A.N.I.M.A.: AN EXPERIMENTAL PEDAGOGICAL MODEL FOR CONSCIOUS SELF-NARRATION IN FIRST-CYCLE SCHOOL

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ABSTRACT
The introduction of generative artificial intelligence into autobiographical writing raises a key educational question: who remains the author of one's own story? Focusing on first-cycle school, this article examines autobiographical storytelling as a means of fostering meaning-making, emotional awareness, metacognition and identity development. Rather than using AI to write autobiographical texts, it proposes AI as an interpretative lens for analysing narratives already produced by students. On this basis, the article presents A.N.I.M.A., an evidence-informed pedagogical model structured around four phases: Narrative Autobiography, Inquiry, Algorithmic Mediation and Self-Awareness. Aligned with recent Italian guidelines on curriculum and AI in education, the model integrates autobiography, metalinguistic reflection, critical thinking and algorithmic literacy, shifting AI to object of inquiry. Although not yet empirically validated, it offers a framework for future classroom experimentation.

KEYWORDS
Autobiographical narrative; Algorithmic literacy; Generative artificial intelligence; Primary and Lower-Secondary school; Metacognition.

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1. Introduction

Learning to tell one's own story is one of the most crucial skills that primary schools can foster. The task of narrating a personal episode triggers complex cognitive and affective processes: it involves identifying and analysing events, organising them chronologically, seeking meaning and translating lived experience into verbal form. Pupils who engage in this process of reflection not only practise written Italian but also learn to view their own experiences from a certain distance and to recognise a pattern within them. Self-narration, in other words, is an educational practice through which experience is given form, emotions are named and an initial sense of self is constructed.

Generative artificial intelligence has rapidly entered this already delicate terrain. The very systems that draft emails, summarise texts and complete sentences are now within the reach of very young students, and the way in which they are most often encountered is as a substitute: the machine is asked to write what one should be writing oneself. When applied to autobiographical storytelling, this mode of use creates an obvious short circuit, because it delegates to an external system the very act that constitutes the core of autobiography. An AI-generated account of the self is, strictly speaking, nobody's account.

This paper takes these premises as its starting point to propose a shift in perspective. Instead of using AI to write about the self, it can be used to analyse it: to identify recurring patterns, provide the student with a representation of their own text, and prompt questions about what has been written and how it was written. In this role, the machine does not replace the author but acts as a resource for reflecting on one's own experience. Building on this need, the article presents A.N.I.M.A., an experimental pedagogical model designed to integrate autobiography, metacognition and algorithmic literacy in first-cycle school. The acronym, which in English corresponds to the word "soul", is derived from a combination of Italian words describing the model's constituent stages: Narrative Autobiography, Inquiry, Algorithmic Mediation, and Self-awareness.

The paper first reconstructs the theoretical foundations of self-narration and its transformation within the digital ecosystem, then situates the model within the recent Italian regulatory framework. It then sets out the rationale and design principles, describes the four operational phases, discusses the expected benefits and critical issues, outlines a proposed evaluation framework and identifies directions for empirical validation. The aim is to offer a flexible framework that preserves student authorship and restores pedagogical control to the teacher over a technology which, when used without awareness, tends to encroach upon the authorial space.

2. Autobiographical narration, identity and reflective processes

The educational significance of self-narration is rooted in a long tradition of scholarship. Telling one's own story is a practice that is not limited to recording what has happened but transforms a sequence of events into a meaningful narrative. Demetrio (2012) has shown how writing about oneself is a way of educating others and oneself: it is a genuine healing practice, capable of generating well-being precisely because it compels the writer to engage in a process of inner reorganisation (Demetrio, 1996). Autobiographical thinking requires a reflective and methodological approach to arrive at a clearer understanding of the self.

The link between storytelling and identity has been thoroughly investigated by psychology. Bruner (1991) argued that the mind organises experience in narrative form rather than in a logical-argumentative manner: people make sense of the world by constructing stories and, through these stories, negotiate shared meanings. McAdams and McLean (2013) clarified that identity itself takes the form of an internalised and constantly evolving life story, which integrates the past with future prospects. Expressive writing about emotionally significant experiences, on the other hand, has measurable effects on the well-being of those who practise it, as the act of narrating requires an effort of verbal articulation and a restructuring of thought (Pennebaker, 1997).

