# EXPLORING MULTIMODAL DISCOURSE IN SUSTAINABLE TOURISM: A CASE STUDY OF THE 'GO GREEN' WEBSITE

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**Abstract** – This chapter explores the use of multimodal resources and the promotion of extended reality (XR) technologies in the GO GREEN project, a sustainable tourism initiative, centred on the Gorizia province in the Friuli-Venezia Giulia (FVG) region of Italy, promoted by *Fondazione Cassa di Risparmio di Gorizia* (CARIGO, for short). The analysis investigates how various meaning-making resources are employed on the GO GREEN website to engage the viewer through compelling sustainability narratives. By promoting on-site access to XR tools, the website illustrates nine distinct "narrative itineraries", or projects, within the region's natural and cultural heritage, encouraging both locals and tourists to undertake immersive experiences. Using Baldry and Thibault's (2006, Ch. 3) framework for multimodal website analysis, this chapter examines the synergic interplay between visuals and text to enhance persuasiveness in one of these itineraries – viz. the one in the Collio region – drawing on key themes and master narratives emphasising the integration of past and present and the role of young people as active participants in digital experiences. The findings reveal how the website shapes viewer experiences and encourages young people to engage in sustainable practices, ultimately raising questions about the potential of XR technologies as tools for environmental education.

**Keywords**: multimodal analysis; sustainability narratives; XR technologies; master narratives; sustainable tourism practices.

## 1. Introduction

This chapter explores the semiotic resources employed in the website for the GO GREEN project i.e., "the program for the valorisation of the cultural, historical and landscape heritage of the province of Gorizia" (see Figure 1) promoted by CARIGO, short for *Fondazione Cassa di Risparmio di Gorizia*, a non-profit foundation based in the Italian province of Gorizia (Friuli-Venezia Giulia region).

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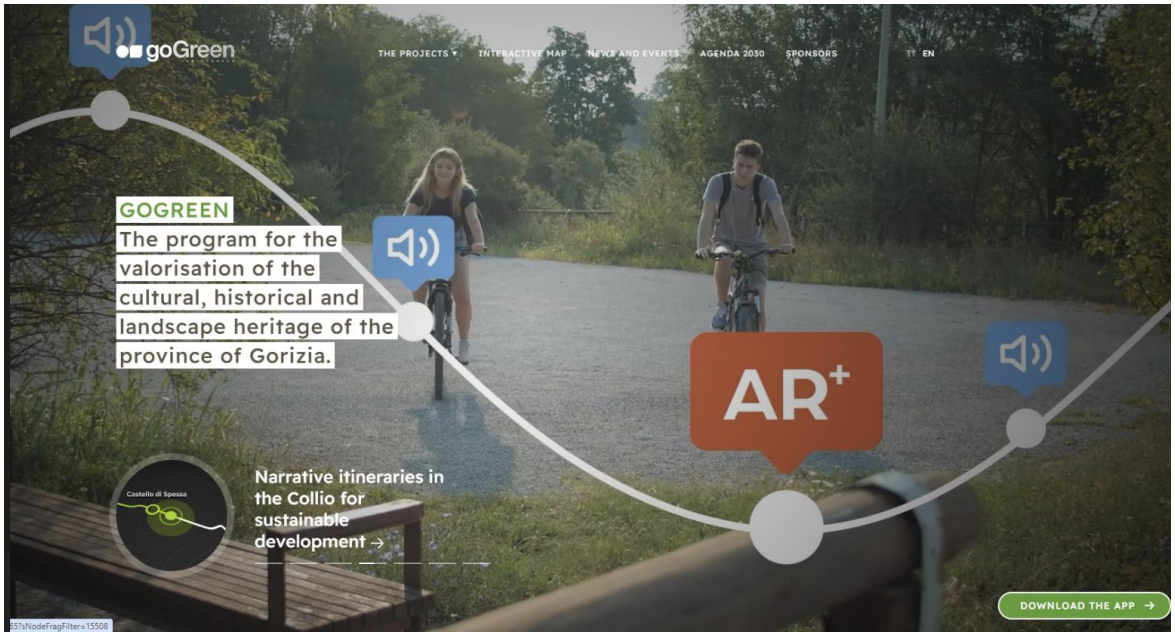



Figure 1
The GO GREEN programme cover page, https://www.carigogreen.com [retrieved October 10, 2024].

Originating from the *Cassa di Risparmio* (a savings bank) and transitioned into a foundation as part of banking reforms in the 1990s, CARIGO now focuses on philanthropic activities aimed at fostering social, cultural, and economic development in the region. Besides education and research and sustainable development, CARIGO's activities include cultural heritage and promotion. CARIGO's primary goal is thus to reinvest financial resources in projects that benefit the local community, in line with the broader mission of Italian foundations that started life as savings banks.

GO GREEN uses extended reality (XR) technologies to enrich storytelling in guiding the tourist along nine "narrative itineraries"[1], or "projects" (see Figure 2).

[1] The nine projects, or narrative itineraries, are: 1) *Narrative Itineraries: Gorizia*, "a series of routes in Gorizia to discover the city"; 2) *Narrative Itineraries: Collio*, "an unforgettable journey through time that allows you to see what the Collio's landscapes were like"; 3) *Narrative Itineraries: Isonzo*, "to understand the territory along the course of the Isonzo"; 4) *Smart Space*, "a digital exhibition space to narrate art, culture, and landscape"; 5) *Museo del Monte San Michele*, "an entirely redesigned museum offering a truly unique immersive experience of WWI"; 6) *Narrative Itineraries: Karst*, "three routes to be travelled on foot, to discover how nature and history intertwine on the border"; 7) *Spazzapan Gallery*, "a virtual experience of the works of the painter Luigi Spazzapan from Gradisca"; 8) *Giardino Viatori*, "one of the most beautiful gardens in Italy"; 9) *Digital Museum of Reclamation*, "an innovative digital setup that tells the story of how man transformed the landscape of the lower Isonzo plain over the past two centuries". Significantly, while the full list of narrative itineraries is provided at https://www.carigogreen.com/projects [retrieved October 11, 2024], the carousels on the cover page (https://www.carigogreen.com/projects, [retrieved October 20, 2024]) only refer to itineraries 4), 8), 5), 2), 3), 6), and 1) (in this order).

