knowledge, technical abilities and soft skills required to make Peer Review an effective and transformative process and to turn evaluation into collaborative learning.

The next steps will involve qualitative fieldwork and participatory validation of the emerging framework with VET institutions. By conceptualizing Peer Review as a technology of reflexive collaboration, the study aims to contribute to sociological debates on how professional agency and human expertise can balance data-driven and AI-mediated educational governance, fostering trust, inclusion, and sustainable improvement.

The authors also aim to inform both academic and policy discussions on competence-based approaches to educational governance, contributing to the reflection on digital transformation, inclusivity, and professional development in the VET sector.



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## DEVELOPING TEACHERS' COMPETENCES FOR INCLUSIVE GIFTED EDUCATION: THE GIFTED GAME-BASED ECOSYSTEM AS A DIGITAL TRAINING ENVIRONMENT

**Roberta RENATI**, *Link Campus University*

Teaching is a demanding and multifaceted profession. It requires educators to master both specialized knowledge and psycho-pedagogical competences, in order to meet the diverse needs of their students and the, often, rigid nature of school environments. In this context, effective teaching increasingly depends on a teacher's ability to be flexible, creative, and open to integrating technological tools in meaningful, inclusive, and innovative ways. Strengthening teachers' confidence and familiarity with such tools is therefore essential to enhancing their self-efficacy and supporting the adoption of personalised and truly inclusive educational practices. This contribution aims to present the GIFTED Erasmus Plus project as a case study of a digital training environment designed to enhance teachers' competences in the inclusive education of gifted and twice-exceptional (2e) students, whose identification and support rely on implicit beliefs, institutional constraints, and unequal access to training. Developed through transnational collaboration across five countries, GIFTED offers a multi-layered digital ecosystem that encourages teachers to explore and apply digital tools directly in real classroom settings. The ecosystem includes: a gamified online platform with five interactive training modules; a training manual combining theory and practical activities; a serious game for early identification of mathematical talent and learning difficulties (including socio-emotional profiling of students aged 7–11); and a modular Open Badge system for certifying acquired competences. Implemented across all partner countries and tested with over 200 teachers and 1,000 students, GIFTED proved to be effective, motivating, and accessible. It revealed a significant gap in teacher training, the 83% of participants had never received specific preparation in gifted education, while also promoting hands-on experimentation with serious games and gamification. The project supported teachers in reflecting on their digital competences and on how such innovative tools can be integrated into the design of more inclusive and engaging classroom practices.



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## EVALUATING E-LEARNING PLATFORMS FOR AI-ENHANCED PROJECT-BASED LEARNING: CASE OF LITHUANIAN PRIMARY EDUCATION

**Kamilė KESYLĖ, Julija MELNIKOVA, Gražina ŠMITIENĖ, Aleksandra BATUCHINA, Aida NORVILIENĖ, Iлона RUPŠIENĖ, Neringa STRAZDIENĖ, Evelina BRAZAUSKIENĖ, Klaipėda University.**

Project-based learning (PBL) has been widely acknowledged as an effective pedagogical approach for fostering primary school students' critical thinking, creativity, collaboration, and problem-solving skills. E-learning platforms with their potential to use interactivity, multimodal learning materials and to enable continuous formative assessments may potentially enhance the development of these skills in students when implementing PBL. Additionally, as artificial intelligence (AI) and data driven systems are influencing digital learning environments, it is essential to explore how e-learning platforms assist PBL principles and to develop understanding of how emerging technologies will influence AI enhanced instructional support for PBL. The purpose of this study was to investigate the pedagogical and technological characteristics of e-learning platforms in relation to the implementation of PBL in primary education in Lithuania. A multi-round Delphi study involving 22 experienced primary school teachers was conducted to create and validate an evaluation framework that would focus on the PBL process and to evaluate 8 of the most common e-learning platforms. Findings from the study indicate that the platforms support different phases of the PBL process, such as inquiry, collaborative work, and reflection. Although the study focuses on generally available e-learning platforms, the findings indicate implications for the integration of AI adaptive support, automated feedback and data-driven learning analytics into project-based learning environments. The evaluation framework proposed in the study can be used to inform the development of AI enabled systems which support inquiry, collaboration, and personalization within primary education, thus assisting in the development of intelligent learning ecosystems.