In school settings, this theoretical framework translates into familiar tools: the diary, the account of a significant experience, the self-portrait, and the narration of an emotion experienced. These are tools that vary in their degree of structure but are united by the fact that they ask the pupil to focus on a fragment of their own life and express it through words. The diary encourages daily, unsupervised writing, whilst the autobiographical account proper requires the author to choose what to say, in what order, and in what tone. It is precisely in this transition from recording to reworking that self-narration becomes formative, because it compels one to question the meaning of what has been experienced rather than merely transcribing it. The function of self-narration, then, is not documentary but interpretative: one writes to understand, not merely to remember.

These processes are not uniform throughout the first cycle of education. In primary school, autobiographical storytelling relies on episodic memory and the expression of emotions: the child learns to name what they have felt, to situate a memory in time, and to distinguish the event from the feeling that accompanies it. The ability to construct a coherent life story, with its causal and thematic links, develops later: Habermas and Bluck (2000) situate the emergence of the cognitive tools and social stimuli that make autobiographical reasoning possible in adolescence. In lower secondary school, therefore, self-

narration takes on a more explicitly metacognitive and identity-forming function: pupils begin to reflect on the relationship between themselves and their peer group, on their sense of belonging, on changes, and on the choices that affect them. Treating these two stages separately, yet within a single framework, is therefore a necessary condition for any initiative aimed at supporting self-narration.

Whilst self-narration is an established reflective practice, the digital environment in which children and adolescents are growing up today has altered its tools and languages, introducing new ways of representing and interpreting one's own experience.

3. Self-narrative and digital technologies

The convergence of personal storytelling and technology did not begin with artificial intelligence (AI). For over twenty years, schools have been experimenting with forms of digital storytelling in which text, images, audio and video are combined to give voice to personal experiences. Robin (2008) described its educational potential, framing it within a model of integration between technology, pedagogy and content: digital storytelling engages pupils, enhances the multimedia dimension of expression and makes them active participants in the construction of meaning. Digital portfolios, educational blogs and multimedia environments share the same underlying logic, in which technology supports and amplifies self-representation without taking its place.

What these tools have in common is the type of affordance they provide, that is, their ability to suggest to an individual how to use them, without the need for instructions. For example, a text editor, a webcam and editing software offer students the materials and techniques to shape content that remains entirely their own: the machine transcribes, records and assembles, but does not decide what content to display. The author retains control over the entire process, from the choice of the episode to its expressive rendering. The scope for initiative left to the system is, in essence, executive: it translates into digital form an intention that arises and remains in the writer's mind.

Generative systems break with this logic. Unlike tools that provide a means of expression, generative AI intervenes in the text: it suggests, completes, rewrites and transforms. Kasneci and colleagues (2023) have mapped out the opportunities and risks of large language models in an educational context, pointing out that their unsupervised use may erode the very processes it is meant to support. Subsequent research has helped to fuel that fear: the use of generative systems in writing can foster a dependence on the tool and metacognitive laziness, whereby the student delegates the monitoring and regulation of their own learning to the machine, producing better texts but without a corresponding gain in knowledge (Fan et al., 2025). When applied to

autobiographical writing, the situation becomes even more serious: in addition to cognitive delegation, there is a risk of a loss of authenticity, a flattening of expression, a lack of transparency in the writing process, and the attribution to the machine of interpretative abilities it does not possess.

It should be added that these systems are most appealing precisely when the task is arduous, and self-narrative is particularly so, as it draws on the emotional sphere and places the student in a vulnerable position. The temptation to let the machine find the right words is therefore strong, and even more insidious the more fluent and plausible the result appears. The fluidity of the generative output risks being mistaken for the quality of thought, whilst concealing the absence of any prior lived experience. A plausible narrative is not a true narrative, and the gap between the two is precisely what an education in self-narrative should make perceptible.

