Journal of Inclusive Methodology and Technology in Learning and Teaching
ISSN 2785-5104
Anno 6 n.3 (2026)

EDIZIONI UNIVERSITARIE ROMANE
editoria scientifica dal 1952

Augmented narratives and youth agency: A framework for making sense of engaging education in digital ecosystems.

Laura Ieni [1] *

[1] University of Messina; laieni@unime.it
* Correspondence: ieni.l@hotmail.it

Abstract: The contemporary media ecosystem challenges educational environments to rethink engagement beyond datafication and platform capitalism. Drawing cognitive-semiotic framework, the theory of the open work, and pragmatist aesthetics, this study investigates how formal education can cultivate critical meaning-making through digital narratives. Adopting a design-based research (DBR) methodology, the research implemented a transmedia storytelling project in the pedagogical field, aimed at groups of students, engaging them in the investigation of diverse issues, from the socio-environmental to the local, through interactive podcasts, video essays, and digital archives. The pedagogical project was structured around a tripartite semiotic progression: sensory perception, grounded in the field; aesthetic expression, through multimodal creation; and abstract conceptual reflection through decoupling. Qualitative data, including reflective diaries, multimodal artifact analysis, focus group interviews, and field observation notes, were subjected to thematic analysis. The findings indicate three main trajectories: the transition from algorithmic extraction to conscious creation, the role of digital artifacts as safe spaces for emotional and social experimentation, and the reactivation of cultural competence. Ultimately, the study demonstrates that integrating semiotic and narrative models into instructional design provides students with cognitive autonomy and resilience in the face of extractive digital ecosystems, redefining the role of educators as facilitators of critical interpretive communities.

Keywords: Media; Art; Emotions.

Copyright: © 2026 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

1. Introduction

The contemporary media ecosystem presents formal, non-formal, and informal educational institutions with a profound epistemological and structural challenge. The urgent need to rethink the very nature, configurations, and boundaries of interaction; As widely documented in the international literature (Jenkins et al., 2009; Buckingham, 2007), schools, universities, and training programs are increasingly called upon to design learning environments in which cognitive, emotional, and social participation goes beyond superficial interaction to cultivate authentic agency, critical media literacy, and collective intelligence.

In the Italian academic landscape, researchers in the field of educational technologies and media educators drawing on a rich tradition of semiotics, pedagogy, and media education (Calvani, 2013; Rivoltella, 2013, 2019; Ranieri, 2016)

have argued that digital technologies cannot be conceptualized as neutral tools or simple delivery mechanisms. Instead, they constitute pervasive and highly structured cultural environments that actively reconfigure human attention, emotional processing, and social practices.

However, this sociotechnical landscape is increasingly dominated by datafication, platform capitalism, and algorithmic governance (Couldry & Mejias, 2019). Within this extractive paradigm, human attention is systematically commodified, reducing students to passive consumers of fragmented information flows, designed to maximize immediate affective reactivity rather than reflective engagement. To counter these extractive logics, educational research must look beyond technical panaceas or superficial gamification, grounding itself in solid cognitive-semiotic and interactionist frameworks that encourage students to reason and reflect by reworking the content of the object they are given.

This study proposes a theoretical synthesis that brings together Barend van Heusden's (2009, 2015) cognitive-semiotic model of culture and meaning-making, Umberto Eco's (1980) semiotic concept of the open work, John Dewey's (1934) pragmatist aesthetics, and recent interactionist paradigms in empirical aesthetics.

Van Heusden argues that culture is not a static repository of canonical information to be passively transmitted, but rather a fundamental human cognitive capacity rooted in detachment or decoupling: the ability to distance ourselves from the immediate sensorial here and now through imagination, narrative, and symbolic representation. In today's digital ecosystems, this capacity for detachment is constantly challenged by algorithmically curated content that saturates what we cognitively understand and absorb. To understand how students make sense of the complex realities within these environments, engagement must be operationalized as an emergent and situated construct.

In line with interactionist perspectives in empirical aesthetics, meaning is neither an intrinsic property of an isolated artifact nor a purely subjective projection of a viewer; rather, it emerges from the ongoing and reciprocal interaction between internal and external knowledge systems. Internal knowledge includes the subject's specific expertise, past experiences, autobiographical memories, and epistemic emotions such as curiosity, interest, and surprise. External knowledge, in the case of works on an artifact or in a museum setting, refers to the environmental context and supporting elements, ranging from physical architectural cues and exhibition displays to explicit curatorial texts, titles, and digital metadata.