The present study focuses on the introductory video to one of these nine projects called *Narrative Itineraries: Collio* – an area in the Friuli-Venezia Giulia region, in northeastern Italy, nestled between the Julian Alps and the Adriatic Sea, which offers a blend of rolling hills, vineyards, and charming medieval villages. The *Narrative Itineraries: Collio* project itself contains "8 stories between fantasy and reportage, science fiction and the historical or biographical genre including the thriller and the war story to visit the Collio and discover the different cultural aspects of the area: history, food and wine excellence, legends and local traditions" (https://www.carigogreen.com/en/15470/narrative-itineraries-collio [retrieved October 13, 2024]). More specifically, the introductory video presenting the eight stories is analysed below with a view to investigating whether the meaning-making environment represented by the website, in its articulation into cover page[2] and a start page, is coherently instantiated. With this objective in mind, specific attention is paid to the co-patterning and synergic interplay, in the video, of different semiotic resources in the construction and construal of the overall message (Thibault 2000, p. 312; Vasta 2010, p. 183). These resources can be seen as affordances that specify and help to set up possibilities for action in a human ecology[3] that integrates social practices with artefacts, texts, technologies, and the material world (Thibault 2021a, p. 96).

In the digital age, the intersection of technology and communication has led to the emergence of new paradigms in the way information is presented. XR – which can be seen as a further development of the ways in which humans have always navigated virtual environments, and thus as a distinctive hallmark of the human ecology – has gained significant momentum in recent years, marking its relevance across a number of industries, particularly in digital marketing and sustainability, as a potential tool to inform and engage the public with current and future environmental issues (Cosio *et al*. 2023, p. 1). The function of simulating XR features on the webpages is to make the content more engaging and entice prospective tourists, while raising their awareness of sustainability issues.[4] In this perspective, the representation of these features

[2] Landing pages – which in the context of this chapter has been defined as a cover page – are standalone web pages, created specifically for a marketing or advertising campaign, implementing and prioritising a specific call to action. They are designed to constrain a user's reading pathway by appearing before or over the homepage and by imposing a single comply-or-dismiss decision (see www.apexure.com/blog/landing-page-vs-homepage-key-differences-explained, and https://landingi.com/blog/splash-page-vs-landing-page-whats-the-difference/ [retrieved October 20, 2024], quoted in Vasta 2024, p. 24).

[3] Human ecology is understood to be "the continual praxis of societies of selves in determining the concrete forms and practices of their individual and community life" (Thibault 2021, p, 16).

[4] In passing, mention should also be made of the ideological, political, and economic implications of the role of banks such as CARIGO in the context of the neoliberal marketing of the environment, as evidenced in the videos discussed. Engaging tourists involves strategies of persuasion and affective affiliation that may, particularly within the context of marketing and promotional

requires careful analysis, particularly in terms of how they contribute to the overall viewer experience and message delivery. XR is operationalised as an umbrella term that encompasses virtual reality (VR), mixed reality (MR), and augmented reality (AR) (Newton, and Annetta 2024, p. 2), which together create immersive environments that blend physical and digital elements. The growing importance of XR in communicative terms is reflected in its increasing usage in digital platforms – especially those aiming to enhance viewer engagement[5] and interaction – and raises important questions about the efficacy of XR as a tool for environmental education and its potential to steer viewer behaviour towards more sustainable choices.

To analyse the simulation of XR on the GO GREEN website in a critical discourse analysis (CDA) perspective, this chapter draws on existing models of website analysis, particularly the one developed by Baldry and Thibault (2006, Ch. 3) in their study of multimodal discourse. This model, which *inter alia* emphasises the significance of visual trajectories and pathways in understanding how viewers interact with digital texts, provides a useful starting point for exploring the GO GREEN website, which, as described below, attempts to incorporate Lemke's (2002, 2005, 2014) notion of viewer-trajectory[6] in explicit and immersive ways.

discourses, also entail the unethical manipulation of environmental concerns. In this respect, mainstream 'green' discourses are often ambivalent discourses; while these discourses have a positive aim of dealing with some of the ecological problems caused by destructive discourses, they arise from the same society as the destructive discourses and may be influenced by political or commercial interests (Stibbe 2020, p. 25). These discourses might aim to persuade individuals to engage in often unsustainable practices, such as consumerism, which ultimately serve to generate profit. A potential contradiction thus arises between the notions of "sustainability" and "tourism" – which is exemplified by the recent protests by residents in various parts of the world against tourism and its environmental and economic impacts on local communities and ecosystems. While not falling directly within the scope of this chapter, nominalisations – i.e. resources for generalising, for abstracting from particular events (Fairclough 2003, p. 144) – such as "sustainability" and the thematic systems and social practices to which the term contributes could provide valuable areas for further inquiry and investigation.

[5] User engagement is defined as "a form of user experience which includes both a psychological state where the user appraises the quality of media and becomes absorbed in media content and a behavioral experience in which the user physically interacts with the interface and also socially distributes and manages the content" (Oh, Bellur and Sundar 2018, p. 742).

[6] "The notion of a user-trajectory [...] comes from the theory of hypertext, in which there are alternate possible reading pathways through the 'pages' (lexias) produced by an author (Landow, 1997)" (Lemke 2014, p. 169). In Lemke's definition, a traversal or trajectory "in a reading of a hypertext [...] is only loosely constrained. There are many branching points, possibilities of returns and closed loops, and the option of following more than one line of development in parallel" (Lemke 2005, p. 48). In other words, "There are many possible trajectories, or traversals, through the web of a hypertext. Meaning on a time- and text-scale long compared to the typical scale of linked units (e.g., a paragraph or page) becomes a creation of the user/reader that is far less predictable to the designer than in the case of a printed book whose narrative or argument has a single conventional sequence" (Lemke 2002, p. 300). In a similar vein, and drawing on the work

One of the aims of the GO GREEN website is to promote sustainable tourism through compelling visual narratives – or to engage in transduction, to use Kress and van Leeuwen's terminology, which is concerned with moving between a range of semiotic modes (Kress, van Leeuwen 2006, p. 39) – that make sustainable practices more tangible for prospective tourists, confirming the persuasive force of tourist material (Francesconi 2014, p. 62). The multimodal perspective can thus be viewed as crucial for understanding the complexity of contemporary communication, such as that instantiated by the GO GREEN website, especially if one considers that, in today's information society, most of our communicative exchanges and productions are mediated by digital technologies (Petroni 2011, p. 15).

