

Article

# Realistic Fiction Stories in Sustainability Education

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## ABSTRACT

Contemporary education, understood as a fundamental human right and as a historical practice of formation, faces the challenge of responding to the socio-environmental crises that characterize the Anthropocene. International documents such as the Incheon Declaration and the 2030 Agenda reposition education as a space for the construction of ethical meanings in the face of climate change, demanding approaches that go beyond the instrumental transmission of content. This article analyzes the use of realistic fiction narratives in education for sustainability from a philosophical hermeneutic perspective, understanding learning as an interpretive experience mediated by language and historicity. Grounded in the hermeneutics of Hans-Georg Gadamer, the study conceives of learning as a fusion of horizons between scientific knowledge and the sociocultural experiences of individuals. The research, which is qualitative and interpretive in nature, develops a hermeneutic reading of UNESCO's normative documents and the work \*Quando a chuva passar\* (When the Rain Passes), situated in the context of the floods that struck southern Brazil in May 2024. The results indicate that realistic fiction fosters processes of Bildung, ethical engagement, and the expansion of socio-environmental awareness, contributing to an education for sustainability that is not instrumental but formative and ontologically implicated.

**Keywords:** hermeneutics; greening education; realistic fiction; education for sustainable development.

## RESUMO

A educação contemporânea, compreendida como direito humano fundamental e como prática histórica de formação, enfrenta o desafio de responder às crises socioambientais que caracterizam o Antropoceno. Documentos internacionais como a Declaração de Incheon e a Agenda 2030 repositionam a educação como espaço de construção de sentidos éticos diante das mudanças climáticas, demandando abordagens que ultrapassem a transmissão instrumental de conteúdos. Este artigo analisa o uso de narrativas de ficção realista na educação para a sustentabilidade a partir de uma orientação hermenêutica filosófica, compreendendo a aprendizagem como experiência interpretativa mediada pela linguagem e pela historicidade. Ancorado na hermenêutica de Hans-Georg Gadamer, o estudo compreende a aprendizagem como fusão de horizontes entre o conhecimento científico e as vivências socioculturais dos sujeitos. A pesquisa, de natureza qualitativa e interpretativa, desenvolve uma leitura hermenêutica de documentos normativos da UNESCO e da obra *Quando a chuva passar*, situada no contexto das enchentes que atingiram o sul do Brasil em maio de 2024. Os resultados indicam que a ficção realista favorece processos de formação (Bildung), engajamento ético e ampliação da consciência socioambiental, contribuindo para uma educação para a sustentabilidade não instrumental, mas formativa e ontologicamente implicada.

**Palavras-chave:** hermenêutica; greening education; ficção realista; educação para o desenvolvimento sustentável.

## Introduction

The intensification of extreme weather events in recent decades has highlighted the limits of the contemporary civilizational model and strained traditional ways of understanding the relationship between



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society, nature, and knowledge. In the context of the Anthropocene, the climate crisis cannot be reduced to a set of isolated environmental phenomena but must be understood as an expression of historical, social, economic, and political processes associated with human choices and the rationalities that guide modern development (Beck 2011; Giddens 2010). Recent reports from the Intergovernmental Panel on Climate Change (IPCC) indicate that such impacts are directly related to human activities and exacerbate historically produced socio-environmental inequalities (IPCC 2023).

In this context, education takes on a strategic role in responses to the climate crisis. International documents, such as the Incheon Declaration (UNESCO 2016) and the 2030 Agenda for Sustainable Development (UN 2015), affirm education as a fundamental right and as a means for building more just, inclusive, and sustainable societies. Education for Sustainable Development (ESD) and the recent Greening Education initiatives proposed by UNESCO advocate for the integration of scientific knowledge, socio-emotional skills, and responsible action practices into educational systems (UNESCO 2012; UNESCO 2017; 2024a; 2024b). However, when adopted uncritically, these guidelines tend to reinforce an instrumental rationality of education—guided by goals, indicators, and measurable outcomes—which can reduce sustainability to a set of functional competencies.

In light of this tension, this article starts from the premise that education for sustainability cannot be conceived merely as a technical adaptation to global agendas or as an instrumental preparation for addressing environmental risks. Grounded in a critical perspective, sustainability is understood as a contested ethical, historical, and political category that demands a broader civilizational and educational reorientation (Morin 2011; Leff 2015). This understanding implies recognizing that socio-environmental challenges cannot be addressed exclusively through technological or normative solutions, requiring educational processes that integrate scientific knowledge, ethical reflection, and historical awareness.

To ground this approach, the article adopts Hans-Georg Gadamer's philosophical hermeneutics as its epistemological framework, particularly the notion of *Bildung* (formation), which conceives of education as a historical experience of understanding mediated by language, tradition, and dialogue (Gadamer 2006; 2015). From this perspective, learning is not reduced to the acquisition of information or the development of predefined competencies, but implies the transformation of the subject's horizon of understanding. This conception engages critically with human development approaches centered on capacity building, such as those proposed by Sen (2000; 2011), by shifting the focus from functionality to interpretive and historical formation.

Within this epistemological framework, language and narrative assume a central role in the educational process. As argued by Bruner (1986; 2002) and Ricoeur (1991; 1994), narrative constitutes a privileged form of organizing experience and producing meaning, allowing individuals to interpret reality through situated stories. In the field of education, narrative functions not only as an expressive resource but also as a cultural and cognitive mediator between scientific knowledge and lived experiences. Studies in the field of science education indicate that realistic fiction narratives can function as forms of implicit scientific modeling by constructing possible worlds consistent with physical and biological laws and facilitating the understanding of complex natural phenomena (Bruguière 2019).