In this framework, digital storytelling and transmedia practices (van Heusden & Gielen, 2015) serve as key cognitive strategies for translating direct, unorganized perception into shared cultural meaning.

Narrative production allows students to bridge the gap between internal cognitive structures and external environmental stimuli, restoring their capacity for self-regulation, metacognition, and authentic agency. Furthermore, this perspective requires a transformation of the pedagogical role: the educator shifts from authoritative transmitter of content to facilitator of interpretive communities, orchestrating spaces in which cognitive friction and the negotiation of meaning serve as primary drivers of learning.

The central issue addressed in this article concerns how formal educational settings can intentionally design media-rich learning environments that foster active

and critical meaning-making through digital narratives, rather than succumbing to platform induced passivity. The main objectives are:

To investigate how students negotiate identity, imagination, and collective meaning when producing transmedia narratives within structured educational contexts;

To explore how students negotiate identity, imagination, and collective meaning when producing transmedia narratives within structured educational contexts;

To explore how students negotiate identity, imagination, and collective meaning when producing transmedia narratives within structured educational contexts;

To explore how students negotiate identity, imagination, and collective meaning when producing transmedia narratives within structured educational contexts;

To explore how students negotiate identity, imagination, and collective meaning when producing transmedia narratives within structured educational contexts. Examine how an interactionist pedagogy combining van Heusden's model of cultural competence with Dewey's aesthetics can systematically reframe media-rich instructional design and interpret digital works;

Evaluate the transition from passive media consumption to authoritative and reflexive creation by analyzing how internal and external forms of knowledge interact during the creation and interpretation of digital artifacts.

2. Materials and Methods

To investigate these complex and contextualized dynamics, the study employs a research methodology based on the Design-Based Research (DBR) approach (Design-Based Research Collective, 2003; Barab & Squire, 2004). DBR provides an ideal framework for educational research aimed at connecting theoretical models with practical and iterative interventions in real-world contexts, enabling researchers and practitioners to iteratively design, implement, analyze, and refine educational environments.

The study was conducted in a laboratory setting with students, through iterative cycles of Design-Based Research (DBR), aligning van Heusden's (2015) semiotic progression with Dewey's (1934) pragmatist aesthetic cycle and interactionist models of knowledge. Students were asked to investigate a complex local socio-environmental issue and transform their empirical findings, archival research, and personal reflections into a multiplatform transmedia narrative composed of interactive podcasts, short video essays, and a structured digital archive.

The pedagogical intervention is explicitly designed around a three-phase semiotic and epistemic progression:

Phase 1: Sensory perception and spatial embeddedness, i.e., direct experience. Drawing on Dewey's concept of aesthetic experience as an active transaction between organism and environment, students engaged in field observations, spatial mapping, and physical data collection within the local area. This phase activates students' internal knowledge (autobiographical memories, familiarity with the territory) while simultaneously engaging with raw, unstructured environmental input.

Phase 2: Aesthetic Expression and Multimodal Mediation, i.e., Externalization. Moving from direct perception to symbolic translation, student groups use digital authoring tools to translate raw data into open-text structures. By designing interactive podcasts and video essays, students incorporate external knowledge such

as curatorial narratives, contextual metadata, and titles, which then invite multiple interpretative paths into their digital artifacts.

Phase 3: Abstract Conceptual Reflection and Decoupling, i.e., Metacognition. At the end of the cycle, students

Hearing students who participated in structured analytical sessions in which they critically examined their own artifacts and those of their peers. Using van Heusden's detachment mechanism, students distanced themselves from immediate emotional responses to evaluate how digital artifacts shape public discourse and sociotechnical perceptions.

To fully capture the complexity of meaning-making and the interplay between internal and external knowledge, a corpus of multi-method qualitative data was constructed:

Reflective Learning Journals: Systematically kept by students throughout the design cycles to track metacognitive shifts, personal connections, emotional frictions, and conceptual discoveries.

