

Visual-Verbal Performance: Enhancing Ecoliteracy through *Water Stories: From Around the World*

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Abstract

Understanding and engaging with water towards sustainable environmental management is an integral part of education and critical literacy. Propagating the conception of water and its socio-cultural interactions is challenging but necessary. Knowing water is an essential part of ecoliteracy towards human sustainability, interactive storytelling through multimodal narrative structure disseminates such discourses of water for affective cognition. The collection of stories *Water Stories: From Around the World* (2010), edited by Radhika Menon and Sandhya Rao and illustrated by Nirupama Sekhar, can be read as a critical discourse on water and the construction of water literacy. The research paper aims to study how the visual and verbal elements of *Water Stories* promote sustainable ecological practices and enhance ecoliteracy among readers. The paper aims to conduct a multimodal analysis of select stories examining how the literary techniques and modalities of the narrative foster ecoliteracy with a focus on water.

Keywords: *Water Stories*; ecoliteracy, water literacy, multimodality, visual storytelling

Introduction

Ecoliteracy addresses climate change, awareness of ecological knowledge and its socio-cultural relations through literary narratives. Multimodal narratives, as a form of literary representation, serve as a compelling space for ecoliteracy due to their unique blend of visual and verbal

media. These narratives effectively represent both simple and complex concepts of ecoliteracy to a wide range of readers. The research paper aims to study how the visual and verbal elements of *Water Stories: From Around the World* (Menon & Rao, 2010) promote sustainable ecological practices and enhance ecoliteracy among readers. This entails examining how multimodal components engage readers and contribute to their understanding of ecological concepts. The paper addresses the issues related to water as represented in the selected text. The text explores themes such as water ownership, local knowledge, political aspects and ideological perspectives, disseminating water literacy.

This collection of *Water Stories* edited by Radhika Menon and Sandhya Rao and illustrated by Nirupama Sekhar, is a powerful tool in promoting water literacy as part of the ecoliteracy discourse. These stories articulate and circulate the role of water and challenge the dominant and normative structures of social identities and power relations, thus opening up new possibilities for discourses on water and the reconstruction of social realities. *Water Stories* uses conventional allegories and instructional storytelling to impart the present-day water discourses through multimodal representations. The structural and narrative framing of the book accommodates the essential water discourses, such as—significance, monopoly, and ownership around water, along with the traditional versus Western knowledge system in water sustainability and their socio-cultural implications. The ongoing concerns of water scarcity, pollution, and inequity are mainly due to poor water management (Molle et al., 2008). Interdisciplinary inclusion in the debate on water management is possible through effective representations that generate water literacy and, thus, promote water sustainability.

Ecoliteracy encompasses emotional, social, and ecological intelligence, facilitating dialectical cooperation among the sciences, humanities, social sciences, and education in building a sustainable community (Goleman et al., 2012). Ecoliteracy includes water literacy, which combines “critical and active understanding of water sources, water management, and water security issues, which overall encompasses water knowledge, attitude, and behaviour” (Maniam et al., 2021, p. 1). It includes two generalized frameworks—the engineering paradigm views water as a social product that can be controlled, and the management framework sees water as an object that people maintain, and focuses on the utility

of water resources. This premise is elaborated with the current need for understanding the “cultural ecologies of water” (Moose, 2008, p. 940). The requirements of water literacy are basic knowledge about water, including a conceptual understanding of local context and science, hydro-social behaviours, and function-oriented views of water (McCarroll & Hamann, 2020). These components lead to three significant objectives: individual action, collective action, and attitudes and values for sustainable water practices. Visual storytelling can be considered one of the forms of disseminating water literacy for sustainability. This review also suggests ways to improve water literacy by using “enhanced visual tools to correct student misconceptions ... to convey local and hydrosocial knowledge” (p. 22). *Water Stories* through various aspects of water and its socio-cultural and economic conceptions provide water literacy. Moreover, the multimodal representation is a suitable platform for water literacy. The engaging storyline and visual illustrations cater to both children and adults.