This gives rise to the pedagogical problem around which the entire paper revolves: how can AI be integrated into the writing of the self without it becoming the author? The answer cannot be purely technical, nor purely prohibitive. It requires a framework that sets out the conditions and constraints under which the machine's presence becomes educational. For the Italian school system, this framework is provided by the most recent national documents on the lower secondary curriculum and on the introduction of artificial intelligence in educational institutions.

4. Regulatory and curricular framework: Italian National Indications and AI Guidelines

The institutional grounding of A.N.I.M.A. rests on two complementary documents. The first is the new *Indicazioni Nazionali per il curricolo della scuola dell'infanzia e del primo ciclo*, adopted by Ministerial Decree No. 221 of 9 December 2025, published in the Gazzetta Ufficiale on 27 January 2026 (Ministero dell'Istruzione e del Merito, 2025a). This document updates the previous curricular framework established by the *Indicazioni nazionali per il curricolo della scuola dell'infanzia e del primo ciclo d'istruzione* adopted by Ministerial Decree No. 254 of 16 November 2012 (Ministero dell'Istruzione, dell'Università e della Ricerca, 2012) and subsequently complemented by the 2018 document *Indicazioni nazionali e nuovi scenari* (Ministero dell'Istruzione, dell'Università e della Ricerca, 2018), for which it provides for a gradual transition: from the 2026/2027 school year onwards, the new Guidelines will apply to the first year of primary and lower secondary school, whilst the 2012 and 2018 texts will continue to govern the intermediate years already in progress until the completion of their respective cycles. The revision responds to a changed cultural landscape, marked by the impact of digital technologies on learning, communication and pupils' relationships.

Three core principles of the 2025 Guidelines directly underpin the model: the centrality of the pupil, understood in cognitive, emotional and relational terms; the construction of identity, through which school supports pupils in making sense of experience and developing self-awareness; and the development of linguistic and reflective skills, with writing conceived as a process of meaning-making. Autobiographical narration connects these principles by transforming lived experience into language, reflection and shared meaning.

The second document is the *Linee guida per l'introduzione dell'Intelligenza Artificiale nelle istituzioni scolastiche*, adopted by Ministerial Decree No. 166 of 9 August 2025 and endorsed by the Data Protection Commissioner (Ministero dell'Istruzione e del Merito, 2025b). Based on an anthropocentric approach and aligned with the AI Act (2024) and the General Data Protection Regulation (GDPR, 2016), the Guidelines set out a number of principles that the model operationalises: human responsibility and qualified supervision by the teacher, transparency and explainability of systems, protection of personal data in accordance with the principles of data minimisation and privacy by design, specific attention to the processing of children's data, and the development of widespread digital skills. The document also recommends that AI-related skills be incorporated into the curriculum in a cross-curricular manner, integrating into the various subject areas rather than constituting a separate subject.

Taken together, the two texts converge on a point that the model adopts as its own: AI in schools must be introduced in a controlled, critical and teacher-mediated manner, never as a substitute for human judgement. The A.N.I.M.A. model translates this principle into a teaching framework that links autobiographical narration, metalinguistic reflection, critical thinking and algorithmic literacy within a single activity.

The recommendation for the cross-curricular integration of AI into the curriculum finds a practical application. Rather than treating artificial intelligence as a separate subject, the model works through language and citizenship education, where subject knowledge is interwoven with reflection on personal experience and critical thinking. In this framework, algorithmic literacy is not content to be transmitted but an approach to be developed within the context of an authentic task. The teacher acts as the ultimate guardian of the activity's purpose: it is the teacher who decides when the machine intervenes, on which materials, with which questions, and who transforms its limitations into learning opportunities.

5. The A.N.I.M.A. pedagogical model

A.N.I.M.A. is an experimental, evidence-informed pedagogical model that turns interaction with artificial intelligence into a structural opportunity for self-reflection and on how algorithms work. The evidence-informed approach

acknowledges that no trial has yet verified the model's effects, while grounding its design in research on narrative, metacognition and learning with AI. Its next step is empirical validation in classroom contexts.