In this sense, tourist websites are a dynamic source of information through which tourists can experience the holiday instead of simply having a brief description of the destination (Maci 2007, p. 42).

This chapter aims to establish whether the GO GREEN website succeeds in effectively integrating different semiotic modalities, while designing – and making perceptually salient – specific viewer trajectories simulating the XR features that *promise* to create immersive and interactive experiences: in marketing (or, more generally, promotional) terms, all of this amounts to a "self-fulfilling prophecy,"[7] fuelling the act of *fides* to be necessarily performed by the addressee/prospective tourist if s/he is to undertake the XR experience. In this connection, the notion of "trajectories" – as outlined by Baldry and Thibault – refers to the pathways that guide viewers through a website, shaping their interaction and engagement with the content. Specifically, meaning-making trajectories are understood as "the progressive integration over time of the semiotic resources that are encountered as the website viewer progresses from one linked object, one text, one web page, one website, to another" (Baldry, Thibault 2006, p. 116). By examining how these specific XR elements are integrated into the website's design, this analysis explores how they contribute to viewer experience and how viewer engagement enhances understanding of sustainability: the website promotes experiencing XR to create an interactive and immersive environment that encourages viewers to explore different aspects of sustainability, but raises the question of whether XR integration simply serves as a technological gimmick, or whether it adds

of Bush (1945), Thibault (2012, p. 11) argues that "the creation of a hypertextual trajectory leads to the building up of systems of meaning relationships from text to text, verbal text to visual image, from web page to web page, and so on, as one navigates through a website or across websites. Hypertext is a set of meaning-making practices which allows us to construct such relationships, in the process creating multimodal systems of meanings".

[7] Originally coined by Boorstin (1962), the expression 'self-fulfilling prophecy' was appropriated by Bourdieu (1991, p. 191), who used it to underscore its potential to "[do] what it says in so far as the addressees recognize themselves in it, conferring on it the symbolic and also material power which enables the words to come true".

substantive value to the viewer's experience and understanding of the content. After a brief overview of the site (Section II), an analysis of some webpages in terms of meaning-making processes is given (Section III and IV), followed by some concluding remarks and suggestions for future research (Section V).

## 2. The Go Green Website

The research questions this chapter seeks to address are as follows: What themes and master narratives[8] emerge when examining the GO GREEN webpages? Are any recurrent strategies used to connect the visual and graphological cues so as to give salience to specific aspects?

The GO GREEN programme is sponsored by CARIGO and is being carried out specifically to promote the Italian province of Gorizia (Friuli-Venezia Giulia region) and its unique landscape, historical, and cultural features. Yet, it does so in a special way, one that clearly validates the area's features in the eyes of young people, which almost certainly includes those who live in this area and who will thus take pride in seeing their remote corner of Italy promoted in this way. The site may thus be seen – from one standpoint – as an example of an "edutainment website" (Baldry, Thibault 2006, p. 104): information is provided about sustainable tourism while the viewer is entertained by the videos supplied for the nine different GO GREEN projects (see Figure 2), that make engaging and innovative use of next-generation technologies. Somewhat unusually, from a purely textual and compositional standpoint, the site features what might be considered to be two interlinked home pages – the first referred to below as the *cover* page – and the second a *story pathways start,* or *start* page for short, as it is the starting point for what the menu bar names as *The Projects*. As with any website, both pages can be accessed from within the website – by clicking on the options in the menu bar (Figure 3) – but also via links in the pages themselves.

Significantly, these two pages share most of the site's visual entertainment, especially the video presentation of young people visiting the countryside on their bicycles gaining experience of places not just through their own eyes but also by using VR headsets as well as their smartphones.[9]

[8] According to Bamberg, "master narratives are [culturally accepted frames] setting up sequences of actions and events as routines and as such have a tendency to 'normalize' and 'naturalize'" (Bamberg 2004, p. 360).

[9] Emphasising visual perception, this aspect also points to a larger issue concerning the nature of what Thibault refers to as "first-order embodied experience", i.e., a first "layer" of meaning that can catalyse flows of non-perceptual awareness and virtual action-perception (Thibault 2021b, p. 102).