Based on these references, this article develops an interpretive qualitative study, combining the analysis of UNESCO normative documents with a hermeneutic reading of the work *\*Quando a chuva passar\** by Castello and Brandão (2024), a realistic fiction narrative set against the backdrop of the floods that occurred in southern Brazil in May 2024. The central objective is to investigate how realistic fiction can contribute to education for sustainability, fostering the understanding of extreme weather events, the formation of socio-environmental awareness, and the overcoming of strictly instrumental educational approaches. However, a persistent



theoretical gap is observed regarding the understanding of learning as a non-instrumental formative experience: an epistemological void into which this study fits.

### **Education, Sustainability, and Convergence of Horizons**

The emergence of the climate crisis in the context of the Anthropocene demands an epistemological shift in the understanding of contemporary socio-environmental problems: they cannot be understood through the same frameworks that generated them (Latour 2017; 2020). As Beck (2011) argues, the risks produced by modernity itself elude traditional forms of technical and political control, demanding new forms of social reflexivity. Giddens (2010) reinforces this interpretation by pointing out that the effects of climate change are deeply associated with the institutional and economic structures of late modernity, creating a scenario of radical uncertainty.

In this sense, sustainability cannot be understood as a technical or managerial category, but rather as a contested ethical and historical concept. Morin (2011) emphasizes that the ecological crisis reveals the fragmentation of modern thought and the inability of reductionist approaches to deal with complex and interdependent systems. Similarly, Leff (2015) suggests that sustainability requires a civilizational reorientation, in which environmental knowledge is not subordinated to dominant economic rationality, but recognized as cultural, political, and epistemological processes. Capra (1996) anticipated this perspective by proposing a systemic and relational understanding of natural and social phenomena, incompatible with the disciplinary fragmentation that characterizes modern sciences.

This critical understanding of sustainability challenges educational approaches that reduce it to a set of desirable competencies or behaviors, often guided by international goals and indicators. Although documents such as those from UNESCO recognize the centrality of education in responding to the climate crisis (UNESCO 2012; UNESCO 2017; UNESCO 2024a; UNESCO 2024b), their uncritical adoption may reinforce an instrumental rationality of education, shifting the focus from the educational experience to measurable performance.

This rationality, by prioritizing the measurement of performance and the prescription of desirable behaviors, risks emptying the formative dimension of education, reducing sustainability to a set of adaptive competencies. In contrast, philosophical hermeneutics allows us to understand learning as an open interpretive experience, in which meaning is not predetermined but emerges from the dialogue between subjects, texts, and historical contexts.

The term “Green School,” as used in this publication, is defined as an educational institution that adopts a Whole Institution Approach (WIA) to Education for Sustainable Development (ESD), with a particular emphasis on climate change as a thematic entry point for reflecting on how schools can become climate-resilient. This means that they become safe and resilient places for learning, as well as innovative centers where students and local communities are empowered with the knowledge, skills, values, and attitudes necessary to address the impacts of climate change through the adoption of sustainable practices. (UNESCO 2024a, p. 4, our translation).

Although the Whole Institution Approach (WIA) broadens the scope of educational action, it tends to favor organizational models that may reduce education to practices aligned with external parameters, to the detriment of the formative experience lived within school contexts.



Criticism of the instrumental rationality of education does not imply rejecting curricular systematization or international guidelines, but rather questioning the epistemological assumptions that underpin them. The central question is not whether education should respond to the climate crisis, but how this response can avoid reproducing the same logics of control, measurement, and standardization that characterize the modernity that produced the crisis itself. When UNESCO proposes measurable climate competencies, there is a risk of transforming ecological urgency into yet another set of skills to be certified, thereby undermining the transformative potential of education.

On the other hand, exclusively critical or philosophical approaches may remain detached from concrete school practices. This article seeks a middle ground: it recognizes the relevance of normative guidelines as political starting points, but proposes their reinterpretation in light of a formative understanding of education that prioritizes experience, dialogue, and historicity. In this vein, the Gadamerian perspective engages critically with conceptions of human development based on the expansion of capabilities, such as those proposed by Sen (2000; 2011): freedom is not exhausted in the possibility of acting, but involves a critical understanding of the historical conditions that shape that action.

Bruner (1986; 2002) understands narrative as a structuring form of meaning-making through which individuals organize and interpret experience. Ricoeur (1991; 1994), by emphasizing the temporal configuration of narrative, reinforces that understanding implies reframing lived experience through language. In this framework, realistic fiction becomes relevant to education for sustainability because it links scientific explanations to the ethical, affective, and social dimensions of experience, creating conditions for school content to be appropriated in a situated manner. In science education, this mediation can function as implicit scientific modeling: by constructing possible worlds consistent with physical, biological, and social laws, narrative facilitates back-and-forth movements between fiction and empirical reality, supporting the problematization and construction of contextualized scientific explanations (Bruguière 2019; Backes et al. 2019).

### Formation of the interpreting subject

In the field of ESD, Gadamer's concept of *Bildung* guides the understanding of environmental education as a formative experience that involves the ethical constitution of the subject in the face of the Earth's systemic complexity (Gadamer 2006), going beyond normative or behavioral approaches.