The acronym outlines the process and evokes its purpose: Narrative Autobiography, Inquiry, Algorithmic Mediation, Self-awareness. The key issue is the function assigned to the machine. The model does not ask the AI to produce autobiographies; it uses it as an interpretative lens to reveal linguistic patterns, recurring emotions, narrative structures, keywords and possible ambiguities in texts already written by students. The machine does not add content: it provides a representation to be questioned.

The notion of an interpretative lens requires clarification. When a generative system is asked to identify the emotions in a text or to reconstruct its structure, what is obtained is not the truth, but one possible interpretation, produced based on a probabilistic analysis of statistical regularities in language. Treating that output as a lens, a tool that reveals while also distorting, is the conceptual move that gives the model its pedagogical value. The student does not receive a diagnosis of their own narrative, but an external perspective with which to engage in critical reflection, whilst retaining the freedom to validate or refute the system's analyses.

The approach rests on four interdependent design principles. The first principle is student authorship. The autobiographical text remains, always, the student's cognitive, narrative and symbolic property. The system analyses it but cannot appropriate it. This constraint safeguards the authenticity of the narrative and mitigates the risk of cognitive delegation documented in the literature (Fan et al., 2025).

The second principle is teacher mediation. The teacher guides the interaction, sets the tasks, safeguards the autobiographical space and promotes critical classroom discussion. Qualified human supervision, which the Guidelines establish as a non-negotiable requirement (Ministero dell'Istruzione e del Merito, 2025b), becomes the model's operational cornerstone.

The third principle treats AI as an object of inquiry. The machine is not anthropomorphised but examined and used within its interpretative limits. Understanding that a generative system processes language probabilistically, without truly understanding lived experience, is a goal of algorithmic literacy (Long & Magerko, 2020; Ng et al., 2021). The system's errors become valuable learning opportunities.

The fourth principle is metacognitive reflection. The value of the process lies less in the final text than in the student's ability to compare three levels: the initial communicative intention, the analysis produced by the machine, and their own conscious reworking. This ability to monitor and adjust one's own

thinking is the very heart of metacognition (Flavell, 1979) and constitutes the outcome that the model aims to cultivate.

6. The four operational phases of the A.N.I.M.A. model

6.1 Narrative Autobiography

The first stage is entirely human: AI is not involved. Pupils write an autobiographical text from a prompt centred on a significant experience, such as a challenge overcome, an intense emotion, a change, or a school or family memory. The teacher creates a safe space for discussion and clarifies that the text will not be assessed for its formal correctness or literary quality but used to reflect on language, emotions and meanings.
This educational pact is essential because knowing in advance that their writing will not be judged on spelling mistakes or the elegance of their sentences lowers the stakes and frees up the writing process, allowing even the most insecure pupils to trust in their storytelling. The teacher can introduce the task with a brief oral session, in which the class recalls different types of memories without writing anything down yet, to activate episodic memory and demonstrate that every experience, however small, is worth recounting. Writing time must be protected from interruptions and technological shortcuts: at this stage, slowness has pedagogical value, because searching for words helps pupils discover what they think.
Assignments should be age sensitive. In primary school, simple and concrete prompts rooted in personal feelings are preferable: “Tell us about a time when you felt proud”, “Tell us about a moment when you were scared but managed to face your fear”. In lower secondary school, prompts can encourage age-appropriate autobiographical reflection: “Tell us about an episode that made you realise something about yourself”, “Describe a situation in which you felt you had changed”.

