

Narrating Needs, Embodying Rights: Situated Learning and Community Agency against Cultural Desertification in Southern Salento

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Abstract: Current macroeconomic dynamics and extractive digital neocolonialism risk reducing citizens to passive users, exacerbating educational poverty and cultural desertification in inner marginal areas. This paper proposes the Ecosystem of Territorial Cohesion (ETC) as an epistemological and operational framework for activating community agency through situated and embodied learning. Adopting a qualitative research-intervention design informed by Participatory Action Research, Community-Based Participatory Research, Action Community Learning and Needs Mapping, the study examines three intervention pillars: ZooAntroPedagogy with Narrative Medicine and simulation; inclusive sport and nature-based education; participatory access to Research Infrastructures. Findings show that embodied biofeedback, narrative micro-circles, outdoor experiential learning and authentic scientific inquiry support emotional regulation, communication, peer inclusion, resilience, critical thinking and cognitive sovereignty among vulnerable minors in Southern Salento. The contribution argues that narrating needs is not a mere diagnostic practice but a performative and civic act through which vulnerability can be repositioned as an embodied right. Education thus becomes community regeneration, transforming marginal territories into laboratories of democratic participation and educational citizenship.



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1. Introduction

1.1. Problem Context

Current macroeconomic dynamics and extractive digital neocolonialism risk degrading individuals from the status of citizens to mere passive users, exacerbating the complex and multidimensional phenomenon of educational poverty. This scenario fuels an inexorable process of cultural desertification and depopulation, with particularly severe impacts in the inner and marginal areas of Southern Salento, where territorial inequalities and skills obsolescence interact with limited educational opportunities (Barca, 2015; OECD, 2024).

Faced with the risk of a functional marginalization that ultimately sustains extractive elites, there is an urgent need to promote genuine educational justice. Such justice should stimulate active and aware digital citizenship, direct technological innovation toward community well-being and counter the long-term marginalization of vulnerable territories and groups (Colazzo, 2024).

1.2. Research Objectives

Stemming this tide, calls for transcending the self-referential conception of educational systems and embrace a subsidiary paradigm in which pedagogy, politics, research institutions, civil society and local communities cooperate for the common good. The primary objective of this contribution is to propose the Ecosystem of Territorial Cohesion (ETC) as an epistemological and operational framework for activating community agency through situated learning, where research, institutions, businesses, civil society and the natural environment interact synergistically to promote sustainable and inclusive development, placing people's real needs at the center of a transdisciplinary perspective (Russo, 2024).

The driving force of this ecosystem lies in participatory methodologies (Scott, 2020; Salman and Ramsis, 2025) and territorial activators particularly capable of restoring a voice to vulnerable subjects, such as “Action Community Learning” (ACL) and “Needs Mapping” (MdB), by which educational inquiry becomes a performative, narrative and dialogic act. Specifically, Needs Mapping does not merely record objective deficiencies, rather, it co-constructs collective meanings and enables participants to reposition their identities in relation to their sociocultural context (Manfreda, 2021, 2024).

Within this value-based framework, the article explores situated and embodied learning applications directed at vulnerable minors in Southern Salento: ZooAntroPedagogy enriched by narrative medicine, inclusive sport and nature-based education, participatory access to Research Infrastructures (RIs). These intervention devices are examined as complementary pathways for emotional regulation, self-expression, belonging, cognitive sovereignty and educational citizenship.

2. Materials and Methods

2.1. Research Design

This study employs a qualitative, exploratory approach founded on a single-case research-intervention design. To understand and address systemic inequalities in marginal territories, the research integrates participatory and community-based principles within the broader ETC strategy, prioritizing local knowledge, collective decision-making and the empowerment of vulnerable groups.

By observing dynamic synecological interactions, the design enables the iterative refinement of educational practices based on continuous stakeholder feedback and active participation. The methodological architecture treats the territory not as a passive backdrop but as an educational environment, a social infrastructure and a field of civic agency.

2.2. Techniques and Methods

The methodological core is driven by *Action Community Learning* and *Needs Mapping*. Needs Mapping transcends the mere recording of objective deficiencies by using narrative processes to co-construct meaning and capture the complex aspirations of vulnerable subjects. From this foundation, three distinct programmatic interventions were deployed.

- ZooAntroPedagogy (ZAP) with Narrative Medicine and Simulation: interventions used human-animal interactions, specifically with horses, to foster self-regulation and non-verbal communication. Narrative Medicine micro-circles and reflective writing translated tacit bodily learning into verbal expression, while high-fidelity simulation and role-playing provided protected

settings for practicing transferable socio-emotional skills (Bachi et al., 2012; Charon, 2008; Issenberg et al., 2005).