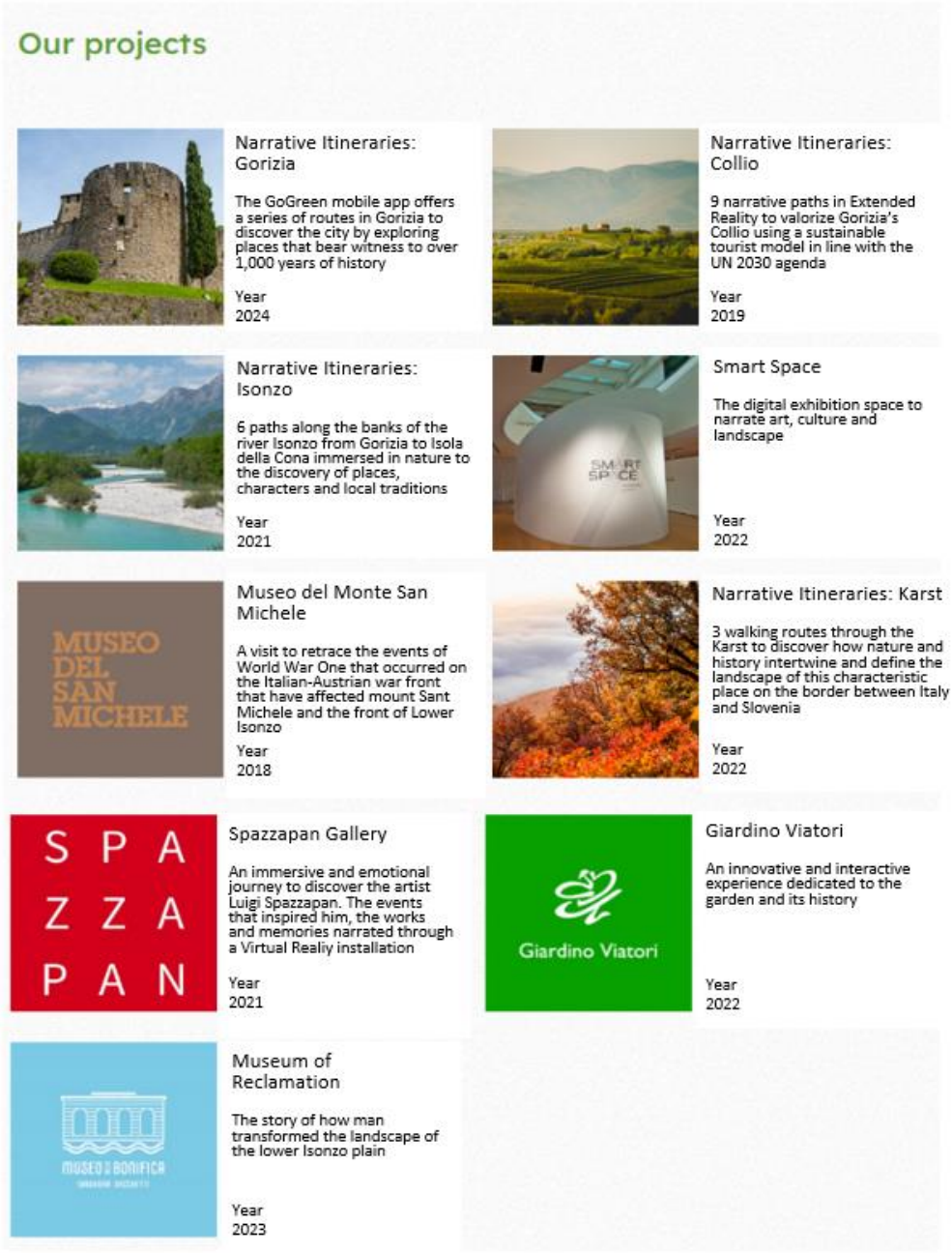



Figure 2
The nine narrative itineraries, https://www.carigogreen.com, [retrieved October 16, 2024].[10]


Figure 3
CARIGO GREEN menu bar.

[10] The dimensions of the captions have been amended to enhance readability, while retaining the original wording.

As Figure 3 shows, the masthead is in the traditional position for the website genre (i.e., top left). The menu bar is superimposed in the *cover* page's top frame on a looped video, i.e., one which, when finished, goes back to the start. This video tells a story about three young people on bicycles (an old technology) who explore the countryside with the technologies mentioned above that allow them to discover the past identified in the videos. The cover page is thus the starting point for this journey of discovery – a challenging and entertaining way of interpreting sustainable tourism.

Revealingly, the menu bar does not include a HOME option, further pointing to the integrated nature of the GO GREEN *cover* page with the *start* page. The cover page also features a carousel, a time-based structure that allows a set of multimodal frames to be shown in a continuous, self-repeating sequence: while often found on home pages, in some websites the frames, as in this case, can be individually selected by the viewer, thereby turning them into decision-making waypoints (Vasta 2024, p. 25). Specifically, the carousel self-identifies as such through a series of seven dashes below the caption describing the nature of the journey that would-be tourists can undertake. Organised as a dynamic visual-verbal cluster (Baldry, Thibault 2006, p. 31), Figure 1 shows how the journey travels from one point on the map to another. This also explains that the main reason for examining the cover page first – i.e. it deictically indicates the point of departure and potentialities for action – needs to be squared with its direct links to the storytelling pathways on the start page. While the menu bar separates, the carousel links.

## 3. The *Narrative Itineraries: Collio* project: Analysis of the Promotional Video

The *Narrative Itineraries: Collio* page is similar to the cover page of the GO GREEN programme in its positioning of an embedded cluster, which, when compared, begins to explain the differences between the two pages. Although both contain a looped video, some of the scenes[11] shown differ, despite presenting the same participants – people, places, bicycles, and digital instruments such as smartphones and VR goggles. This page features a looped video briefly presenting the eight narrative paths, or "stories". Drawing on Baldry and Thibault (2006), a transcription of the video is provided below in order to point out the semiotic resources employed and how they contribute to overall meaning-making. The aim is to distinguish in analytically relevant ways the different resources co-deployed in a given text at the same time (Thibault 2000, p. 312).

[11] https://www.carigogreen.com/en/15470/narrative-itineraries-collio [retrieved October 13, 2024].

In terms of visual layout, the table presented below comprises 5 columns, each of which is referred to with a linguistic item; following Thibault (2000, p. 314), Column 1 specifies the number of phases[12] and subphases– i.e. text-analytical units in terms of which the text as a whole can be segmented and analysed (Baldry, Thibault 2006, p. 47). The metafunctional interpretation of phases and subphases, which are seen as a set of co-patterned semiotic selections that are co-deployed in a consistent character (Thibault 2000, p. 325), will be described in Section IV; Column 2 is concerned with the time in seconds of the video (as the video is embedded in the website, a recording was made of the screen while the video was playing, and subsequently captured through VLC, a multimedia player); Column 3, i.e., "Visual Frame", is concerned with the frame captured at the time indicated in Column 2; Column 4 refers to the visual image and comprises some notational glosses, which were compiled following Kress and van Leeuwen (2006); Column 5 refers to kinesic actions, whereby kinesics is understood as an umbrella term to refer to body movement.[13]

| **C1**<br>**Macrophase (MP)/Subphase (SP)/Microphase (MrP)** | | **C2**<br>**TIME** | **C3**<br>**VISUAL FRAME** | **C4**<br>**VISUAL IMAGE** | **C5**<br>**Kinesic Action** |
|---|---|---|---|---|---|
| **1.INTRO MACROPHASE (MP1)** | **SP1.1**<br>**Attention getter** | **1"** |  | CP: panning left to right<br>HP: oblique<br>VP: high<br>D: VLS<br>VC: mountains in the background<br>VS: the ground<br>CO: naturalistic | |

[12] As pointed out by Gregory (1975, p. 71) "phasal description distinguishes, at varying degrees of delicacy, stretches of discourse (continuously or discontinuously manifested) that share ideational, interpersonal, and textual consistency and congruity". Drawing on Baldry and Thibault (2020, p. 171), the expression 'phase' and 'subphase' are used in a general sense, as a further distinction is made in this chapter between "the analytical categories of macrophase (MP), subphase (SP), and microphase (MrP). Typically, a text can be analysed into a number of distinct macrophases. A given macrophase may, potentially, be further analysable into more delicate selections at the level 'below', which we now call subphase. In turn, subphases have the potential to be analysed into still more delicate selections of resources at the level we call microphase". Specifically, a microphase is "intended as a construct which: a) captures the process of branching a given subphase into subordinate, yet independent structural extensions of the subphase itself or which: b) together with other related microphases (at times discontinuously manifested in discourse), makes up a structurally and functionally cohesive rhetorical step" (Vasta 2023, p. 73).