## STRATEGIES FOR AI INTEGRATION FOR PERSONALIZED STUDENT'S STUDY IN HIGHER EDUCATION INSTITUTIONS

Erika ŽUPERKIENĖ, Halyna MISHENINA, Svitlana TARASENKO, *Klaipėda University.*

Higher education continues to experience pressure to prepare graduates for uncertain labour markets while maintaining traditional expectations regarding depth of knowledge and universal skills. Previously, the T-shaped metaphor was used by universities to talk about employment and skills development among students, but it no longer fully reflects the needs of the modern labour market (Andersson, 2023; Dewalska-Opitek et al., 2025).

In our study, we present a hybrid competency profile as a more appropriate approach to describing what graduates need to know and be able to do to be ready for the future. The transition from T-shaped to hybrid competency profile implies a shift in educational paradigms. For example, there is now a need to introduce personalised learning pathways that take into account the different strengths and abilities of each student. This transition is particularly relevant in the context of integrating advanced technologies into the educational environment, primarily artificial intelligence. In parallel with this, the concepts of digital twins are actively penetrating education as data-rich representations of systems, learning environments, and, more recently, the students themselves - the digital twin of a student (Bachmann et al., 2024).

A student's digital twin (SDT) is defined as a structured, updatable model of a learner that stores target and achieved competency levels, evidence of learning, preferences, and limitations, and can be queried to generate personalised learning pathway recommendations, in line with recent work on AI-supported personalised learning pathways (Naseer et al., 2024; Bayly-Castaneda et al., 2024).

SDT is now being explored as dynamic model that integrate data on performance, competency levels, and behaviour to support personalised learning (Kabashkin, 2025). However, there is still debate about how SDT can be explicitly linked to competency system and used to create transparent, personalised trajectories within specific programmes.

In this study, we attempted to create a conceptual and design-oriented framework for the transition from T-shaped to hybrid competency profile, based on the concept of using SDT. In our view, this approach will enable more individualized, interdisciplinary skill development and adaptive learning.

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## X PANEL: AI AND PEOPLE AND CITIZENSHIP

Chair: **M. SESSA**, *CNR - IRPI*  
Discussant: **P. SALVATI**, *CNR - IRPI*

### FOR A RENEWAL OF THE SOCIOLOGY OF EMOTIONS. ON THE RELATIONSHIP BETWEEN FEAR AND ARTIFICIAL INTELLIGENCE

**Emanuela Susca**, *IULM University, Milan*

People often relate to technology with apprehension and resistance, a tendency that becomes particularly pronounced with artificial intelligence — a domain that generates both excitement and deep concern. This paper examines widespread technophobia and resistance to change, moving beyond psychological explanations to highlight two complementary sociological perspectives.

1. Anxiety about AI often reflects an informed awareness of how new technologies might worsen one's circumstances, rather than simple ignorance or backwardness.
2. Cultural contexts shape emotional responses: some amplify fear, others foster trust and optimism. Broadly, Western societies show greater caution, whereas Eastern societies tend to be more confident.

Considering these perspectives together deepens our understanding of resistance to change and helps illuminate how social inequalities shape people's emotional responses to innovation. These insights are crucial for education, which plays a central role in equipping individuals and communities to interpret technological transformations critically and to engage with artificial intelligence in informed, empowered ways.



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## LIVING WITH THE ALGORITHM: BONDS, ETHICS AND CARE IN SMART HOMES

Romina GURASHI, *Link Campus University*

The spread of algorithmic systems within domestic spaces is profoundly reshaping the way we inhabit our homes, turning them into hybrid environments in which intimacy, care and responsibility are constantly renegotiated. What once appeared as a place of ontological security and meaningful relationships now emerges as a sociotechnical node where people, objects and digital infrastructures co-construct everyday practices and decision-making criteria. Drawing on the tradition of domestication studies and on insights from Actor–Network Theory, the transition toward AI homes does not seem to be a mere technological upgrade, but rather a deeper process of rewriting domestic ecologies. The underlying hypothesis is that automation does not genuinely lighten the work of care; instead, it redistributes it, transforming inhabitants into ongoing coordinators of complex systems. At the same time, the growing datafication of domestic environments introduces new forms of vulnerability and raises questions about the transparency and proportionality of the data circulating within the intimate sphere. Within this scenario, several questions become central. How do social bonds change when the home is populated by non-human actors? In what ways does delegation to algorithms shape perceptions of autonomy, dependence or control? And what kind of ethics of inhabiting becomes possible when domestic life is structured by subtle forms of surveillance and opaque decision-making processes? This contribution proposes to interpret these transformations as an opportunity to rethink the relationships between people, objects and data, imagining forms of dwelling that do not relinquish the complexity of care and that, on the contrary, aim to restore resonance to everyday experience.