- **Nature-Based and Inclusive Sports Activities:** grounded in a pedagogy of place, activities such as orienteering, trekking and rock climbing transformed the natural landscapes of Salento into living classrooms (Donini and Napolitano, 2022). Psycho-attitudinal workshops and digital storytelling documented participant journeys, supported self-efficacy and generated social capital (Depledge et al., 2019; Mann et al., 2022).
- **Scientific Inquiry at Research Infrastructures (RIs):** minors engaged in hands-on environmental data analysis, including weather-balloon activities and investigations of aquatic biodiversity using virtual research environments at advanced CNR facilities. These experiences linked scientific inquiry with digital rights, environmental awareness and the restoration of cognitive sovereignty (Loperte et al., 2025; Russo and Cornacchia, 2025).

Data collection triangulated participant observation, field diaries, semi-structured interviews and focus groups, capturing nuanced emic perspectives while supporting programmatic assessment across the intervention sessions.

2.3. Population and Sample

The study adopted a purposive, non-random sampling strategy targeting disadvantaged minors residing in the inner and marginal areas of Southern Salento, including municipalities such as Tiggiano, Salve, Poggiardo and the broader Casarano and Martano Social Districts. Inclusion criteria focused on youths experiencing severe educational poverty, socioeconomic hardship, migration backgrounds, specific learning disabilities or complex clinical and behavioral needs.

The total population encompassed multiple cohorts aligned with the specific intervention pillars:

- **ZAP module:** 24 minors, from primary to lower-secondary age, presenting specific vulnerabilities, including Oppositional Defiant Disorder, selective mutism and severe transition anxiety.
- **Nature-based and inclusive sports camps:** large community cohorts, including 46 disadvantaged minors in the 2024 Summer Camps, 80 minors in the 2025 Eco-Explorers programs and an additional 65 minors engaged in the Athletes Together initiative.
- **Research Infrastructures expeditions:** 34 students aged 8-14, accompanied by 15 teachers and educators, who participated directly in advanced scientific ateliers.

Ethical considerations: The intervention-research activities involved minors in educational and community contexts. Data were considered in aggregate and anonymized form. Participation in educational activities and documentation followed the informed-consent, privacy and child-safeguarding procedures adopted by the responsible organizations, including parental/legal guardian authorization where required.

3. Results

The multi-phase interventions generated programmatic evidence of learning, demonstrating the effectiveness of the ETC framework in mitigating educational poverty and fostering active community agency. The main data and results are categorized across the three primary intervention pillars.

3.1. *ZooAntropedagogy and Narrative Medicine*

Expected outcomes included reducing dysregulation and avoidance, increasing effective non-verbal and verbal communication and promoting collaborative behaviors transferable to classroom and family life among minors with severe vulnerabilities, in line with the documented educational potential of equine-facilitated work, narrative medicine and simulation-based learning.

- **Behavioral Flexibility and Self-Efficacy:** observational data and focus groups revealed a shift from rigid defense mechanisms to flexible and adaptive conduct. Through embodied biofeedback, horses acted as non-judgmental living mirrors, prompting immediate emotional regulation and helping children recognize and modulate their internal states.
- **Reflective Competence:** Narrative Medicine micro-circles enabled participants to convert tacit bodily learning into articulated words, helping them name feelings and strategies.
- **Skill Transferability:** simulation-style role-plays provided a protected space for explicit rehearsal, making the transfer of newly acquired communication and boundary-setting skills to caregivers and peers more visible and measurable.

3.2. *Inclusive Sport and Nature-Based Education*

Interventions such as the Athletes Together project and the Eco-Explorers camps aimed to foster social inclusion, enhance spatial awareness and physical coordination, build a connection to the cultural and natural landscape, in line with evidence on nature-specific outdoor learning and nature-based well-being (Nichols et al., 2013; Shanahan et al., 2019; Zheng et al., 2021).

- **Active Protagonism and Resilience:** participants exhibited a transition from passive observation to active participation, demonstrating enhanced problem-solving, teamwork and resilience when navigating challenging natural environments.
- **Social Inclusion:** qualitative data indicated a decrease in self-reported feelings of isolation and the formation of positive peer relationships across diverse cultural and linguistic backgrounds.
- **Quantitative Empowerment Trajectory:** text analysis, including Multiple Correspondence Analysis (MCA), indicated a semantic trajectory in participant discourse, shifting from a Deficit/Needs quadrant at baseline toward an Asset/Empowerment quadrant after the intervention. This supports the interpretation that beneficiaries became active agents of their own change.

3.3. *Scientific Inquiry at Research Infrastructures*

The participatory opening of advanced CNR facilities, including IRET and IMIOT, sought to cultivate a culture of inquiry by transitioning students from passive rote learning to active critical thinking while simultaneously safeguarding and empowering digital human rights (Russo, 2026).