[13] In relation to Column 4 and 5, the following notational conventions were adopted, drawing on Thibault (2000, pp. 328-348): in C4, CP = Camera Position; HP = Horizontal Perspective; VP = Vertical Perfective; D = Distance; VC = Visual Collocation; VS = Visual Salience; CO = Coding Orientation; VF = Visual Focus. In C5: [ …] – e.g. square brackets – indicate that a series of action take place simultaneously, with each movement which is distinguished from the other one with a semi-colon; square brackets are not used when no simultaneous kinesic act is present; ( ) – round brackets – designates a sequence of movement in time.

| | | | | | | |
|---|---|---|---|---|---|---|
| | **SP1.2 Orientation** | **MrP1.2.1** | **3”** |  | CP: stationary<br>HP: direct<br>VP: median<br>D: LS<br>VC: trees in the background<br>VS: boy and girl pedalling<br>CO: naturalistic<br>VF: medium; disengaged | [Boy and girl pedalling] |
| | | **MrP1.2.2** | **6”** |  | CP: tilting<br>HP: oblique<br>VP: median<br>D: MLS<br>VC: trees in the background<br>VS: boy/girl looking at phone<br>CO: naturalistic<br>VF: close; engaged | [Boy and girl look at the phone] |
| **2 BODY MACROPHASE (MP2)** | **SP2.1** | **MrP2.1.1** | **11”** |  | CP: stationary<br>HP: oblique<br>VP: high<br>D: MCS<br>VC: backpack; dark background<br>VS: Boy watching Casanova through XR<br>CO: sensory<br>VF: close; engaged | [Boy looks at the phone; Casanova appears] |
| | | **MrP2.1.2** | **11”** |  | CP: stationary<br>HP: direct<br>VP: high<br>D:VCS<br>VC: blurred grass<br>VS: phone displaying Casanova<br>CO: sensory<br>VF: close; engaged | [Boy presses the phone display] |
| | **SP2.2** | **MrP2.2.1** | **16”** |  | CP: dolly right to left<br>HP: oblique<br>VP: high<br>D: VLS<br>VC: tree-and-field background<br>VS: couple following the AR animated narrative pathway<br>CO: sensory<br>VF: far; engaged | [Couple rides a bike; the AR narrative pathway unfolds]; |
| | | **MrP2.2.2** | **21”** |  | CP: stationary<br>HP: direct<br>VP: median<br>D: MLS<br>VC: nature in the background<br>VS: AR animated narrative pathway; boy and girl cycling<br>CO: sensory<br>VF: medium; engaged | [boy and girl ride a bike; the AR narrative pathway unfolds];<br><br>overlay of the AR narrative pathway |
| | | **MrP2.2.3** | **24”** |  | CP: stationary<br>HP: oblique<br>VP: median<br>D: MCS<br>VC: sky-and-tree background<br>VS: AR animated narrative pathway; boy/girl get off bike<br>CO: sensory | [boy and girl get off the bike; the AR narrative pathway unfolds];<br><br>overlay of the AR narrative path |
| | **SP2.3** | | **30”** |  | CP: stationary<br>HP: direct<br>VP: median<br>D: CS<br>VC: nature in the background<br>VS: Casanova<br>CO: naturalistic<br>VF: far; disengaged | Casanova looks ahead |
| | **SP2.4** | | **32”** |  | CP: dolly<br>HP: direct<br>VP: median<br>D: LS<br>VC: nature and trees in the background<br>VS: boy and girl pedalling<br>CO: naturalistic<br>VF: medium; engaged | [boy and girl pedal] |

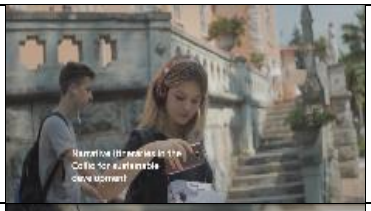
| | | | | | | |
|---|---|---|---|---|---|---|
| | SP2.5 | MrP2.5.1 | 33” |  | CP: stationary<br>HP: direct<br>VP: median<br>D: MCS<br>VC: slightly blurred background<br>VS: girl handling goggles<br>CO: naturalistic<br>VF: close; engaged | [girl handles the goggles; boy listens to some audio content] |
| | | MrP2.5.2 | 36” |  | CP: stationary<br>HP: direct<br>VP: median<br>D: CS<br>VC: blurred background<br>VS: girl activating goggles<br>CO: naturalistic<br>VF: close; engaged | (girl activates the goggles; girl uses goggles) |
| | | MrP2.5.3 | 38” |  | CP: panning right to left<br>HP: oblique<br>VP: median<br>D: CS<br>VC: slightly blurred background<br>VS: girl using goggles<br>CO: naturalistic<br>VF: close; engaged | |
| 3. OUTRO MACROPHASE (MP3) | SP3.1 (Coda) | | 41” |  | CP: dolly<br>HP: oblique<br>VP: high<br>D: VLS<br>VC: nature in the background<br>VS: Casanova’s carriage<br>CO: naturalistic | [Casanova’s carriage] |

Table 1
Multimodal Transcription of the *Narrative Itineraries: Collio* project.[14]

## 4. Discussion

In order to investigate the main findings of the *Narrative Itineraries: Collio* project, this section focuses on two master narratives, which emerge more clearly than others from their metafunctional analysis: the juxtaposition of past and present and representation of young people in their interactions with XR technologies. They are crucial to understanding how the project uses multimodal communication to convey complex themes, particularly around sustainability and digital engagement. Below, an account is given detailing how visual-graphical elements typically contribute to ideational-presentational meaning, interpersonal-orientational-attitudinal meaning, and organisational textural-structural meaning (Lemke 2005, p. 47).

[14] The caption, consistent across all frames, reads: “Narrative itineraries in the Collio for sustainable development”.