6.2 Inquiry

The second phase introduces AI as a textual analyser. Guided by the teacher, pupils query the system with analytical prompts, not to improve the text automatically, but to observe how the machine reads it. The questions may concern the prevailing emotions, the most frequently occurring words, the narrative sequence, the identification of a beginning, a climax and a conclusion, the adjectives attributed to the protagonist, and the dominant emotional tone. Knowing how to query the machine correctly is a skill in its own right: since the effectiveness of the analysis is closely linked to the way the questioning is

conducted, practising how to ask the most appropriate questions helps to improve the quality of the entire process of interacting with the AI.
The content of the prompts can be categorised according to school year. With younger children, specific and verifiable requests work well, ones that the class can check at a glance: how many times a certain word appears, what emotions the system attributes to the story, and where it identifies the beginning and end of the story. With secondary school pupils, more sophisticated prompts can be used, asking the system to justify its answers or to suggest alternative interpretations of the same passage, thereby highlighting the inferential and non-univocal nature of its analyses. In both cases, the teacher demonstrates that the same question, posed in different ways, can produce different results. This approach aims to make pupils aware of how the tool works.
This phase requires rigorous safeguards. Texts must be anonymised before being entered into the system, removing proper names, recognisable places, familiar references and any sensitive information. In this way, the teacher demonstrates, in practical terms, that not everything can be entrusted to an AI system and that safeguarding one's own experiences is an integral part of digital education, in line with the principles of data minimisation and particular caution regarding children's data, as reaffirmed by the regulatory framework.

6.3 Algorithmic mediation

The third phase is the pedagogical centre of gravity of the entire model. The student compares what they intended to communicate with what the AI has produced, and this comparison opens a space for productive cognitive conflict. Did the algorithm truly capture the central emotion? Did it oversimplify the text? Did it interpret a situation in a stereotypical way? Did it attribute a meaning that the student does not recognise as their own? These are questions that prompt a comprehensive examination of both the text and the tool.
The teacher leads the discussion and helps the class understand that the machine does not feel, remember or experience things, but processes language probabilistically. The AI's error ceases to be a sign of fallibility and becomes, for the student, an opportunity to maintain a healthy distance from the machine, reaffirming their own communicative intent. The gap between the output and lived experience is precisely what we learn from. This phase thus develops, in one fell swoop, critical thinking, algorithmic awareness and metalinguistic skills: the student does not simply accept the output, but evaluates it, discusses it and corrects it.
Facilitating the discussion requires the teacher, on the one hand, to avoid an unconditional rejection of the outputs produced and, on the other, to prevent the perceived authority of the tool from overshadowing the pupils' own judgements. The most balanced approach is to ask the right questions: to ask

students why the AI might have read the text in that way, which words led it to that interpretation, and what they would have needed to write to steer it in a different direction. In this way, the analysis of interactions with the machine becomes a pretext for examining the language the student uses.

6.4 Self-awareness

The fourth phase involves revising the text and producing a final artefact. The student may rewrite the story, incorporating insights that emerged from the analysis, or may decide not to accept certain interpretations offered by the machine, explicitly justifying the choice underlying their disagreement. The final product can take various forms: a text, a reflective journal, a digital portfolio, an emotional map, a dual version of the written piece accompanied by a metacognitive commentary, or even a comparison sheet contrasting the author's intention with the AI's analysis.

Assessment, therefore, does not focus on the completeness of the final piece, but on the quality of the reflective process, which includes the pupil's ability to recognise their own communicative intentions, to discuss the machine's output, to identify its limitations and errors, and to consciously revise their own text. What is assessed, therefore, is what the student has learnt about themselves and the tool, not the changes or interpretations that the AI has made to the text.

The possibility of rejecting the machine's analysis, giving reasons for doing so, also deserves to be valued. When a pupil writes, "The AI says my story is mainly about fear, but for me it was about courage, and that is what I meant", they have carried out precisely the process that the pedagogical model proposed by this study aims to achieve: recognising one's own intention, comparing it with an external interpretation, and consciously reaffirming the original position. The final artefact makes this cycle of reflection observable, transforming an internal process into a documented record that both teacher and student can reflect upon.

5. The pedagogical benefits of the model

The expected benefits of the programme can be traced back to five main reasons, which illustrate its internal coherence. The first concerns the preservation of authenticity. Since the text is created before the AI intervenes, the student remains its full author: the machine works on material that is already theirs and cannot deprive them of authorship of the narrative. This neutralises at the root the risk of substitution that characterises the widespread use of generative systems.