Multimodal Artifact Analysis: Semi-structured evaluation of the final transmedia results: audio composition, visual pacing, narrative structure, and organization of the digital archive everything focused on the semiotic cohesion and openness of the text.

Group interviews: conducted at the beginning, midway, and end of the project to monitor the evolution of peer collaboration, identity negotiation, and critical awareness.

Researcher's field observation notes: detailed ethnographic logs recorded during laboratory sessions, which serve to note and capture emerging interactions, teaching support, and points of cognitive friction.

Qualitative data collected from diaries, interviews, and observational notes are then analyzed using thematic analysis. The adopted cognitive-semiotic model and the interactionist typology of internal and external knowledge serve as the primary interpretative matrix. The coding schemes specifically isolate instances of symbolic detachment and decoupling, integration of external curatorial information with internal mental models, and epistemic emotional responses, such as curiosity or anxiety. Authorial agency also emerges.

3. Results

The analysis of empirical data across the DBR implementation cycles demonstrates significant transformations in the way students process, negotiate, and create meaning within digital ecosystems. The findings are organized along three main trajectories.

From algorithmic extraction to active authorial agency: When equipped with well-defined narrative structures, students were able to disrupt the passive and fragmented consumption habits imposed by commercial algorithmic feeds. The cognitive task of synthesizing complex, unstructured data collected in the field into a coherent transmedia narrative required a transition from passive reception to active creation. Students demonstrated a remarkable ability to organize heterogeneous input, using external information (curatorial texts, archival documents) to activate and expand their internal knowledge structures. Rather than succumbing to short attention spans, the narrative creation process required sustained cognitive effort

and deliberate construction of arguments, allowing students to reclaim authorial agency over digital media.

Digital narrative artifacts as emotional and social sandboxes: The transmedia production process functions as an essential emotional and social sandbox. Leveraging the protective distance afforded by fictional framing, metaphor, and multimodal representation, which combines audio, visual, and textual sign systems, students safely articulate their personal identities and shared anxieties about environmental degradation and the digital future.

Analysis of student diaries and video essays revealed that multimodal creation generates a unique aesthetic distance, embodying the decoupling hypothesized by van Heusden. This distance allowed students to project personal and internal emotional experiences into externalized symbolic artifacts, transforming private concerns into public and shared deliberation within the school community.

Reactivating cultural competence through knowledge interaction: Artifact analysis confirmed that iterative transmedia storytelling successfully re-established the connection between immediate sensory perception and abstract conceptual reflection. In line with interactionist models of aesthetic experience, the presence of clear external knowledge supports, such as digital archives and curatorial tags, helped students activate relevant internal knowledge and refine their interpretive schemes.

When faced with cognitive inconsistencies during field investigations, students experienced increased epistemic curiosity, which motivated them to seek out new insights; and external information and to reexamine their initial assumptions. This recursive cycle facilitated moments of insight and direct experience, allowing students to critically deconstruct mainstream media representations and formulate independent, well-argued interpretations of local socio-environmental issues.

4. Discussion

The synthesis of empirical findings and theoretical frameworks highlights the need to revisit conventional approaches to digital technology in education. True educational engagement cannot be reduced to technological interactivity, user interface responsiveness, or playful rewards; as Dewey (1934) argued in the last century, and theorized by later pedagogical studies, authentic engagement is fundamentally linked to the profoundly human imperative to make sense of lived experience.

Incorporating an interactionist perspective, which recognizes that knowledge is distributed between internal cognitive structures and external environmental scaffolding, this study demonstrates how digital learning environments can be intentionally designed to foster deep cultural competence.

The DBR intervention demonstrated that when educational environments provide targeted support for detachment and decoupling, students can successfully resist the cognitive fragmentation induced by platform capitalism (Couldry & Mejias, 2019). Rather than considering digital tools simply as content distribution systems, transmedia creation transforms them into semiotic tools that support high-level cognitive reflection.

Furthermore, these findings shed light on the mechanisms of aesthetic meaning construction. Consistent with Specker et al. (2015) and Eco (1980), a work of art or

transmedia artifact functions as an "open" semiotic field in which external cues labels, architectural contexts, digital metadata, guide the viewer's interpretation.