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## FOR EFFECTIVE CITIZEN SCIENCE: THE CASE OF DESENZANO DEL GARDA

**Ilaria BERETTA, Antonio MOLINARI, Catholic University of the Sacred Heart**

In the public sphere, international organisations such as the OECD, UNESCO and the United Nations have emphasised the importance of public participation in addressing global challenges such as sustainability, social inclusion and equity, increasing trust in institutions and improving the legitimacy of decisions. The Conference on the Future of Europe promoted by the Council of Europe, the 2019 Citizens' Climate Convention in France, and various citizens' assemblies such as those in Bologna, Brussels and Lisbon are just a few examples that demonstrate greater attention to and inclusion of citizens' needs and opinions in the development of public policies or in the co-design of future scenarios.

Democratic participation processes are subject to critical assessment in terms of their objective fairness, adherence to reality and the principle of fidelity or credibility of their concrete solutions (see Malavasi, 2022).

Citizen science is a set of practices that involve citizens in the construction of scientific knowledge. In particular, citizen science contributes significantly to improving the quality and impact of scientific research in several ways: by refuting people's beliefs with scientific data, by decisively helping to expand scientific knowledge, and by recognising the importance of recovering reliable sources and communicating them.

The Clic Plan Project and the Clic Plan Plus Project were developed in this direction and implemented between 2016 and 2024 in Desenzano del Garda by the Alta Scuola per l'Ambiente (ASA) of the Catholic University of the Sacred Heart in Brescia. Through targeted citizen science actions in collaboration with the community, these projects sought to i) promote awareness of the risks associated with climate change, ii) provide methods of analysis and cooperative learning, and iii) improve life skills.

## BETWEEN DEPENDENCE AND RISK: YOUNG PEOPLE'S DIGITAL BEHAVIOURS AND FORMS OF VULNERABILITY

Matteo BONANNI, Orazio GIANCOLA, Benedetto PASANISI, *Sapienza University*

This study investigates the relationship between problematic smartphone use (Giancola and Salmieri, 2019, 2024) and direct exposure to digital risks associated among individuals aged 14 to 34. The study is based on an original survey designed to investigate digital habits, perceptions, and forms of vulnerability linked to the use of mobile devices. The research integrates the dimensions of problematic use and exposure to negative consequences of digital life through a multivariate approach aimed at identifying differentiated vulnerability profiles.

In the first phase of the analysis, a multidimensional scale is used to measure dysfunctional smartphone use through indicators of impairment in daily activities and concentration, physical and psychological symptoms related to prolonged use, and compulsive and social components of behaviour.

From this battery, a synthetic index of smartphone overuse is constructed – interpreted as a measure of the extent to which smartphone use interferes with daily life, generates symptoms of dependence, and manifests as a behaviour that is difficult to control. The index – validated through ad hoc testing – serves as a proxy for problematic use, consistent with the literature on behavioural addictions and digital dependency.

In the second phase, an index of direct exposure to digital risks is constructed based on reported experience with negative situations associated with digital technologies, including cyberbullying, cybersecurity issues, misinformation, and problematic dependencies. This index measures personal vulnerability to the problematic effects of the digital environment rather than mere cognitive awareness of risks.

The last step of the analysis consists of examining the relationship between the two constructs: the smartphone overuse index and the index of experiential exposure to digital risks. The working hypothesis posits that higher levels of overuse are associated with a greater likelihood of having directly experienced problematic online situations. This is consistent with the idea that more intense and less regulated smartphone use increases opportunities for relational, informational, and psychological vulnerability.

To test this, both indices are transformed into ordinal quartile variables and then subjected to Multiple Correspondence Analysis (MCA) to explore the relational structure between levels of overuse and exposure. Based on the extracted factors, a cluster analysis is conducted to identify typologies of digital users.

The clusters will be described using structural variables (gender, age, family cultural background) and indicators of device usage intensity, and relational dimension, considered both as control variables and as possible mediators of the link between overuse and exposure.

Methodologically, the goal is to estimate the internal consistency of the two indices and to investigate their structural relationship through exploratory and multivariate techniques. Substantively, the goal is also to analyse the latent relationships between the two measures, characterizing them in terms of ascriptive and processual dimensions to identify the composition of groups most exposed to risk, with the aim of informing strategies of support, intervention, and education.

Overall, the study frames the link between dysfunctional smartphone use and digital vulnerability as two interconnected dimensions of participation in online life: the former focusing on individual behaviours, the latter on its social and relational consequences. This perspective shifts the focus from “addiction” as an individual pathology toward an interpretation of overuse as a structural risk factor, reflecting broader transformations in the ways young people live, communicate, and experience digital connectedness in contemporary society.