This understanding allows us to recognize that socio-environmental learning is not limited to the assimilation of scientific knowledge, but involves the transformation of the subject's relationship with the climatic and social phenomena that challenge them. *Bildung* manifests itself as the cultivation of an ethical sensibility that recognizes human finitude and the historicity of socio-environmental phenomena. Such formation is mediated by historical-effective consciousness (*Wirkungsgeschichte*), which allows for the interpretation of extreme weather events not as isolated or contingent episodes, but as expressions of long-term historical processes, whose effects shape social perceptions of risk, responsibility, and socio-environmental justice (Gadamer 2015). This understanding shifts the educational focus from the immediate emergency to the historicity of disasters, broadening the formative meaning of learning.

In this context, realistic fiction assumes a central role as hermeneutic mediation. The reading of narratives anchored in extreme climate events fosters the fusion of horizons (*Horizontverschmelzung*), a process in which the horizon of the text and the horizon of the interpreter converge, producing new meanings (Gadamer 2006). Scientific knowledge about the climate, in this movement, ceases to be an external or abstract datum and begins to integrate the student's lived world, mediated by experiences, affections,



expectations, and prior assumptions. Understanding does not eliminate prejudices, but critically rehabilitates them as a condition for a deeper and more situated interpretation.

Language, in this context, is not conceived as a neutral instrument for transmitting information, but as the medium through which the world becomes comprehensible and shareable. Realistic fiction thus emerges as a privileged hermeneutic space for education for sustainability, as it allows for the interpretation of climate phenomena not merely as technical data, but as human experiences interwoven with values, emotions, and ethical responsibilities. Backes et al. (2019) reinforce this understanding by highlighting that storytelling enables the creative recontextualization of scientific content, bringing it closer to common sense and everyday culture without losing conceptual depth. This perspective converges with that of Giraffa and Cerutti (2024), who recognize the relevance of pedagogical approaches sensitive to local reality, especially in contexts marked by disruptive events. In science education, this mediation can function as implicit scientific modeling: by constructing possible worlds consistent with physical, biological, and social laws, narrative facilitates back-and-forth movements between fiction and empirical reality, supporting the problematization and construction of contextualized scientific explanations (Bruguière 2019; Backes et al. 2019). Literary narrative thus constitutes, in this sense, a linguistic event in which the student's horizon meets the horizon of scientifically and socially produced knowledge, broadening understanding and fostering ethical development (Gadamer 2015).

It should be made clear that the articulation between Gadamerian hermeneutics and Gardner's theory of multiple intelligences (1983) is not without epistemological tensions. While Gadamer is grounded in a continental philosophical tradition, oriented toward historicity and language as a medium of understanding, Gardner is anchored in an Anglo-Saxon cognitive perspective, focused on identifying distinct cognitive structures. In the context of this study, Gardner is employed not as a primary epistemological foundation, but as a complementary framework that offers useful operational categories for instructional planning. This approach does not compromise the primacy of philosophical hermeneutics as the interpretive horizon of the study.

Figure 1 summarizes the convergence of horizons that guides the analytical path of this study.

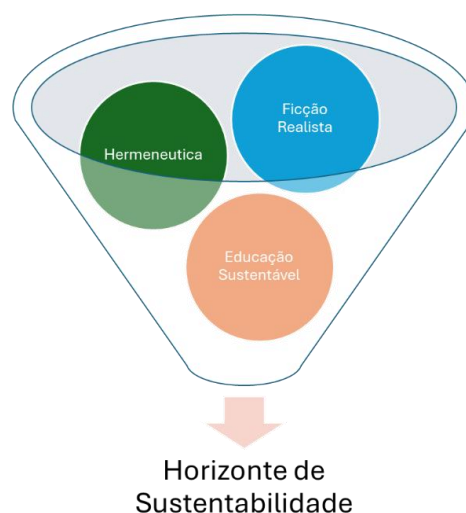


Figure 1 - Convergence of Horizons of Knowledge. Source: prepared by the author, 2024.

Table 1 presents an analytical synthesis of the Gadamerian concepts employed in this study and their role in the argument developed.



Table 1 - Concepts of Gadamerian Hermeneutics and Implications for Education for Sustainability

Gadamerian Concept	Application in Education for Sustainability	Implication for the article
Bildung (Formation)	Ethical, aesthetic, and historical formation of the individual in relation to the natural world	Overcoming the technocratic and instrumental view of sustainability
Merging of horizons	Encounter between scientific knowledge and the student's lived experience	Understanding of realistic fiction as a formative medium
Sensus communis	Building a shared sense of ethics and solidarity	Rationale for the use of narratives with collective reach
History of Impact	Recognition of the historicity of climate phenomena	Understanding disasters as historical events

Source: prepared by the author, 2024.

To concretely illustrate how these concepts operate in the context of climate education, let us consider a specific pedagogical situation: sixth-grade students in Porto Alegre discuss the causes of the May 2024 floods. Some bring direct experiences of evacuation; others followed the events through the media. The teacher could present scientific data in an expository manner. However, from a hermeneutic perspective, he recognizes that these students already possess a horizon of understanding regarding the event, constituted by family experiences, media narratives, feelings of fear or solidarity, and prior interpretations.

The fusion of horizons occurs when the realistic fiction narrative allows scientific knowledge to meet this lived world: by following characters facing rising waters, students can reframe their own experiences in light of hydrological, geographical, and social explanations, without these explanations imposing themselves as external truths. Sensus communis emerges when the collective reading of the narrative produces shared reflections on responsibility, vulnerability, and reconstruction. Wirkungsgeschichte operates when the group recognizes that floods are not isolated events, but expressions of historical choices regarding land use, urbanization, and social inequality.