### *4.1. The Intersection of Past and Present*

The intersection of past and present is best exemplified in SP2.1 in Table 1. Central to this sequence is the boy, the Actor (Kress, van Leeuwen 2006, p. 50) who plays the most crucial role in the meaning-making process; he is involved in the transactional material process (Kress, van Leeuwen 2006, pp. 61-64) of accessing and interacting with historical and cultural content through his smartphone. This transactional dimension is critical because it emphasises that the past is no longer static or distant; rather, it becomes something dynamic, continuously reinterpreted through interaction with the phone, recalling Lemke's arguments that meanings are made across time, across space, in and through matter (Lemke 2014, p. 168). It is through the XR headset that the boy and Casanova are initially depicted in a simulated state of physical proximity, creating the illusion that they occupy the same space, thereby merging two distinct temporal frameworks. In the subsequent frame, however, the boy is shown interacting with Casanova via his smartphone screen, positioning them in separate locations, which contrasts with the previous depiction. This shift suggests a partial withdrawal from the immersive XR experience, thereby emphasising the distinction between the simulated environment and the "real" world. The boy's engagement with the "real" world now implies a sense of agency, as he appears to exercise control over the prior simulation. More to the point, when historical events are associated with a particular place – the presence of Casanova in this case – technologies might enable the re-imagining of space in ways that can foster emotional engagement – an important component of history learning (Sakr *et al.* 2016, p. 53) thus reinforcing the website's "edutaining" purpose. This aspect also justifies the focus on multimodality, as twenty-first century literacy requires the ability to critically analyse the multimodal meaning-making practices we encounter every day in contemporary culture (Vasta, Baldry 2020, p. 7). In this sense, the broad use of stories in various modalities – such as oral or written words, pictures, photos, clothes from yesteryear, dance routines, visual arts, and many other artefacts – entails the complex interaction between different modes of impression and expression (Furu *et al.* 2021, p. 19). The combination of visuals and text, including graphology (van Leeuwen 2005, p. 45; Thibault 2007, p. 111) is essential to exploit the meaning-making potential of multimodal discourse; in the case of GO GREEN, the visuals are designed to create a sense of immersion and connection with the landscape, yet the challenge lies in ensuring that the two modes of communication – visuals and text – work together harmoniously, as otherwise the overall impact of the website's sustainability message could well be undermined.

A distinct mental process is at work in the participant's interaction; the smartphone, in this case, becomes a device for cognitive engagement. The boy

is not merely handling the phone, but is involved in interpreting the content displayed on its screen, such as historical names or narratives that connect the present setting to its cultural heritage. Looking at the screen and reading the historical data engages the participant in both a transactional and a mental process, serving an educational function and pointing to the fact that multimodal configurations are increasingly understood as a key to how people learn (Jewitt 2008, p. 257).

As the video proceeds, the smartphone starts to dominate the storytelling while the Actor – the boy – disappears (MrP2.1.2). Here, the action becomes non-transactional, as there is no evident interaction between the boy and his smartphone. This reconfiguration from transactional to non-transactional processes points to the smartphone's dual function in mediating cultural heritage: it is both a tool for active interaction and for passive reception of historical content. The positioning of the smartphone and the Actor establishes a relationship that emphasises accessibility. One of the key features of this sequence is the close-up framing of the smartphone's screen (MrP2.1.2). By giving salience to the screen, the image draws the viewer into a direct relationship with the historical content being accessed, so they are more likely to feel involved (O'Halloran *et al.* 2018, p. 567). In other words, this gradual close-up shot positions the viewer as if s/he were in the participant's position, directly engaging with the phone and the cultural information presented in the website. This creates a sense of involvement, as the proximity of the camera to the screen simulates the experience of holding and interacting with the device. The vertical perspective is slightly higher than might be expected, meaning that the viewer gradually gains power (Baldry, Thibault 2006, p. 195) until the Actor is no longer present in the image, so that the viewer engages autonomously in the shift from past to present.

Relatedly, the boy holding the phone is located on the left, which is the domain of the Given, whereas the figure of Casanova is positioned on the right, the domain of the New (Kress, van Leeuwen 2006, p. 57). This is designed to suggest that much knowledge about the past is still unknown and needs to be discovered through technology. The text and images displayed on the smartphone's screen, such as names of places or historical events, are given salience through the close-up shots and central framing. The visual flow of the sequence further reinforces this complex relationship between past and present; Casanova's gaze vector is directed towards an indeterminate point outside the visual field to the right, i.e., the New, appears to suggest a sense of readiness to learn (Baldry, Thibault 2006, p. 221), reasserting the need for further investigation into unknown past events. The participant moves from interacting with physical artefacts and their surroundings to focusing entirely on the smartphone, which aligns with Lemke's concept of semiotic trajectory, where meaning unfolds over time through a sequence of actions and

engagements (Lemke 2005, p. 49). In this case, the past is not simply presented as a static entity; rather, it is continuously reinterpreted and re-experienced through the participant's engagement with and through the smartphone.

This sequence visually illustrates the process by which viewers navigate between the material present and the historical past, using the smartphone as the conduit for their journey. The smartphone is consistently highlighted as the dominant item in the storytelling, with the historical content it displays occupying the most visually salient position. This hierarchical structure mirrors the conceptual relationship between present-day technology and historical narratives. The smartphone is not just a tool for accessing the past; it is also framed as the essential mediator through which historical knowledge is experienced and understood in the present. The textual organisation of the image, therefore, underscores the transformative role of technology in shaping our relationship with history, where the past is accessed, interpreted, and recontextualised through digital media.

The past-present relationship is also evident in SP2.2: two people are riding their bikes (a traditional means of transportation) while following an AR animated narrative pathway that overlays their real-world surroundings. The AR+, sound, and the volume icons-cum-buttons in the three overlay(s) visualised in the animated AR pathway in MrP2.2.1, MrP2.2.2 and MrP2.2.3 are given prominence, and the dolly movement creates a dynamic shift, visually transporting the characters through space while blending the present with the past. The animated AR pathways, superimposed on the natural landscape, serve as a digital artefact linking the characters to the past narrative they are following. The combined AR/natural landscape emphasises how viewers experience the past, making it part of their real-world experience. In MrP2.2.1, the very long shot of the characters following the AR pathway visually integrates them into both the physical environment and the unfolding digital past. This creates a sense of physical presence in the modern world while engaging with a historical narrative. The medium shot in MrP2.2.2, showing the boy and girl getting off their bikes as the AR narrative continues to unfold, visually reinforces their active participation in the story about the past.

Furthermore, the sequence of oblique horizontal and high vertical perspectives allows viewers to see both the contemporary action of cycling and the historical narrative presented through the AR overlay, highlighting the contrast and connection between these two temporal dimensions.

### *4.2. Young People and their Interaction with Technology*

The second master narrative in the *Narrative Itineraries: Collio* project video relates to the representation of young people and their interaction with

technology. Throughout the project, young participants are depicted as digital natives, seamlessly integrating advanced technologies into their experiences.