Multimodal Representations in *Water Stories*

Multimodality refers to the interactions of different sensory perceptions with each other through the integration of information received by different senses. It is the “integrated use of different communicative resources such as language, image, sound, and music in multimodal texts and communicative events” (Leeuwen, 2011, p. 549). Communication is multimodal, as spoken language includes verbal and non-verbal cues. Similarly, in written form, images and words become multimodal. As a theoretical and analytical practice, multimodality explores how different communicative resources, such as visuals, sounds, and words, are used in multimodal communication. The multimodal elements undertaken for analysis are—visual illustrations, storytelling techniques, text and image relations, composition (arrangements of the elements within the narrative including diagrams and framing techniques), colour (the use of colour, considering factors such as brightness, saturation, purity, modulation, luminosity, and hue), typography (focusing on font size, slope, regularity, orientation, curvature, expansion, and weight of typefaces), and decoration—if present and how they contribute to the narrative and ecological messaging. The paper uses specific examples from the text to conduct the study. The use of the above-mentioned multimodal elements is analyzed and interpreted to understand

how they provide ecoliteracy by enhancing reader engagement and comprehension. This analysis will be supported by cross-referencing findings with existing scholarly literature on multimodal narratives and ecoliteracy.

In *Water Stories*, illustrations play a significant role, complementing and reinforcing the textual content. This positions the words as the primary communication medium, an approach that resonates with Barthes' conceptualisation of three distinct semantic relationships between text and image. The first, visual illustration where text takes precedence, while the images provide additional information to the context. The second, anchorage, refers to instances where images are interpreted not directly through the text but are perceived as naturalistic representations of reality open to multiple interpretations, giving linguistic clarification and closure. The third relationship, relay, involves a scenario where the text and image convey different yet mutually complementary meanings (Leeuwen, 2011). *Water Stories* predominantly uses Barthes' first aspect of the text-image relationship in its multimodal representation.

Figure 1. Chadha, R. (2010). "A Well is Born: A Story from India". p. 51.

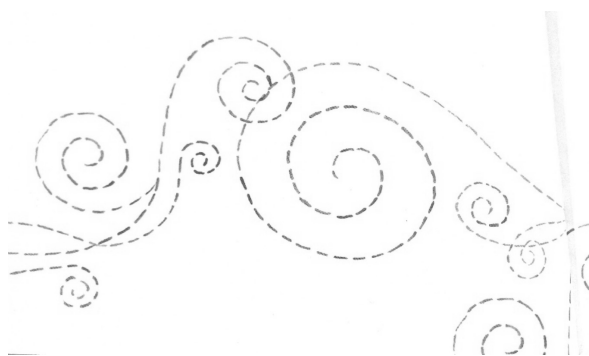


The composition of the multimodal texts becomes a part of the visual analysis. The significance lies in the spatial arrangements of pictures (left and right), pages (top and bottom), and screens (centre and margins). These spatial zones provide information values to the textual elements (Leeuwen, 2011). The polarization of images or words from left to right and top to bottom conveys a cultural message through conventional usage, followed by a written communicative system, particularly in Western culture. The familiarity and cultural notions established by this traditional composition of texts create logical coherence and a practical understanding of the meaning intended. *Water Stories* uses a conventional pattern of composition. Within the multimodal convention, a diagram such as a pie chart, heat graph, or tree diagram is effective in organising obscure and complex ideas. Frame lines are used to demarcate the content, similarly to taxonomical or chronological divisions, for a precise and clear understanding of the text. Neither diagrams nor frame lines are used in the narrative.

Colour plays a crucial role in multimodal texts that have visual illustrations. Colour helps to express “emotive meanings” and “personality traits” (Leeuwen, 2011, p. 562) in the public and private domains, respectively. Hue is an aspect of colour that helps to differentiate between the features of colour to recognize it. Hue supports the context by creating a metaphoric meaning for any narrative. The various aspects of colour—brightness (scale of colour from light to dark), saturation (scale from complete to pale and pastel versions of the same colour), purity (pure or mixed colours), modulation (scale of colour like flat colours and shaded or nuanced one), luminosity (range such as dull or reflective) and Hue (quality of colour) have multiple communicative potential. In addition to being communicative and conveying ideas, colour “can affect people emotively; and it can provide textual cohesion, linking the elements of the multimodal page into a meaningful structure” (Leeuwen, 2011, p. 564). Given the flexibility of the usage, colour is essentially multimodal and can work together with visual and verbal forms (drawn letters). *Water Stories* uses monochromatic images and shades of blue wherever water is present. For instance, in Figures 1, 3 and 4, the characters and textual landscapes are in black-white contrast while blue is used for water. Blue is also used in different colour aspects based on brightness, saturation, luminosity and hue. This provides variety, capturing the readers’ attention towards water and its contextual understanding.