The systematization presented here establishes the epistemological foundation that underpins, in the following section, the choices of the interpretive approach adopted, which departs from prescriptive or evaluative approaches and adopts a qualitative and interpretive perspective consistent with philosophical hermeneutics.

### Methodology: Epistemological Orientation and Interpretive Approach

This research is qualitative and interpretive in nature. The corpus of analysis consists of two sets of texts: (1) international normative documents from UNESCO regarding Education for Sustainable Development (UNESCO 2012; 2017; 2024a; 2024b); and (2) the narrative work *\*Quando a chuva passar\** by Castello and Brandão (2024), a realistic fictional narrative produced in the context of the floods that struck southern Brazil in May 2024. The analytical procedure adopted is hermeneutic reading, developed according to the Gadamerian hermeneutic circle: starting from a pre-understanding of the whole, one proceeds to the reading of the parts, returning to the transformed whole (Gadamer 2006). The choice of this approach is justified by the nature of the object: understanding the formative potential of literary narratives in contexts of education



for sustainability requires a framework that recognizes historicity, language, and lived experience as constitutive elements of the knowledge process, rather than treating them as variables to be controlled.

This research is guided by Hans-Georg Gadamer's philosophical hermeneutics, not as a method in the technical sense of a set of procedures that ensure the validity of results, but as an epistemological horizon that determines the way of understanding what knowledge is, what interpretation is, and what, after all, can be a legitimate question in education. Gadamer (2006; 2015) demonstrated that human understanding is not a technical operation that the subject applies to an object, but a historical event in which interpreter and text encounter one another, mutually transforming each other. Adopting this perspective implies, therefore, not only a choice of procedures, but a rejection of any illusion of methodological neutrality and a commitment to making explicit the horizons from which the researcher understands.

### ***The Articulation of Interpretive Horizons***

Philosophical hermeneutics requires interpreters to make transparent the preconceptions (Vorverständnisse) that constitute their horizon of understanding, not to eliminate them—which would be impossible and epistemologically naive—but to critically rehabilitate them as conditions of interpretation. All understanding is situated; denying this situation does not produce objectivity, it produces concealment.

The interpretive horizon of the author of this study is decisively marked by the direct experience of the floods that struck Rio Grande do Sul in May 2024. For the author, this event was not the object of detached observation, but a lived experience of rupture: the transformation of streets into rivers, the disorientation of everyday bonds, the mourning for spaces and for people. This lived experience constitutes a pre-understanding that cannot be set aside, but must be recognized as an active part of the interpretive process.

It is precisely because the climate disaster was not, for this interpreter, an external phenomenon, that the work *\*When the Rain Passes\** could not be read as just any school text: it challenged, disturbed, and called for a dialogue that was, in some way, already underway before it began. The *\*Wirkungsgeschichte\**, that is, the historical impact of the event on the interpreter, precedes and conditions any reading.

Linked to this experiential horizon is a second one, constituted by training in production and innovation engineering. Far from representing a contradiction with the hermeneutic framework, this background introduces into the study what Gadamer would call productive estrangement: the tension between the instrumental rationality that structures part of this horizon and the critique of that very rationality that the article develops keeps the text dialectically open, preventing hermeneutics from closing in on itself as a self-referential system.

This recognition of horizons is not a rhetorical gesture of reflexivity. It is a condition of hermeneutic validity: an interpretation that does not make explicit from where it speaks cannot be evaluated in terms of what it has understood. As Gadamer (2006) argues, the interpreter who seeks to erase their situation does not produce deeper understanding, but less honest understanding.

### ***The Texts in Dialogue***

The hermeneutic orientation of this study was organized around two sets of texts that engaged it in distinct and complementary ways. The first set consists of UNESCO's international normative documents on ESD (UNESCO 2012; 2017; 2024a; 2024b). These documents are not read as authoritative sources to be simply applied, but as historically situated texts, bearers of a particular understanding of education and sustainability, which must be interrogated. The hermeneutic question posed by them is not "what do they



prescribe?” but “what worldview do they presuppose?” and “what, in saying what they say, do they fail to say?”

The second text in dialogue is the work *Quando a chuva passar*, by Castello and Brandão (2024). Its selection did not follow criteria of sample representativeness. The work was chosen because it spoke to the author: because it reached me in the heat of a climatic event that constituted me as an interpreter, because it mobilized emotions that conventional academic research would tend to discipline as interferences, and because it productively challenged the distinction between the object of analysis and lived experience. This is, for Gadamer (2015), the hallmark of a genuine text: it transforms the horizon of the reader.

### ***The movement of the hermeneutic circle***

The interpretive journey did not follow sequential stages, but rather the circular movement described by Gadamer (2006) as the condition of all understanding: one starts from a pre-understanding of the whole, moves on to reading the parts, and returns to the transformed whole. Each return to the set of UNESCO documents after reading the book altered the understanding of the documents; each return to the book after reading the documents altered the perception of what the book did pedagogically. The theory of *Bildung*, encountered in Gadamer before any contact with the book, took on new significance after reading a narrative about children from Rio Grande do Sul learning to name fear. The book, in turn, ceased to appear as a mere didactic resource when reread in light of Gadamer’s critique of instrumental rationality.