This representation aligns with societal narratives that position young people as drivers of technological innovation and digital engagement. In other words, the website suggests that we must not simply view young people as legitimate social and political actors; instead, we must also recognise them as potential innovators and catalysts for change in new media (Ito *et al.* 2008, p. IX). Depictions of young people and their digital media practices often result in a multimodal fulfillment, with images encoding various media and socio-cultural ideologies (Thurlow, Aiello, and Portmann 2020, p. 531). In an attempt to create persuasive texts, the tourism industry has exploited multisemiotic interrelations in which verbal and iconic elements are interwoven (Maci 2007, p. 43), i.e., what in multimodality has been termed "multimodal orchestration", that is "the process of assembling/organizing/designing a plurality of signs into a particular configuration to form a coherent arrangement" (Kress 2010, p. 162; see also Vasta 2024, p. 18).

From a representational perspective, the boy and girl in the video are generally portrayed as active participants, with their everyday activity of riding bicycles integrated into their engagement with technological devices, particularly through actions such as using a smartphone and interacting with AR and XR. The natural landscape surrounding them serves as a contrasting backdrop, reinforcing the idea that technology, rather than distancing them from their environment (as has been the case in the past), is now woven into their lived experiences.

This convergence of the natural and the digital world is illustrated in MrP2.1.2; this visual frame further emphasises the proximity between young people and their devices, using close-up shots to draw attention to the personal nature of their technological interactions and encouraging viewers to engage similarly. The close-up distance positions the mobile phone – appearing as though the viewer is using it – as a personal tool (Kress, van Leeuwen 2006, p. 127), reinforcing the notion that language, in its multimodal affordances, is a system that reconciles and makes sense of the many complexities of human communication in the digital arena (Sindoni 2013, p. 42).

From an interactive perspective, camera movements and angles play a crucial role in how the audience is invited to align with this narrative. The use of oblique angles, along with shifts between high and median vertical perspectives, reflects how technology mediates the relationship between the viewer and the subject. In MrP2.1.2, the camera angle and close distance afford the viewers equal social power and a personal, even intimate, social distance, despite our lack of direct involvement (Blunden 2020, p. 39).

Interestingly, unlike media representations that often depict young people's use of digital media in a narrow, negative light – with their practices

visualised pessimistically and unfairly (Thurlow *et al.* 2020, p. 530) – here, their interaction with digital tools serves a clear educational purpose. For instance, in examining MrP2.1.2, MrP2.5.2, and MrP2.5.3, the close-up shots of participants' hands interacting with these devices highlight their control over the learning process, reinforcing the idea that they are active learners. Their representation as masters of the learning process is further enhanced in MrP2.2.3, where the boy and girl get off their bikes to continue interacting with the AR path. Here, the technology – the animated AR narrative path – unfolds before them, yet their actions and control signal that they are actively supervising this learning process. In their role as Actors (Kress, van Leeuwen 2006, p. 50), the boy and girl engage in various material processes, clearly indicating control (e.g., handling devices, pushing buttons, wearing goggles) and their agency over the learning experience.

The prominence given to young people, more generally as masters of both AR technology and the related learning process, makes them genuine brand ambassadors – i.e., individuals who act in support of and on behalf of a particular brand (Fisher-Buttinger. Vallaster 2008, p. 132) – in the *Narrative Itineraries: Collio* project and the GO GREEN programme.

Furthermore, their involvement illustrates how immersive technologies enable potential tourists to explore and experience destinations in ways that were previously impossible, enhancing one's ability to imagine themselves in the destination and, thereby, increasing confidence in travel decisions (Bretos *et al.* 2024, p. 289). Their portrayal as active participants in both natural and digital environments positions them as forward-thinking and environmentally conscious individuals. By cycling through nature and utilising technology – specifically AR – they embody a progressive balance between sustainability and innovation, reinforcing the project's core values.

In examining the relationship between young people and technology, it is also worth exploring the role of women and how they are portrayed in the video presenting the Collio project. To do so, a comparison can be made with the previous version of the video used to introduce this project[15]. Revealingly, the former version of the video clearly highlighted the role of women as technological leaders. Evidence of this is provided in Table 2, which brings together some visual frames clearly illustrating this aspect. The depiction of women's prominent status in the digital arena is particularly evident in Sequence 1. The young woman – one of the three "represented" participants, understood as the people, places, events, and things depicted in an image (Kress, van Leeuwen 2006, p. 47) – appears to direct the two boys through a technologically mediated experience. This representation is significant, as it

[15] Available at https://www.collioxr.com/index-en.html [retrieved October 12, 2024]: This video, which was originally used to introduce the Collio project (previously referred to as *Collio XR*), has since been replaced by the one currently displayed on the start page.

actively challenges traditional gender roles that often frame technology as a male-dominated field and contribute to social relationships infused with assumed differences between the sexes (Machin *et al.* 2016, p. 306). In this context, the woman assumes the role of the primary expert, guiding her male counterparts in navigating the XR environment. She engages in a number of material processes – such as turning around and beginning to walk in a leading position, followed by the two male counterparts – which highlight her authority.

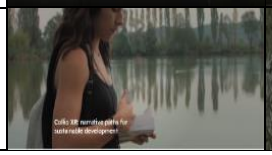
| Sequence | A | B | C |
|---|---|---|---|
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |

Table 2
The Woman as a Technological Leader in the *Collio XR* project.[16]

The public mediation of leadership discourse online transforms such narratives into texts for study, enabling critique and appraisal of leadership communication (Tan *et al.* 2015, p. 560). However, a closer analysis of Sequence 1 reveals that the contested aspect may not be the woman's status as a technological leader; she is positioned on the left, the Given, indicating that this information is already established. Rather, it appears that the issue lies in the men's acceptance of her role, as the image portrays the male participants on the right, the New; possibly indicating that acknowledging her role as a leader may still be in progress. Her authority seems to be consolidated in Sequence 2, where the male participants are notably absent; as has been argued, a representation cannot encompass all aspects of a social practice, making it important to consider what has been excluded (Machin 2013, p. 352). While it is true that some participants could be omitted without affecting the basic premise established by the narrative pattern, their exclusion would still entail a loss of information (Kress, van Leeuwen 2006, p. 76).