The second relates to the development of metacognition. By providing an interpretation of the text that does not always coincide with the writer's intentions, the AI prompts the student to reflect on what they have actually said, what they meant to say, and how their language might be understood by others. This training in monitoring one's own thinking is precisely the objective that research identifies as an antidote to cognitive delegation (Flavell, 1979; Fan et al., 2025).
The third aspect concerns algorithmic literacy. By working on the concrete limitations of the analysis, students learn that AI lacks human understanding but produces statistical inferences that are sometimes fallible, stemming from the fact that the machine does not possess operational knowledge grounded in concrete experience (Long & Magerko, 2020; Markauskaite et al., 2022).
The fourth aspect concerns metalinguistic reflection. Focusing on words, tone, narrative structures and lexical recurrences leads students to view their own text from a new, de-centred perspective, enabling them to discover aspects of their own writing style that had previously escaped their notice.
The fifth aspect concerns personalisation. The model's framework adapts to age, language skills, educational needs and varying levels of complexity, enabling the teacher to tailor tasks and prompts to the specific class in which they wish to implement the project.

6. Critical issues, conditions for applicability and ethical considerations

The soundness of a pedagogical model does not lie in the enthusiasm surrounding it, but rather in the objectivity with which its limitations are recognised. Some critical issues require attention and an appropriate response through targeted mitigation strategies.
The first is privacy. Autobiographical texts may contain sensitive data, intimate emotions, references to family members and sensitive experiences. Preventative anonymisation, prudent assignment guidelines and constant teacher supervision are therefore prerequisites for participation, not optional measures, in line with the priority given to the protection of children's data under the regulatory framework (Ministero dell'Istruzione e del Merito, 2025b; Miao & Holmes, 2023).
A second concern involves the anthropomorphisation of the machine. Students may attribute to the system a capacity for emotional understanding that it does not possess. The teacher is required to continually make it clear that AI does not understand lived experience but analyses linguistic forms and is not a sentient interlocutor.
Closely related is the risk of dependency, because even if the model does not use AI to generate text, some students might rely excessively on its output, accepting it as truth. Ensuring that the machine's analysis is always treated as

a subject for discussion and never as a criterion of absolute correctness is the defence against the metacognitive laziness documented by research (Fan et al., 2025).

Equally significant is the question of bias: AI may produce stereotypical, culturally biased or emotionally oversimplified interpretations, as it inherits the patterns found in the data on which it was trained; in educational contexts, such distortions have effects that are anything but neutral (Baker & Hawn, 2022). The model overcomes this problem by incorporating explicit opportunities for recognising and critically discussing algorithmic errors, and by transforming bias into material for critical learning.

A final structural challenge concerns teacher training. Adopting the model requires teachers to possess skills in the pedagogical management of AI, prompt design, data protection, facilitating discussion and evaluating the reflective process. Without adequate training, the approach risks being reduced to a technical exercise devoid of educational value.

7. Proposed evaluation of the model

Although empirical evidence is still lacking, establishing the methods for evaluating the model reinforces its scientific rigour, whilst providing a clear direction for subsequent stages of experimentation. The proposal favours formative assessment, structured around tools consistent with the process-oriented nature of the activity: a portfolio of artefacts, the student's logbook and a shared rubric.

The rubric is structured around four dimensions (Table 1). Autobiographical awareness assesses the student's ability to recognise and articulate their own communicative intentions. Metalinguistic reflection considers the attention paid to the words, tone and structure of their own text. Critical engagement with the AI's output assesses the extent to which the student can question, discuss and, where necessary, challenge the machine's analysis. Finally, digital responsibility records the care taken in data protection and an understanding of the tool's limitations. For each dimension, it is advisable to establish four descriptive levels (initial, basic, intermediate and advanced) that provide a snapshot of the student's progress rather than a summary mark.

Table 1: Assessment rubric for the A.N.I.M.A. model.