Typography is essential in communicating the intensity of an action within a multimodal text. It derives meaning from metaphors or context. The features that bring out the typography's expressive features are—weight (boldness of a typeface), expansion (condensed, narrow or expanded typefaces), slope (cursive, script or upright typefaces), curvature (ascenders or descenders used in a letter form), connectivity (connecting letter forms in a running script), orientation (horizontal or vertically oriented axis of letter forms), and regularity (deliberation of irregular variations in weight, size, or slope to convey the mood of any action). Apart from letter forms, typography includes coloured and textured letters, animated, abstract, or semi-pictorial.

Figure 2. Whitaker, Z. (2010). "Selekana and the River Goddess". pp. 34-35.



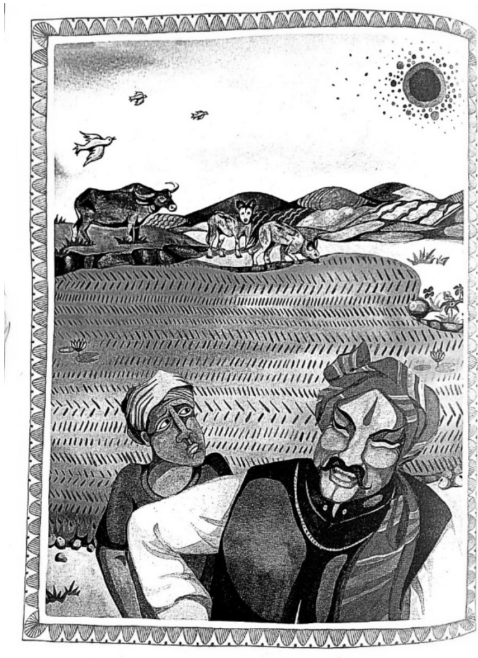
Decoration, like a visual background, is added to text to convey motifs and cultural contexts. In Figure 1, the image of the drilled well is placed within a border of traditional decorative patterns. This decoration enhances the visuals and adds motifs to the story's theme. The indigenous designs signify a return to traditional knowledge of community-based sustainability. Decorative patterns create context by repeating loops throughout the text. The ornamental patterns in *Water Stories* are traditional designs of iconic and symbolic images like lotus, plants, and indigenous patterns. The borders of illustrations also contain native patterns, as seen in the borders of Figures 1 and 3. Additionally, *Water Stories* often use flowing lines (Figure 2) as a background throughout the text, resembling a river or water flow. Decorative elements add depth and cultural richness to the text, allowing the readers to fully engage with the story.

Synthesizing Visual Modalities and Narrative Techniques Towards Water Literacy

The story “Who Owns the Water?” uses a conversational tone with a moral undertone. The story is about the creation of a pond from a small hole made by animals, which a farmer dug to its full depth. The fable-like setting of the story moves to a critical question when the poor farmer is confronted by the most prosperous farmer, who claims ownership of the pond. The story ends with every animal that was involved in digging the hole into the pond and the farmers, while the narrator leaves an open-ended question ““Who owns the water?” Not a moral, just a thought—a germ of an idea to dig and make bigger” (Balsavar, 2010, p. 10). The instructive and interactive tone of the narrative, along with the education on the complex water ownership process, provides an adequate representation of water literacy. The story, which caters to but is not limited to young learners, becomes a platform for interrogating the questions of water and the politics behind it. The natural creation of a water outlet becomes a property with the involvement of class distinction and commodification of the natural resource. The drought creates a demand that makes the water a highly valued product, and the class distinction creates a gap in attaining its ownership. Water is political due to its transgression of geopolitical and cultural jurisdiction boundaries, and its utility is an economic commodity extended by scientific constructions. Thus, water becomes involved in contesting power relations and authority (Bakker, 2012).