What the study offers is a snapshot of an ongoing interpretive process, making explicit the decisions that guided the construction of the meanings presented and the horizons from which these decisions were made. The quality of this journey is not measured by criteria of external validity or replicability—categories belonging to an epistemology that this study rejects—but by the internal coherence between the stated horizons, the questions formulated, and the meanings produced. In the following sections, the interpretive process takes shape through a critical analysis of UNESCO’s normative documents and an effective hermeneutic reading of the work *\*Quando a chuva passar\**.

### **The Book within the Horizon of Sustainability**

The work *Quando a chuva passar*, by Castello and Brandão (2024), is analyzed in this article not as a descriptive literary account of an environmental disaster, but as a realistic fictional narrative that enables the understanding of extreme weather events from an ethical, historical, and socio-environmental perspective. The analysis focuses on how the narrative articulates lived experience, implicit scientific knowledge, and ethical formation, favoring the interpretation of disasters as historically produced and socially distributed processes.

The narrative constructs a situated representation of extreme weather events, articulating temporality, memory, and collective experience. The environmental disaster is not presented as an isolated or exceptional event, but as a rupture that disrupts daily life, reorganizes social bonds, and exposes the vulnerability of material and symbolic infrastructures. The description of the floods, mediated by characters embedded in specific family and community contexts, allows the climatic phenomenon to be understood not only in its physical dimension but as a human experience marked by loss, uncertainty, and reconstruction.

### ***The hermeneutic reading: the text challenged us***

A hermeneutic reading does not summarize, classify, or extract information from a text. It records what happens when one horizon encounters another—that is, when the interpreter’s experience comes into tension with the experience carried by the text. What follows is this record: not an objective analysis of the



work, but an articulation of the meanings that emerged from the encounter between two interpreters affected by the 2024 floods and a book written in the heat of that very event.

The work opens with a scene that, for a reader who lived through the May floods in Rio Grande do Sul, does not function as a narrative introduction, but as a recognition. The rain that begins gently, which children associate with the smell of popcorn and puddles to jump in, and which does not stop:

The narrative opens by evoking the pleasure the rain used to bring: the sky playing at watering little plants, the puddles to jump in, the rainbow that painted everything. That was the child's horizon in the face of the rain. But in late April, the water did not stop. The narrator felt fear, realized he was not safe, and recognized the same feeling in his friends and the animals around him (Castello & Brandão 2024, pp. 2–4).

This narrative shift, from familiar rain to rain that overflows, is not merely a literary device to capture a child's attention. It is, hermeneutically, an operation of fusion of horizons (*Horizontverschmelzung*): the text summons the reader from what they already know (the everyday, pleasurable, domestic rain) to lead them to what they cannot yet name (the catastrophe, the loss, the formless fear). This movement is precisely what Gadamer (2006) describes as the condition of authentic understanding: new meaning is only possible when the text encounters the interpreter's prior horizon and displaces it.

The central character, the child narrating in the first person, produces, throughout the work, what Gadamer would call historical-effective consciousness (*Wirkungsgeschichte*): the perception, though not yet theorized, that what happened is not an accident, but a consequence of a world organized in a certain way. When the child observes that not all rain does this, that this was special, that it filled rivers and turned cities into mud puddles,

“I saw so many houses, churches, and even my school disappearing beneath all that rain” (Castello & Brandão 2024, p. 6).

They are not producing a scientific analysis of the hydrological cycle, but are doing something epistemically more complex: they are realizing that the world has a history, that things do not happen by chance, that there are causes that extend beyond the immediately visible. This perception is the embryo of what ESD calls socio-environmental consciousness, and it emerges here not from a lesson, but from a narrated experience, from an encounter between the language of fiction and the reality of trauma.

For the author of this study, who experienced the rising waters in Porto Alegre, reading this passage was not a neutral experience. It produced what one might call, with Gadamer, recognition (*Anagnorisis*): the realization that the personal experience, until then resistant to articulation, found in the language of the text a way to be expressed. The book did not describe my experience: it allowed me to understand it in a different way. This, precisely, is what hermeneutics understands by an event of understanding: not the transfer of information, but the transformation of a horizon.

The socio-emotional dimension of the work takes on a different epistemic quality here when read hermeneutically. The 'butterfly hug,' a technique the book offers children as a form of self-restraint, is not merely a technique for emotional regulation. In the Gadamerian reading, it is a form of body language that allows the subject to appropriate an experience that has not yet found words:

The book offers two self-regulation techniques. The first is a four-step breathing technique: inhale while counting to four, hold while counting to four, exhale while counting to eight, and release while counting to four. The second is the “Butterfly



Hug” (Jarero & Artigas 2008), presented as a technique capable of helping to change negative thoughts, emotions, and bodily sensations that arise in moments of distress (Castello & Brandão 2024, pp. 13–15).

The physicality of the gesture is, in this sense, a form of pre-linguistic understanding—what Gadamer (2015) recognized as a dimension of experience that precedes verbal articulation but makes it possible. When the child hugs themselves and breathes, they are not merely calming down: they are creating the bodily conditions so that the traumatic experience may eventually be narrated. Narration, and with it understanding, presupposes a minimum stability in the subject who experiences. By offering this stabilization as a pedagogical resource, the book creates the conditions of possibility for the hermeneutic learning that ESD proposes.