	Initial	**Basic**	**Intermediate**	**Advanced**
Autobiographical awareness	Writes without reflecting on the purpose or meaning of the text; cannot	Identifies the main topic but struggles to explain why they chose it or what they	Articulates their communicative intention with some clarity; recognises	Clearly identifies their communicative intent, explains their narrative choices, and reflects on how

	identify what they intended to communicate.	meant to convey.	gaps between what they meant and what they wrote.	meaning was constructed.
Metalinguistic reflection	Does not engage with the formal or expressive features of the text; treats language as transparent.	Notices isolated features (a repeated word, a tone) but does not connect them to communicative meaning.	Analyses words, tone and narrative structure with some consistency; begins to recognise patterns in their own writing.	Critically examines their own language with sustained attention, identifying how specific choices shape the reader's interpretation.
Critical engagement with AI output	Accepts the AI's output without questioning it, or rejects it without explanation.	Notices discrepancies between the AI's reading and their own intentions but cannot explain them.	Discusses the AI's output, identifies at least one limitation or error, and provides a reasoned response.	Critically evaluates the AI's analysis, explains why certain interpretations are incomplete or biased, and uses the comparison to deepen understanding of their own text.
Digital responsibility	Does not show awareness of privacy concerns or of the tool's probabilistic nature.	Follows anonymisation instructions when prompted but does not connect them to broader data protection principles.	Demonstrates understanding of why texts must be anonymised and recognises that AI produces statistical inferences, not judgements.	Independently applies data protection principles, explains the difference between algorithmic inference and human understanding, and can articulate the ethical implications of using AI with personal data.

The focus, however, remains on the learner: the aim is not to measure how much the AI has improved the text, but to observe whether the pupil has developed a greater awareness of their own way of expressing themselves and a more robust ability to critically question an algorithmic system.

8. Limitations of this study and future developments

This work is theoretical and conceptual in nature and does not yet involve empirical testing. A.N.I.M.A. is proposed as a model grounded in pedagogical and psychological literature and current institutional documents, to be validated in real-world contexts. This approach means that the advantages described should be interpreted as reasoned hypotheses rather than verified results.

Future developments envisage a pilot study in primary and lower secondary school classes, which would, on the one hand, enable the collection of autobiographical texts, reflective diaries, teachers' observations, focus group findings and records of interactions with AI, and, on the other hand, provide an empirical picture of the dynamics triggered by the model. A comparative experimental design between classes practising autobiographical narration in the traditional form and those adopting A.N.I.M.A. would be particularly useful, so as to identify any differences in the development of metacognitive awareness and algorithmic literacy. A research strategy of this kind will be able to confirm, qualify or correct the expectations set out.

9. Conclusions

The integration of artificial intelligence into primary education can be interpreted from two opposing perspectives: either as a mere productive tool which, by taking over the pupil's writing, impoverishes their learning journey; or as a valuable opportunity to promote responsibility, awareness and the exercise of critical thinking. A.N.I.M.A. chooses the second approach: the pupil writes, the AI analyses, the teacher facilitates, the class discusses, and the pupil revises. In this sequence, the algorithm does not replace human storytelling, but works alongside it as an imperfect interlocutor, useful precisely because it makes the language, emotions and intentions embedded in the narrative more visible.

The pedagogical essence of the model lies in its ability to cultivate a critical mindset in pupils, rather than merely refining the formal or communicative aspects of their work. The aim is to equip young people to distinguish their own authentic experiences from the analyses produced by algorithms, learning to manage this process with awareness. The ability to narrate one's own experiences, with their inescapable emotional charge and authenticity, is a skill that has become indispensable today for the younger generations, who interact daily with machines which, whilst capable of generating plausible narratives of events and experiences, lack the authentic biographical experience from which such narratives originate.