The story uses water-based vocabulary and multimodal arrangement, demanding the readers’ attention to water. The choice of words—“parched” and “dry” (Balsavar, 2010, p. 5), “soaked up the moisture” and “puddly water” (p. 7) supports the narrative as a water discourse. Moreover, the border of the titular page has water droplets used for decorations that are repeated throughout the book. The visual illustrations (Figure 3) add information to the story and convey the weight of the emotions, such as disparities needed for the theme (Figure 4). Other designs include blue decorative lines with lotus and reeds, thus extending the water discourse to the multimodal medium. Visual illustrations play a significant role as “[h]uman experiences that are spatially oriented, non-linear, multidimensional, and dynamic often can be communicated only through visual imagery or other non-discursive symbols” (Foss, 2005, p. 143).

Figure 3. Balsavar, D. (2010). "Who Owns the Water?". p. 8.



"A Well is Born" discusses water from an economic and technological approach. An engineer who tries to dig a well in a dry village requires water. He uses technological inventions and cartography yet fails to find a water source. He drills three times in different places in search of water, but only stones and rocks are at the bottom of each hole. He has been promising in the name of his scientific knowledge to bring water to the village people, "[a]rmed with maps, reports, a truck and a drill, /they went straight to the base of a small hill/wearing safety helmets, bright and yellow" (Chadha, 2010, p. 44). On the other hand, a small farmer, humble and wise and with little scientific education, steps up to find a water source. This is illustrated through the verse, "Just then a farmer with kind and wise eyes/said, '[i]f you don't mind, I have some advice. /I believe that water can be found/there.' He pointed to a termite mound" (Chadha, 2010, p. 49). His proposition is based on ancestral knowledge built upon the inference of natural observation and is essentially sustainable. He points out that termite hills are always moist and retain dampness, with an underground water source in the vicinity. The engineer listens to the farmer's words and digs a place to

find the water source, which makes the villagers happy. The astonished engineer inquires about the details of his knowledge, assuming he is a college graduate. The farmer explains that the ideas and wisdom of water are found in the ancient verse treatises of Varahamihira's *Brihat Samhita* and advises the engineer to observe life, how and where insects live, the way trees grow and search for clues among nature to find the secrets of the earth.

The interactions of the farmer and the engineer provide an elaborate critique of the Westernized education system, overshadowing the traditional, sustainable and nature-oriented knowledge system. It is essential and inevitable to combine the lost and scattered cultural and ecological knowledge "together with the stories" (Adamson & Monani, 2017, p. 6) from indigenous peoples for a better understanding of water-related issues. Appropriating this concept, the story ends with a stanza that reflects the significance of combining ancient and scientific knowledge, "[i]f I may make a suggestion bold:/Let us combine new science and old. /Then this earth of ours will be truly blessed/with the wisdom of East and West" (Chadha, 2010, p. 50). The complicated post-colonial politics of education and socio-economic and cultural expertise are conveyed through a fable with simple poetic diction to create water literacy. The poetic tone resembles the rhymes of the young children's memory verse, which becomes an effective platform for instructing and providing the essential components of water literacy. The story echoes Kahn's (2010) idea of promoting eco-pedagogy and ecoliteracy. The story explores how indigenous societies and "peoples have enacted ecologically sustaining practices within the everyday lives of their communities ... offering alternative ways of being that hold possibility for the reconstruction of institutional culture" (Kahn, 2010, pp. xv-xvi).

The visual illustration of the story is accompanied by monochromatic colours with traditional decorative patterns that act as borders (Figure 4). This facilitates the central argument of the story, as conventional art signifies the need to incorporate traditional knowledge with scientific innovations. The monochrome colour is changed to blue for the presence of water, and the design patterns resemble flowing water. Using such designs highlights the significance of water through the contrast provided by the colour effect. Every new section of the stanzas in the story contains a blue water droplet as a marker to generate an added effect. Similar colours and decorations are used in the story "Selekana

and the River Goddess” by Zai Whitaker (2010), which has an instructive form of omnipresent narrative.

Figure 4. Whitaker, Z. (2010). “Selekana and the River Goddess”. p. 30.