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## PHD PANEL

Chair: **F. CAGNOLI**, *PhD Representative, Board Member, ESA RN24*

Discussant: **M. RUZZEDDU**, *Unicusano*

### TECHNICIST CULTURE AND FORMS OF KNOWLEDGE: THE CASE OF DIGITAL COMPETENCIES

**Caterina PETROCCHI**, *Sapienza University*

This contribution aims to reflect on the strong social legitimacy currently attributed to digital competencies, interpreting it as part of a broader dynamic of the continual strengthening of the technicist paradigm within contemporary society.

The paper advances a discussion on the relationship between the technological implementation typical of modernity and the corresponding forms of knowledge that are socially transmitted and legitimized, illustrating how this relationship is driven by a logic of functional utilitarianism. According to this logic, the key roles, socio-occupational positions, and competencies of the social system are selected and encouraged. It will be argued that the current investment in the development of digital competencies is not the result of an inevitable alignment with innovation, an innovation presumed to pervade all social practices and environments, but rather the conscious choice of a cultural orientation more interested in understanding how things work than in questioning and becoming aware of why they exist in the first place. This gives rise to a social structure centred on forms of knowledge linked to technical and efficiency-driven domains, whose holders enjoy a more prominent status than those who cultivate forms of knowledge related to the human and existential sphere, forms that are not immediately expendable or applicable for profit.

Drawing on Weber's essential theorization of the rationalization of the modern West, extensively examined by scholars of the Frankfurt School, as well as on Simmel's concept of objective culture, the discussion will explore contemporary sociological literature that highlights the contrast between forms of knowledge grounded in technical utilitarianism and those oriented toward existential enrichment, emphasizing their significant differences in shaping and interpreting the functioning of the social world when they constitute the dominant culture.



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## AI BETWEEN THE RISK SOCIETY AND THE ALGORITHMIC SOCIETY: THE CASE OF EDUCATION

Nicolò SANTONE, *University of L'Aquila*

The introduction of artificial intelligence systems into education is frequently presented as a tool for rationalization: the ability to predict outcomes, reduce uncertainty, and optimize organizational and instructional processes. From this perspective, educational platforms appear as technologies for managing risk. Following Ulrich Beck's reflections on the risk society, however, this contribution assumes that precisely where the benefits are made visible and tangible—efficiency, personalization, measurability—risk tends to become opaque. In the case under consideration, risk does not coincide with a single “side effect,” but with the progressive datafication of individuals, here in particular of students, whose trajectories are captured, modeled, and made the object of algorithmic intervention.

The paper examines how this form of risk is constructed, perceived, or neutralized when AI is integrated into education. The hypothesis is that the combination of rhetorics of inevitable innovation and the extractive logics of surveillance capitalism, in Shoshana Zuboff's formulation, produces a paradoxical situation: the promise of rational control over uncertainty makes infrastructures desirable that generate new systemic risks while placing them outside the field of everyday perception.

Education is taken as a privileged empirical domain in which these dynamics become especially legible: not as an exception, but as a space where individuals are exposed early to devices of algorithmic surveillance, continuous assessment, and platform dependency. Through a critical reading of institutional materials and contemporary discourses on the use of

AI for schools and universities, the paper aims to show how the datafication of students is simultaneously constructed as a solution to traditional educational risks and, at the same time, configured as a new structural risk for a datafied society.



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## ALGORITHMIC AFFECT AND LEARNING: IMPACTS OF AI ON THE AFFECTIVE AND SOCIAL DIMENSIONS IN EDUCATIONAL SPACES

Nicholas PIETROPAOLO, Francesco PIETRONIRO, *Sapienza University*

The integration of artificial intelligence into educational contexts is reshaping both teaching practices and the dynamics of social interaction. Tools such as ChatGPT, Gemini, and other adaptive learning platforms offer immediate feedback and increasingly personalized learning experiences, adjusting rhythms and modalities of study. Yet, beyond the cognitive benefits, these technologies also intervene in the affective and relational dimensions of education, giving rise to what might be called algorithmic emotionality: a set of simulated and normatively oriented emotional responses that generate a predictable affective environment, consistently positive, empathetic, reassuring, and largely free of conflict. This contribution seeks to examine the mechanisms behind this form of algorithmic emotionality and the effects it may produce on both individual and collective levels. In this light, AI appears as a non-human social actor capable of influencing affective norms and “feeling rules” within educational settings, shaping subjectivity, critical thinking, and processes of socialization. The constant gratification and emotional predictability provided by algorithms may, over time, diminish learners’ tolerance for frustration and their capacity to handle negative emotions, skills that remain essential to learning, personal growth, and authentic relationships. At the same time, new forms of inequality are emerging, not so much in terms of access to technology, but in relation to differing degrees of critical awareness toward algorithm-mediated affectivity: between those who recognize the simulated nature of interactions and those who unconsciously absorb their effects.