In this instance, the absence of the two male participants appears to reinforce the girl's role as the one in charge of technology. This is particularly

[16] The caption, consistent across all frames, reads: "Collio XR: narrative paths for sustainable development".

evident as she is positioned centre-stage, with her eyes closed, possibly engaged in a mental process signifying self-reflection. The boys' absence visually eliminates any competing claims to technological authority, leaving her role as the technological leader uncontested. Gaze is an important aspect through which the girl's leadership is established. Examining Sequence 1, the eye contact between the three participants initially signals an affective bond, but may also illustrate sharing, exchanging ideas, or observing participants' stances after a proposal (Bavelas *et al.* 2002, pp. 577-588). Soon afterwards, the girl turns around, with her gaze directed off-screen, which might indicate a monitoring function (Thibault 2000, p. 336). This off-screen gaze reflects her cognitive engagement with the XR environment and her ability to direct attention towards a future, unseen technological objective.

The boys, however, remain focused on her, with their gaze vectors clearly directed towards her as a leader and central figure. This moment is pivotal because it not just reinforces her role; it also underscores the boys' reliance on her as a technological guide. Significantly, these sequences outlined were omitted in the new version of the video, which considerably reduces the reference to the potential role of women as technological leaders, somewhat replicating Sequence 3 from the previous version (see Table 3):

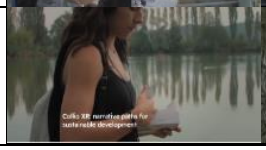
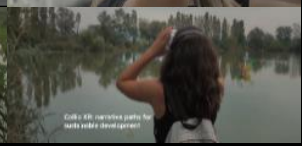
| Sequence | A | B | C |
|---|---|---|---|
| 4 |  |  |  |
| 5 |  |  |  |

Table 3
The Woman as a Technological Leader in the *Narrative Itineraries: Collio* (Sequence 4) and the *Collio XR* project (Sequence 5).[17]

Overall, the new introductory video still presents the young woman as involved in technology but fails to depict her as assuming a leadership role or driving technological innovation. The representation of women here leans more towards participation rather than leadership, which limits the portrayal of women as technological leaders within this narrative.

[17] The captions in Sequence 4 read: "Narrative Itineraries in the Collio for sustainable development"; the captions in Sequence 5 read: "Collio XR: narrative paths for sustainable development".

## 5. Concluding Remarks

This chapter has investigated how master narratives can reshape young people's engagement with sustainability, transforming themes often associated with science fiction into tangible, real-world experiences. XR technologies were embedded within the GO GREEN project, a sustainable tourism initiative, that blends historical and futuristic storytelling, positioning young viewers not merely as participants but as active agents, part of a wider narrative of sustainable tourism. Through AR overlays, VR headsets, and other immersive tools, the website presents participants with master narratives that bring together historical context and present-day experiences. This convergence of past and future encourages young people's exploration and reflection on sustainability, enabling them to connect envisioned futures with current ecological engagement, thus rendering the abstract principles of sustainability more immediate and accessible. Sequences involving interactions with historical figures, such as Casanova, are imagined through AR animations, exemplifying this narrative by layering real-world settings with visionary storytelling. In these cases, XR can be said to have transformed natural and historical landscapes into dynamic, immersive digital spaces, making historical narratives feel relevant and immediate. XR technology thus operates as a mediator across temporal dimensions, collapsing conventional boundaries between past and present. This digital transformation resonates with the imaginative appeal of science fiction, yet firmly situates the narrative within a framework aligned with concrete, educational objectives. By facilitating interactive, time-traversing experiences, XR enables viewers to inhabit, re-experience, and reinterpret historical sites through a digital lens.

Another master narrative positions young participants as digital pioneers and agents within a futuristic vision of sustainability. The project frames youth engagement as an essential step in fostering environmental innovation, using digital tools to cultivate a sense of empowerment and agency. By using AR paths, smartphones, and VR headsets, young participants navigate traditional landscapes from a distinctly modern, technology-enhanced perspective. This reconfiguration of viewer agency, which presents young people as active explorers rather than passive observers, underscores the notion that XR technology can be seamlessly integrated into daily experiences to deepen understanding and interaction with sustainable practices. By engaging actively with these technologies, young people bridge the gap between natural landscapes and digital innovation in ways that highlight their role as empowered actors in the broader sustainability narrative.

The visual and interactive nature of these experiences amplifies the project's immersive impact, establishing XR as a tool that fosters personal involvement in sustainability. In contrast to traditional, educational

approaches, the GO GREEN project's integration of XR has allowed participants to experience sustainability first-hand, rather than merely as an abstract educational concept. As viewers navigate the digital pathways whose visual overlays guide the exploration of combined physical and historical 'landscapes', the experience underscores that sustainability is not just a subject for study; it is also a narrative to be personally experienced and interpreted. The narrative embedded within the project's design thereby succeeds in creating an environment where XR-enabled interaction, engagement, and sensory immersion make the educational design more resonant and memorable.

The educational potential of these master narratives, particularly the transformation of science fiction into perceived reality, suggests numerous directions for future research. First, further studies could examine how science-fiction-inspired master narratives within XR-driven educational contexts may deepen or enhance viewers' engagement with environmental issues. Given that XR encourages viewers to explore sustainability narratives through both futuristic and immersive experiences, future research could focus on expanding these models to incorporate new types of storytelling that blend fictional and factual elements. Specifically, studies could investigate how interactive digital narratives – such as those involving imagined scenarios of environmental degradation or restoration – might amplify the effectiveness of sustainability education.

Moreover, examining the responses of various demographic groups to XR-based sustainable tourism experiences would yield valuable insights into the broader applicability and scalability of these technologies in environmental education. While this study has focused on young participants, future research could explore how different age groups or backgrounds might engage with XR's science-fiction narrative elements and whether these experiences have differential effects on their perceptions and commitment to sustainable practices. Such research could reveal ways in which XR can be tailored to reach more diverse audiences, potentially expanding its role as a versatile educational tool.

Furthermore, exploring the long-term impact of these XR experiences could provide critical data on whether the science-fiction master narratives embedded in XR technologies lead to sustained behavioural changes. Specifically, research could examine whether XR-driven immersive experiences foster ongoing interest in sustainability or tangible changes in viewer behaviour towards more sustainable practices. Understanding the lasting influence of these digital experiences would provide valuable insights into the potential of XR as a transformative tool for environmental education, with the capacity to reinforce long-term commitments to sustainability.

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