

THE MUTUAL CONTRIBUTION OF VISUAL EPISTEMOLOGY,

VISUAL LITERACY AND ECO FASHION DESIGN TO THE BUILDING OF PROSPERITY FASHION

MAGDALENA GERMEK

Visual Literacy, Academy of Fine Arts and Design, University of Ljubljana

magdalena.germek@gmail.com

Orcid 0000-0001-5050-9276

Copyright: © Author(s). This is an open access, peer-reviewed article published by Firenze University Press and distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.
Data Availability Statement: All relevant data are within the paper and its Supporting Information files.
Competing Interests: The Author(s) declare(s) no conflict of interest

DOI: <https://doi.org/10.36253/fh-3176>

Abstract

Artistic practice and creative industries, including fashion and the fashion world, are of great importance for spreading and raising ecological awareness. But for this to happen, fashion and the fashion industry, which is considered one of the biggest polluters, must adopt a prosperous vision of the world and our future towards sustainability and environmentally friendly practices. In this paper, we propose that fashion design, as an exceptionally visual medium, could use the means of visual fashion literacy and visual epistemology in the name of building environmental awareness. We will demonstrate this in three steps, dictated by three provocative questions: What is it that we avoid seeing? What is the new vision of prosperity? How to see the invisible?

Keywords: *Eco fashion design, Visual epistemology, Visual literacy*

INTRODUCTION

The textile and clothing industry is a major polluter, and a voracious consumer of water. Given this perspective, it seems almost paradoxical to imagine the fashion industry as a bearer of sustainability and environmental awareness. However, this is precisely the aspiration of new approaches in fashion and design, such as eco-fashion design. The concept of eco-fashion design is broadly understood here as those fashion design practices that are committed to sustainability and the cultivation of ecological awareness. Related to this is also a specific understanding of the fashion prosperity. Prosperity here does not simply mean economic growth. We see growth as a growing awareness: of the environment in which we live, of limited

natural resources, and the need to research environmentally friendly fashion technology, which will also dictate the further course of fashion industrialization. Building prosperity fashion requires the gradual establishing and the gradual development of a prosperous environmental mindset. To grow means paradoxically to accept the principles of *degrowth theory*.

In the spirit of this vision, the paper proposes that fashion, as a distinctly visual medium, has the potential to promote ecological literacy through the principles of fashion visual literacy and visual epistemology. In the following, we will connect the fields of visual logic and literacy, ecological issues, and fashion design through three provocative questions. What is it that

we avoid seeing? What is the new vision of prosperity? How to see the invisible?

The first question: “What is it that we avoid seeing?” seeks to shed light on the fact that, faced with climate change and ecological crises, we often instinctively and emotionally shield ourselves from understanding the full extent of the dangers in which we live. The second question, “What is the new vision of prosperity?”, introduces principles of sustainability that the fashion industry should adopt, which originate from the theory of degrowth. The third question, “How can we see the invisible?” builds on previous two questions and suggests that fashion design, with a particular focus on a unique visual language, can cultivate its consumers into environmentally conscious users. This means that fashion design has potential to actually participate in social transformation that leads to sustainable and environmentally responsible behaviour.

INVISIBLE VIOLENCE

What is it that we avoid seeing?

Although we possess scientific evidence and information about climate change, global warming, pollution, and increasing global CO₂ emissions, we seem to remain in a state of structural blindness. Global warming has been a reality for two centuries, yet as Andreas Malm elucidates in his comprehensive study, *Fossil Capital* (2016), it has largely remained invisible. The question, therefore, is: how much of this reality is visible today?

With the latter question, we are not claiming that we do not have enough scientific knowledge and evidence. On the contrary, science is resoundingly clear about the ecological crisis, and its warnings are both loud and justified by scientific methodologies. The question is, however, whether scientific evidence alone is enough to alter individual behaviour and prompt concrete social changes. It appears that our social and individual efforts towards ecological sustainability are still insufficient. We still need constant reminders that climate change is *really* real. Does this mean that we are not aware enough despite all the scientific evidence? It seems that we are fundamentally unable to grasp the magnitude of the danger. Therefore, we must ask ourselves what form of denial or structural blindness we are living in, both as a society and as individuals? How quickly do we respond to ecological threats?