The educational challenge ahead, therefore, lies in creating tools that nurture not only cognitive development but also emotional and relational competence. In this respect, Social and Emotional Learning (SEL) offers a valuable reference framework, aimed at fostering emotional awareness, managing difficult emotions, and cultivating genuine relational skills, counteracting the effects of algorithmic positivity and supporting autonomy, critical thinking, and active social participation.



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## WORK-RELATED STRESS AND HYBRID WORK: THE NEW INAIL 2025 METHODOLOGY BETWEEN SOFT LAW AND PREVENTION OBLIGATIONS UNDER LEGISLATIVE DECREE 81/2008

Francesco Maria SPANÒ, *University Niccolò Cusano*

The transformation of work modalities, marked by the rise of hybrid work and increased digitalization of activities, requires a revision of employers' legal prevention obligations concerning work-related stress.

The Italian system—based on the combination of Article 2087 of the Civil Code, Article 28 of Legislative Decree 81/2008, and the 2004 European Framework Agreement—requires employers to adopt every necessary measure to protect the worker's physical and psychological integrity, including the assessment of psychosocial risks within the Risk Assessment Document (DVR). It is within this framework that the new INAIL 2025 methodology is introduced, revising the national assessment model and adding a dedicated section on remote work and technological innovation.

The new model includes specific tools—checklists, surveys, contextual indicators—to examine phenomena such as hyper-connectivity, constant availability, blurred boundaries between private and professional life, professional isolation, intensive use of digital platforms, and asynchronous workload management.

These factors help redefine the employer's duty of care and raise the minimum standard of prevention required by law, affecting not only risk assessment but also the very structure of work processes.

The research aims to critically analyze the legal nature of the INAIL 2025 methodology, examining its classification as “enhanced” soft law and its impact on administrative and inspection practices.

A second objective is to analyze how the new module influences the content of the DVR and the methods used to verify compliance with prevention obligations in legal proceedings, with particular attention to cases involving psychological harm and disputes related to the organization of digital work.

Finally, attention will be given to smart working as a long-term work arrangement: its advantages in terms of autonomy and work-life balance, but also its risks linked to lack of supervision, isolation, and difficulty disconnecting. The goal is to determine whether the 2025 methodology can serve as a new operational standard for ensuring effective psychological health protection in contemporary work environments.

## TRAINING AND DIGITAL GOVERNANCE IN THE ITALIAN “UFFICI DI ESECUZIONE PENALE ESTERNA”

Jennifer MALPONTE, *University of Chieti-Pescara*

In recent research (2023-2024) conducted on the co-design of a digital application in the U.E.P.E. offices of Terni and Perugia, it emerged that the digital transition in public administration does not depend just on the introduction of new technologies, but above all on the ability of institutions to learn and innovate their organisational models (Carloni, 2019; Butera, 2020). From this perspective, training plays a decisive role in limiting the resistance to change that is typical of these organisations. Training officials, and more generally the professional community, in interpretative, reflective and transversal skills means increasing their ability to understand the potential of new systems (including AI-oriented ones). This resistance does not stem from a rejection of digitalisation but from a reaction to the difficulty of understanding how these technologies redefine power, responsibility, roles and skills (Zuboff, 2019). The inclusion of targeted training courses focused on analytical skills and digital literacy (AgID, 2022; 2025) would enable civil servants to actively participate in the design of truly effective solutions, minimising the production of bias (Maino, 2023; Van Dijck, 2022). However, this process is only effective if accompanied by a critical reading of digital devices, focused on the unintended effects of this transformation, so as to curb forms of cognitive delegation, technological dependence and the removal of responsibility from administrative action (Gramatica, 2025; Carr, 2020). Co-design has shown that directly understanding the limitations and potential of algorithms has acted as a learning device, repositioning the tool in its role as an extension of the capacity to act and not as a substitute for thought (Floridi, 2025). By using these tools ethically (Floridi, 2022), judgement is not automated, but processes are streamlined and made more transparent. Digital education, including training and governance strategies that develop sense-making skills, becomes an essential condition for governing change and not eroding human autonomy (Radanliev, 2025).

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