What struck us most while reading, however, was what the book does not say explicitly, but allows to resonate: that there are children whose homes were flooded, that there are families who did not return to the same place, that there is a before and after that the rain produced. This implicit dimension—what Gadamer would call *Sache*, the thing at stake beyond what the text literally states—is what hermeneutic reading must bring to the surface. When the book concludes with the prospect that the rain will pass and that reconstruction is possible,

The narrative ends with the rain having stopped. The narrator reflects on the difficult moments experienced with the family, the fear felt, and the tightness in the heart. But, little by little, he begins to feel safe again: he remembers all the rains that were good, leaves the great rain in the past, and thinks of the rainbow that always comes to color everything around. This memory makes him happy again (Castello & Brandão 2024, pp. 17–22).

This statement only acquires real ethical weight for a reader who has understood, through the narrative’s progression, that reconstruction is not automatic, that it depends on collective choices regarding how we occupy the territory, how we distribute risks and responsibilities, and how we decide who remains in flood-prone areas. The book does not say this explicitly, but it says it in another way, by faithfully narrating the faces of the disaster. It is this tension between what the narrative says and what it resonates that constitutes its formative potential: it does not teach sustainability as content; rather, it creates the conditions for the question of sustainability to emerge from the reader’s own experience.

This reading, situated and explicitly partial, is what distinguishes the hermeneutic approach from a content analysis or a pedagogical review. It does not aim to exhaust the meanings of the work, for Gadamer taught us that no interpretation is definitive. It merely seeks to record what happened when this interpreter, at this particular historical moment, encountered this text. Other interpreters, with other horizons, will produce other meanings, equally legitimate and equally situated.

The book *Pipo and Lila Helping Children Through a Difficult Time: When the Rain Passes* is a work designed for social-emotional support, developed by mental health professionals based on experiences related to extreme weather events (Castello & Brandão 2024). Although it engages with frameworks from the psychology of trauma (Shapiro 2018; World Health Organization 2013), its use in an educational context requires rigorous ethical and pedagogical boundaries. The international literature refers to “Trauma-Informed Education” as the educational approach that recognizes the impacts of adverse experiences on the learning process, without implying diagnosis, treatment, or traumatic reprocessing (Cambridge Public Schools 2024).

Although this work utilizes principles of EMDR (Eye Movement Desensitization and Reprocessing) therapy, its application in the educational context is characterized as pedagogical support. In the school



setting, resources such as drawing, mindful breathing, and the “butterfly hug” should be understood as practices of symbolic expression and emotional self-regulation, pedagogically mediated and without clinical intent. The educator does not conduct reprocessing of traumatic memories nor interpret psychological symptoms; their role is to create an emotionally safe environment that fosters the minimum conditions for learning and, when identifying signs of psychological distress that go beyond the pedagogical scope, to provide support and refer students appropriately to specialized professionals.

Realistic fiction, when used with teacher guidance and clear pedagogical objectives, allows for addressing emotions such as fear, anger, and uncertainty, as well as themes such as socio-environmental responsibility, community rebuilding, and collective care. By articulating emotions and social content in a narrative form, the work fosters students’ social-emotional development and expands opportunities for contextualized learning (Cambridge Public Schools 2024), as shown in Figure 3.



Figure 3 - When the Rain Passes: My Emotions. Source: Excerpted from the book *When the Rain Passes* (Castello et al. 2024).

The National Common Core Curriculum (BNCC) (Brazil 2018) offers opportunities to integrate sustainability, resilience, and science education throughout Basic Education. In Early Childhood Education, topics such as climate and the environment can be explored through playful experiences in the “The Self, the Other, and the We” experiential domain. In the Early Years, skills such as EF04CI08 take on greater relevance in the context of extreme weather events. In the Final Years, skills such as EF07CI12 and EF09CI13 facilitate the analysis of factors like deforestation and the planning of collective actions. In High School, skills such as EM13CNT105 and EM13CNT306 enable the analysis of real-world cases and the discussion of energy alternatives.



Figure 4 - When the Rain Passes: Nature Reacting (Castello et al. 2024).

Table 2 maps selected BNCC skills to corresponding climate competencies.



Table 2 - Mapping of BNCC skills and climate competencies

Skill (BNCC)	Description	Climate Competency / Sustainability
EF02HI11	Environmental impacts of local work activities.	Understanding the relationship between urbanization and sustainability.
EF04CI08	Prevent diseases associated with the transmission of microorganisms.	Raise awareness of diseases linked to disasters (leptospirosis).
EF05GE11	Identify local environmental problems and propose solutions.	Analysis of causes (deforestation, pollution) and mitigation.
EF06GE11	Analyze society-nature interactions (biodiversity, land use).	Understanding environmental changes (floods, deforestation, climate).
EF08CI16	Discuss initiatives to restore environmental balance following climate change.	Planning for local environmental adaptation and recovery.
EF09CI13	Proposing collective actions to solve local environmental problems.	Empowerment for sustainable consumption and community mobilization.

Source: prepared by the author, 2024.

This framework highlights that sustainability education spans different areas of knowledge, integrating natural sciences, geography, and history. By contextualizing BNCC competencies through extreme weather events and their socio-environmental consequences, educators foster the development of climate resilience starting in elementary school and reinforce the formation of critical and socially conscious individuals.

### The Use of Technologies as Other Forms of Language in Realist Fiction

The educational potential of realistic fiction can be enhanced by a contemporary education committed to addressing the demands of a changing world, in which connectivity and digitization are reshaping pedagogical practices and forms of social participation (Altmann et al. 2024). Moran (2015) argues that integrating technologies into the curriculum requires critical thinking and pedagogical intentionality, avoiding both technicality and merely instrumental use. In this context, multiple languages associated with technological mediations cease to be an addendum and come to constitute conditions for engagement, authorship, and meaningful learning.