References

AI Act. (2024). Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act). *Official Journal of the European Union*. https://eur-lex.europa.eu/eli/reg/2024/1689/oj

Baker, R. S., & Hawn, A. (2022). Algorithmic bias in education. *International Journal of Artificial Intelligence in Education*, *32*(4), 1052-1092. https://doi.org/10.1007/s40593-021-00285-9

Bruner, J. (1991). The narrative construction of reality. *Critical Inquiry*, *18*(1), 1-21. https://doi.org/10.1086/448619

Cheng, Y., Fan, Y., Li, X., Chen, G., Gašević, D., & Swiecki, Z. (2025). Asking generative artificial intelligence the right questions improves writing performance. *Computers and Education: Artificial Intelligence*, 8, 100374. https://doi.org/10.1016/j.caeai.2025.100374

Demetrio, D. (1996). *Raccontarsi. L'autobiografia come cura di sé*. Raffaello Cortina Publishers.

Demetrio, D. (Ed.). (2012). *Educare è narrare. Le teorie, le pratiche, la cura*. Mimesis.

Fan, Y., Tang, L., Le, H., Shen, K., Tan, S., Zhao, Y., Shen, Y., Li, X., & Gašević, D. (2025). Beware of metacognitive laziness: Effects of generative artificial intelligence on learning motivation, processes, and performance. *British Journal of Educational Technology*, *56*(2), 489-530. https://doi.org/10.1111/bjet.13544

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive–developmental inquiry. *American Psychologist*, *34*(10), 906-911. https://doi.org/10.1037/0003-066X.34.10.906

GDPR. (2016). Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation). *Official Journal of the European Union*. https://eur-lex.europa.eu/eli/reg/2016/679/oj

Habermas, T., & Bluck, S. (2000). Getting a life: The emergence of the life story in adolescence. *Psychological Bulletin*, *126*(5), 748-769. https://doi.org/10.1037/0033-2909.126.5.748

Kasneci, E., Seßler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günnemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeffer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274. https://doi.org/10.1016/j.lindif.2023.102274

Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (pp. 1-16). Association for Computing Machinery. https://doi.org/10.1145/3313831.3376727

Markauskaite, L., Marrone, R., Poquet, O., Knight, S., Martinez-Maldonado, R., Howard, S., Tondeur, J., De Laat, M., Buckingham Shum, S., Gašević, D., & Siemens, G. (2022). Rethinking the entwinement between artificial intelligence and human learning: What capabilities do learners need for a world with AI? *Computers and Education: Artificial Intelligence*, 3, 100056. https://doi.org/10.1016/j.caeai.2022.100056

McAdams, D. P., & McLean, K. C. (2013). Narrative identity. *Current Directions in Psychological Science*, *22*(3), 233-238. https://doi.org/10.1177/0963721413475622

Miao, F., & Holmes, W. (2023). *Guidance for generative AI in education and research*. UNESCO.

Ministero dell'Istruzione, dell'Università e della Ricerca. (2012). *Indicazioni nazionali per il curricolo della scuola dell'infanzia e del primo ciclo d'istruzione*. D.M. del 16 novembre 2012 n. n. 254. Gazzetta Ufficiale della Repubblica Italiana, Serie Generale, n. 30, 5 febbraio 2013.

Ministero dell'Istruzione, dell'Università e della Ricerca. (2018). *Indicazioni nazionali e nuovi scenari.*

Ministero dell'Istruzione e del Merito. (2025a). *Indicazioni nazionali per il curricolo della scuola dell'infanzia e del primo ciclo d'istruzione*. D.M. 9 dicembre 2025, n. 221. Gazzetta Ufficiale della Repubblica Italiana, Serie Generale, n. 21, 27 gennaio 2026.

Ministero dell'Istruzione e del Merito. (2025b). *Linee guida per l'introduzione dell'Intelligenza Artificiale nelle istituzioni scolastiche*. D.M. del 9 agosto 2025, n.166.

Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualising AI literacy: An exploratory review. *Computers and Education: Artificial Intelligence*, 2. https://doi.org/10.1016/j.caeai.2021.100041

Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science*, *8*(3), 162-166. https://doi.org/10.1111/j.1467-9280.1997.tb00403.x

Robin, B. R. (2008). Digital Storytelling: A Powerful Technology Tool for the 21st Century Classroom. *Theory Into Practice*, *47*(3), 220-228. https://doi.org/10.1080/00405840802153916