The story is about a river that has become thin as compared to the previous year, a “fat, healthy, noisy river with waterfalls and pools and large, lazy fish” (Whitaker, 2010, p. 27). The elders in the Botswana community are worried about the river and wonder how to please the river goddess to improve the water flow. Here, the story gets interesting with the protagonist, kind-hearted Selekan, who helps all the older adults of her village draw water from the steep and slippery river. In return for her kindness, the older adults give her bead jewellery. The people of Botswana are known for their beadcraft. They make bracelets, arm bands, waist bands, amulets, necklaces, anklets, and earrings in bright colours, and people usually wear many pieces of jewellery. Selekan has her collection, which many young girls in the village envy. The girls hatch a plan to make Selekan lose her jewellery. They instruct her to sacrifice her jewellery as an offering to the river goddess. Though reluctant, Selekan throws her beads and jewellery one by one into the river. The young girls successfully fool Selekan and laugh at her. Selekan pleads to the river goddess to return her jewellery. One morning, when she goes on her usual errand to get water from the river,

she hears a voice that asks her to follow it. She remembers old stories from her village and understands the presence of the river goddess. So, Selekana follows the voice into the river and enters a cave. Inside the bright and colourful cave, she finds a lot of beads and jewellery. The river goddess asks her to take as many pieces of jewellery as possible. At first, Selekana gathers a lot, but then she feels that “[t]hese treasures belonged here in this luminous underwater cave. It wasn’t right to take them” (Whitaker, 2010, p. 32). She takes only her jewellery and returns ashore. The river became full and healthy, and droughts cease to occur.

The interaction between Selekana and the river is symbolic, implying that the water must be managed sustainably without overexploitation. Selekana’s choice to take only what belongs to her symbolizes optimal water usage to fulfil the need, not overuse or pollute. She is rewarded for her choice; thus, the story provides the moral of sustainable water use for the future sustenance of nature and the human species. This cultural ethic is essential for combating persistent climate change. It is imperative to “learn from comparing the practices of societies that have sustained themselves for centuries on a limited resource base with those that have not managed to do so” (Capra, 2007, p. 10). Using sustainable communities as a model, humans should develop to enrich “way of life, technologies, and social institutions honour, support, and cooperate with nature’s ability to sustain life” (Capra, 2007, p. 10). Stories like “Selekana” help contribute to the knowledge repository on sustainable communities.

While discussing water rights issues, Acharya (2017) presents four key arguments: neoliberal, neo-Marxist, ecofeminist, and human rights perceptions. Understanding these rights through critical awareness is made possible through literary representations. The selected stories offer insights into these arguments through their plots, and their multimodal medium plays a crucial role in providing a simple illustration of these complex concepts, making them more accessible and easier to understand. For instance, the rich farmer in “Who Owns the Water?” represents neoliberal and neo-Marxist interventions of using and owning the pond based on land ownership and authority over the village. The story emphasizes the cultural components of class strife in the neo-Marxist perception. The story’s focus on the individual as an economic and political actor highlights the neoliberal perception, promoting economic competition with minimal state intervention. Since

water is one of the fundamental needs of humans, control over water should belong to the nation-state for equal distribution and utilisation. The story embodies the ecofeminist viewpoint through its dedication to the environment and emphasis on the connections between women and nature. Additionally, the story adopts an ecofeminist stance in promoting a different worldview that cherishes the land as sacred, acknowledges humanity's interdependence with nature, and values all life as precious. Acharya's fourth argument about water rights is discussed in all three stories in the paper. The stories illustrate water as a human right and encourage sustainability and environmental justice in the distribution and use of water.

Conclusion

Both ecoliteracy and water sustainability depend on understanding and interacting with water in the context of sustainable environmental management. This understanding is complex, but it is also the key to spreading the idea of water and its sociocultural relations. *Water Stories* is a testament to this potential, demonstrating how multimodal storytelling can improve ecological knowledge and encourage sustainable water use. Through visual illustrations, storytelling techniques, text and image relations, composition, colour, typography, and decoration, the narrative provides readers with a comprehensive understanding of water-related concerns, thereby promoting ecoliteracy and sustainable practices. The stories discussed in the paper delve into the politics behind water preservation and distribution, including contestations of power relations, the need to accommodate indigenous wisdom in the contemporary knowledge system, and the importance of sustainable water management and utilization. Hence, multimodal storytelling is a powerful tool to convey the significance of literary representation of water literacy.

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