- **Emergence of Critical Thought:** immersion in virtual research environments and hands-on atmospheric data collection, including weather-balloon activities, produced gains in analytical reasoning and hypothesis formulation. Students became better able to analyze complex phenomena and evaluate conflicting ideas.
- **Digital Rights and Cognitive Sovereignty:** the intervention reframed digital safeguarding from mere protection to active empowerment. Students learned practical data ethics, questioned data collection practices and exercised informed consent.

- **Proactive Scientific Agency:** a notable unexpected outcome was the spontaneous formulation of complex sustainability-focused research problems by participants, such as questioning the environmental impact of scientific tools. This evidenced the restoration of cognitive sovereignty, elevating students from passive consumers to proactive producers of knowledge.

4. Discussion

4.1. Results Interpretation

The multi-phase interventions demonstrate that non-conventional, participatory and embodied methodologies can disrupt the self-reinforcing cycle of educational poverty in marginal areas. Across the ZAP modules, the primary mechanisms of change relied on embodied biofeedback, where the non-judgmental animal acted as a living mirror, encouraging minors to notice and modulate internal states in real time; narrative circles and simulation role-plays then converted tacit physical experience into explicit reflective competence and transferable skills.

Similarly, the inclusive sports and nature-based interventions show that outdoor experiential learning can serve as an antidote to the abstract and often disengaging nature of traditional schooling. By navigating physical and emotional challenges in natural landscapes, participants cultivated problem-solving abilities, collaboration and belonging, consistently with the broader literature on outdoor learning and nature-based educational development.

Furthermore, immersions within high-tech Research Infrastructures revealed that operating authentic scientific instruments and engaging in complex data environments can ignite intrinsic motivation among underrepresented youth. The results suggest that bridging the digital and experiential divide requires holistic cultural approaches, trusted intermediaries and inclusive access strategies rather than the mere provision of technological hardware.

4.2. Theoretical and Practical Implications

Theoretically, this research-intervention contributes to experimental pedagogy by validating the paradigm of embodied education. This framework posits that learning must extend beyond intellectual comprehension to encompass the whole person: mind, body and emotions. It also reinforces the synecological perspective, according to which human development is co-constructed through dynamic interaction with the physical and social environment.

The study also substantiates the educational commons model (Pechtelidis et al., 2023), demonstrating that democratic, peer-governed and place-based learning can mitigate social inequalities while actively safeguarding emerging digital human rights against extractive data practices.

Practically, the ETC provides a tangible, scalable and cost-effective blueprint for community regeneration. However, for these interventions to achieve sustainable long-term impact, public policy should shift from fragmented, program-centric action to integrated, ecosystem-centric planning, with sustained investment in teacher professional development, satellite learning hubs, curriculum integration and territorial observatories.

5. Conclusions

The paper shows that narrating needs and acting within one's environment can constitute a form of embodied educational citizenship. Needs Mapping, Action Community Learning, ZooAntroPedagogy, nature-based education and access to

Research Infrastructures operated as mutually reinforcing devices for transforming vulnerability into agency and educational rights into concrete community practices.

Future implementation should prioritize integrated policy and funding, continuous teacher professional development in digital literacy and critical pedagogy, infrastructure capacity building through satellite learning hubs, curriculum integration of nature-based and assisted educational pathways and local territorial observatories capable of continuously mapping needs and evaluating pedagogical innovation in ethically responsible ways.

To effectively operationalize this horizon, this research identifies the creation of Community Observatories at territorial level serving as potential Research Infrastructures (RIs) for future social and economic empowerment. Rather than functioning as extractive, top-down entities, these Observatories are conceived as the permanent operational engines of the *Ecosystem for Territorial Cohesion*. They are designed to integrate standardized institutional data with locally produced, bottom-up evidence, thereby supporting an ecological interpretation of social phenomena through deliberative practices and public restitution. By equipping administrators, teachers and Third Sector actors to operate as co-researchers, these Observatories democratize knowledge production and ensure that data collection becomes a distributed community capacity.

Furthermore, guiding these local Observatories along a maturation pathway to become formalized Research Infrastructures—such as integrating them into the European Strategy Forum on Research Infrastructures (ESFRI) framework—represents a crucial strategic evolution. This transition requires the adoption of FAIR (Findable, Accessible, Interoperable, Reusable) principles, the implementation of open access policies for aggregated data and the establishment of scientifically independent governance structures. Ultimately, elevating the Community Observatory to the status of a recognized Research Infrastructure transforms the local ecosystem from a temporary intervention coalition into an open, governed knowledge platform. This institutionalization can enable pedagogical innovation and territorial capacity-building to remain anchored in empirical evidence and egalitarian democracy, providing a sustainable infrastructure capable of generating long-term social justice in marginal areas.

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