The internal cognitive schemas activated when instructional design explicitly structures the interaction between internal knowledge, ranging from autobiographical memory to past experiences, and external knowledge, which alternates between the curatorial context and peer feedback, allow students to experience the pleasure of understanding through an endogenous reward associated with the resolution of cognitive friction.

This dynamic radically redefines the role of the educator, as van Heusden and Gielen (2015) observe, the teacher ceases to be an exclusive transmitter of static knowledge and becomes a facilitator of an interpretive community of practice. By managing the cognitive and social friction that emerges during collaborative transmedia creation, the educator guides students through the semiotic progression from raw perception to aesthetic translation and conceptual abstraction.

This shift is essential to cultivating robust digital citizenship, providing students with the critical tools needed to navigate, decode, and ethically reshape contemporary media ecosystems. It should be noted, however, that the sense-making approach is highly valid and must be tailored to the needs of the group being collaborated with. The student's previous context and available technologies must be taken into account, both academically and personally. Furthermore, since these systems were first theorized, the technologies that mediate the discipline have also evolved significantly and can vary.

5. Conclusions

This study contributes to contemporary pedagogical discourse by providing a unified theoretical and methodological framework that connects cognitive-semiotic theories of culture, pragmatist aesthetics, and interactionist models of knowledge with the practice of media education. By demonstrating how transmedia storytelling based on Design-Based Research (DBR) can bridge the gap between sensory experience, aesthetic expression, and conceptual detachment, the research offers a practical roadmap for designing media-rich learning environments that foster authentic youth autonomy.

Empowering students as authentic authors of augmented narratives restores their cognitive autonomy and emotional resilience in an era dominated by extractive digital platforms.

It will make students more reflective through analysis, reflexivity, and argumentation; keeping the initial questions open and then comparing the different answers each student provides, highlighting the less visible aspects of diverse personal experiences that emerge later in the discussion, encouraging each other to open their eyes to new realities that will enhance their critical thinking; and all of this takes place under the guidance of a teacher capable of stimulating such debate.

Future research will focus on extending these DBR cycles to different international educational contexts, as it is necessary to take into account different sociocultural backgrounds as well as initial biases that may vary from place to place; on implementing longitudinal measures of metacognitive growth; and on examining how distributed knowledge systems, both internal and external, operate within emerging media ecosystems driven by artificial intelligence.

EDIZIONI UNIVERSITARIE ROMANE
editoria scientifica dal 1952

References

Barab, S., & Squire, K. (2004). Design-based research: Putting a stake in the ground. *The Journal of the Learning Sciences*, 13(1), 1–14.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101.

Buckingham, D. (2007). *Beyond technology: Children's learning in the age of digital culture*. Polity Press.

Calvani, A. (2013). *Competenza digitale: Dal mito alla evidenza empirica*. Erickson.

Couldry, N., & Mejias, U. A. (2019). *The costs of connection: How data is colonizing human life and appropriating it for capitalism*. Stanford University Press.

Design-Based Research Collective. (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational Researcher*, 32(1), 5–8.

Dewey, J. (1934). *Art as Experience*. Minton, Balch & Company.

Eco, U. (1980). *Opera aperta*. Bompiani.

Jenkins, H., Purushotma, R., Weigel, M., Clinton, K., & Robison, A. J. (2009). *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century*. MIT Press.

Livingstone, S. (2004). Media literacy and the challenge of new information and communication technologies. *The Communication Review*, 7(1), 3–14.

Ranieri, M. (2016). *Media education: Idea, metodi, ricerche*. Carocci.

Rivoltella, P. C. (2013). *Smart education: E-learning 2.0, tablet e social network alla lavagna*. Scholé.

Rivoltella, P. C. (2019). *Creare a scuola: Didattica, estetica e media*. Morcelliana.

Specker, E., Leder, H., Rosenberg, R., & Brieber, D. (2015). Looking at art: A think-aloud study in the laboratory and museum. *Psychology of Aesthetics, Creativity, and The Arts*, 9(3), 334–346.

van Heusden, B. (2009). *Culture in school: A general cultural framework for education*. University of Groningen.

van Heusden, B. (2015). Culture in the Mirror: Reflections on Culture and Education. *Whitepaper / Research Monograph*.

van Heusden, B., & Gielen, P. (Eds.). (2015). *Arts Education Beyond Art: Teaching Art in Times of Change*. Antennae Series.