Digital technologies are understood here as cultural mediations that expand students' hermeneutic "listening" and authorship. Beyond instrumental use, the integration of languages of authorship—such as oral history podcasts and geographic simulations—is proposed, allowing students to act as producers of socio-environmental knowledge. Within the scope of education for sustainability, their use must be guided by an ethics of care that includes reflection on the digital infrastructure's own socio-environmental impacts, such as energy consumption, equipment life cycles, and inequalities in access. Thus, technology and sustainability simultaneously constitute both the means and the object of learning, requiring responsible curricular decisions.

In the Brazilian context, the floods that struck Rio Grande do Sul in May 2024, leaving more than 180 dead and 800,000 homeless, highlighted not only climate vulnerability but also the structural inequalities that determine who suffers most intensely from the impacts of extreme events. In this scenario, education for



sustainability must offer pedagogical approaches that integrate socio-emotional support, scientific understanding of climate phenomena, and ethical reflection on lived experience.

The use of multiple languages in the educational environment helps diversify access to knowledge and accommodate the plurality of learning styles. Gardner (1983) argues that different configurations of cognitive skills and dispositions require a variety of strategies and means of expression. Oral and written exploration of realistic fiction stories fosters communicative and reflective skills (Backes et al. 2019), while infographics, videos, role-playing, and simulations can support the contextualization of complex concepts.

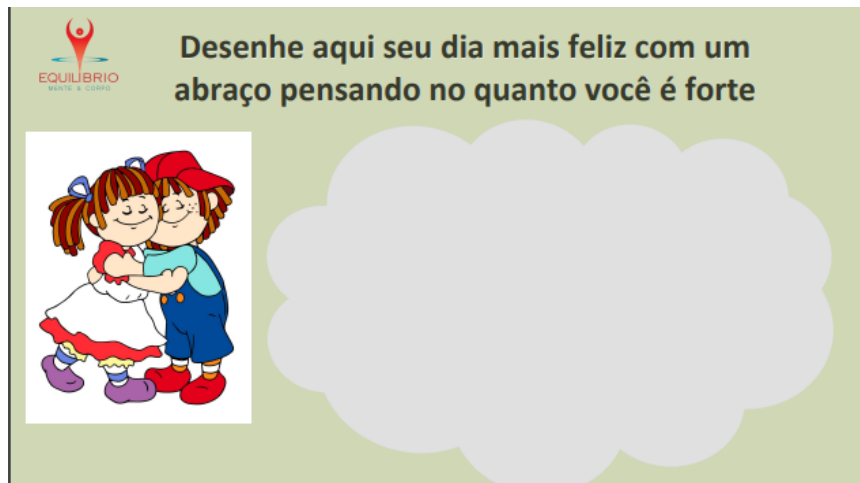


Figure 5 - When the Rain Passes: Beyond the Book. Source: Excerpted from the book *When the Rain Passes* (Castello et al. 2024).

### ***Selection of Multiple Languages and Technologies***

The integration of multiple languages and technological mediations can broaden the scope and depth of learning when guided by clear educational objectives and teacher mediation. Because it is freely accessible, the book expands the availability of socio-emotional support, fostering context-sensitive pedagogical practices. It is worth reflecting here on the tension between criticism of instrumentalization and pedagogical operationalization. Anderson and Krathwohl's revised taxonomy (2001), although originally conceived within a cognitivist tradition, can be reinterpreted from a hermeneutic perspective as an approximate and description of educational processes, rather than as a rigid prescription of outcomes. In hermeneutic logic, learning objectives are horizons that guide the learning process without completely determining it, and can be reinterpreted in the dialogic process of teaching and learning. This articulation, in line with Gardner (1983), encompasses different ways of learning and expressing understanding, based on the hermeneutic perspective that language, in all its forms, is the medium through which the world becomes comprehensible and shareable (Gadamer 2006). Table 3 systematizes possibilities for expanding the languages mobilized by realistic fiction stories.

Table 3 - Proposal for expanding the languages of realistic fiction stories



Language	Technological resource	Practical application
Verbal	Oral and written narratives	Interpretive reading of realistic fiction about climate change; argumentative debates; text production.
Visual	Infographics and videos	Creation and analysis of images and videos contextualizing environmental impacts; development of concept maps.
Audio	Podcasts and soundtracks	Listening to episodes on sustainability; creation of educational podcasts; production of thematic audio materials.
Physical	Role-playing and simulations	Incorporating perspectives and solutions into group dynamics; simulating decision-making in climate crisis scenarios.
Digital	Authoring and exploration tools (visual editors, VR, geovisualization)	Development of digital projects; exploration of scenario simulations; creation of interactive presentations.
Logical-mathematical	Spreadsheets and environmental simulators	Estimation of emissions and consumption; comparison of scenarios; interpretation of climate data.
Naturalist	Observation and recording in collaborative apps (e.g., iNaturalist)	Observation of the local environment; recording of indicators; comparison of changes over time.
Interpersonal	Forums and collaborative environments	Participation in guided discussions; collaboration in groups to propose local solutions.
Intrapersonal	Digital reflective journals	Recording reflections on the impacts of climate change on daily life; mapping learning and emotions.

Source: Prepared by the author, 2024.

## Final Considerations

Education for sustainability, as proposed in this study from a hermeneutic perspective, is not limited to meeting curricular goals or transmitting environmental content. It constitutes a formative process that involves the construction of meanings, values, and responsibilities in contexts marked by the climate crisis. More than theoretically demonstrating that realistic fiction narratives can function as epistemic mediations, this article sought to carry out this process: the hermeneutic reading of *\*When the Rain Passes\** was not an example constructed to illustrate a pre-existing argument; it was the place where the argument became concrete.

The central claim that emerges from this journey is, therefore, stronger than a hypothesis: the fusion of horizons between two interpreters affected by the 2024 floods and a work written within that same event produced meanings that neither pole could have yielded in isolation. The book taught us something about the disaster that lived experience, without narrative mediation, had not allowed us to understand. The lived



experience, in turn, revealed dimensions of the book that a detached reading would not have reached. This is what Gadamer's philosophical hermeneutics calls an event of understanding, and it is exactly what an education for formative—rather than instrumental—sustainability needs to learn to produce in schools.

It is essential to recognize, however, the limits of this approach. The hermeneutic reading performed here is that of two specific interpreters, in a specific historical context. It is not generalizable in the technical sense, nor does it claim to be. What it offers is an interpretive horizon and a demonstration that it is possible to conduct educational research based on lived experience, without treating that experience as methodological contamination to be controlled. Future research, with other interpreters in other contexts, will produce other readings, equally situated, equally legitimate, and equally necessary to shape the field of ESD as an interpretive field and not merely a normative one.

From a theoretical standpoint, the study contributes to understanding sustainability not as an instrumental or functional category, but as a historical, ethical, and interpretive experience, anchored in Gadamer's notion of *Bildung*. The hermeneutic perspective highlights that meaningful socio-environmental learning does not occur through the transmission of competencies, but through the encounter between horizons—between what the student already is and what the text, the event, or the other proposes to them. Methodologically, the article demonstrates the relevance of hermeneutic reading as a legitimate form of educational research, capable of articulating global normative documents and situated literary narratives without reducing the complexity of educational processes.

ESD and initiatives such as the Greening Education Partnership reinforce the need for educational models that go beyond the transmissive logic and promote situated and socially relevant learning. By integrating narratives of realistic fiction and technological mediations as pedagogical languages, education can foster students' critical engagement, informed decision-making, and ethical reflection on complex problems. These guidelines align with the goals of the 2030 Agenda (UN 2015), which recognize education as a strategic element for building more just, inclusive, and environmentally responsible societies. It is within this framework that the realistic fiction narrative operates as a linguistic event: it contributes to an education for sustainability that is not limited to functional adaptation, but affirms the historical and political responsibility of individuals in the face of the challenges of the Anthropocene.

### Limitations and Continuities

The main methodological limitation relates to the absence of empirical research in school contexts. The pedagogical proposals analyzed and outlined were not applied, tested, or evaluated through case studies, classroom observations, or longitudinal monitoring of educational practices. Consequently, the pedagogical implications presented are prospective and hypothetical in nature, requiring validation in future research.

Regarding the texts under discussion, the analysis focused on a specific narrative work (*Quando a chuva passar*) and on international normative documents from UNESCO, which significantly delimits the interpretive scope. No other realistic fiction narratives about extreme weather events were analyzed, nor were normative documents from other international organizations or national educational policies. This delimitation, while necessary for the study's feasibility, restricts the possibility of generalizing the conclusions to other materials or cultural contexts.

Regarding ethical delimitation, although the article has endeavored to demarcate the boundaries between pedagogical practices and clinical interventions, it is acknowledged that this boundary may not be evident to all educators. Typical teacher training does not include preparation for working with students who have experienced traumatic events, which represents a significant practical challenge for the implementation of the proposals presented.



On a theoretical level, the articulation between frameworks from distinct epistemological traditions—continental philosophical hermeneutics and Anglo-Saxon cognitive theories—was carried out pragmatically, prioritizing instrumental complementarity without delving into the underlying theoretical tensions. This choice, though productive for the study's purposes, may be questioned by readers who consider greater rigor in reconciling epistemological paradigms to be essential. The use of Gardner (1983) and Anderson and Krathwohl (2001) as operational frameworks, rather than as foundational principles, was made explicit throughout the text precisely to mitigate this tension without erasing it.

As perspectives for future research, we suggest the development of empirical studies that investigate: (1) the implementation of realistic fiction narratives at different levels of Basic Education, analyzing their pedagogical, socio-emotional, and formative effects in diverse contexts, especially in schools serving vulnerable populations; (2) the teacher training necessary to work pedagogically with narratives situated in contexts of climate crisis, including an understanding of the ethical limits of educational practice; (3) the reception and appropriation of works such as *\*Quando a chuva passar\** by students of different age groups and sociocultural contexts, investigating the interpretive and formative processes effectively triggered; (4) the articulation between ESD, trauma-informed pedagogy, and digital technologies from the perspective of climate justice and educational equity; and (5) comparative analyses of different realistic fiction narratives about extreme climate events, investigating their potential and limitations as mediators of formative processes in education for sustainability.

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**Declaration of Authorship**

Ery Jardim: Project coordination, hermeneutic analysis of the texts, theoretical development and drafting of the text, critical review of the theoretical and methodological foundations, engagement with Gadamerian frameworks, and revision of the final draft.

**Declaration of Conflict of Interest**

The authors declare that there is no conflict of interest regarding this article.