Partly, answering these questions necessi-

tates confronting the specific nature of climate change and the way we psychologically perceive danger. Fossil fuel usage is not only the primary cause of current climate change; it is also a form of violence – violence inflicted on beings yet to be born (Malm, 2016). This is not immediate violence but a gradual one, which is difficult to imagine. It is literally *invisible violence*. To grasp the nature of this invisible violence and the extent of the consequences it produces, we must fundamentally change and decolonize our logical and perceptual frameworks. Which, again, is very difficult, because our perceptual apparatus is guided by different rules.

As Clive Hamilton posits, humans have evolved to respond instinctively to immediate threats. We react to immediate danger with emotions like fear, terror, and anxiety. However, in the case of global warming, there is no immediate emotional response, as its consequences are indirect and still insufficiently visible. Fear cannot guide us in assessing risk (Hamilton, 2010). Emotions simply cannot alert us to the risk and the actual environmental danger we face, only reason can guide us here. This means that we can understand the scientific explanations of climate change very well, but that understanding alone does not necessarily and decisively lead to a change in our collective and individual attitude towards the environment. Until we feel strongly enough the danger we live in, until we see the direct consequences of climate change, we may still be insufficiently determined to change our behaviours. But, as scientists also point out, the problem with ecological issues is that the consequences appear in full force when it is too late to do anything.

So, is there anything we can do? Can we somehow engage our emotional apparatus, and our very system of perception? Can we shock it so that it finally sees the invisible?

We can develop practices and actions that can influence our perceptual and emotional systems. Artistic practice and creative industries, including fashion, play a crucial role in this idea. According to Miles (2016), art can raise awareness of climate change and interrupt our perception patterns. The same holds true for fashion. Paradoxically, while the fashion industry is one of the biggest polluters, it also has the potential to raise environmental awareness. However, for this to occur, fashion itself must adopt a new prosperous vision of the world and our future.

A NEW ECO-VISION OF FASHION

What vision of prosperity should we build?

In order to live better, we now have to produce and consume differently, to do better and more with less, by eliminating sources of waste to begin with (for example, unnecessary packaging, poor heat insulation, the predominance of road transport) and by increasing product durability. (Gorz, 1994, p.106)

In recent years, there has been a growing call for fashion design not only to embrace the basic principles of sustainability and eco-friendly practices, but also to act as a tool to promote social change towards thinking and acting in the name of sustainability. In academic and industrial circles, a growing number of insights and proposals highlight the urgent need to embed ecological and ethical practices into the fabric of the fashion, textile and clothing industries. At its core, sustainable fashion is about minimizing harm while maximizing positive impact. This includes tackling pressing challenges such as carbon emissions, pollution, waste, biodiversity loss, overproduction and exploitative labour practices. But it is also about innovation – pioneering technologies that conserve resources, strengthen local communities, foster environmental stewardship, and inspire consumers to become discerning advocates of sustainable and eco-friendly fashion products.

Advocates for transitioning from a growth to a degrowth paradigm echo this direction. According to Serge Latouche, professor of economics and one of the most renowned partisans of the degrowth theory, achieving this transition requires a comprehensive re-evaluation, reconceptualization, restructuring, redistribution, relocation, reduction, reuse, and recycling (Latouche, 2009). Notably, all eight of Latouche's imperatives can be applied within the realm of sustainable fashion design. Kate Fletcher (2008, 2012) excellently highlights the principles of sustainability in fashion, which we will briefly summarize here.

Latouche's call to replace humanity's "predator" mindset with that of a "gardener" urges us to reconsider our relationship with nature (Latouche, 2009, p.35). By redefining wealth, scarcity, and abundance, he challenges us to shift from dominating ecosystems to coexisting harmoniously with them – rejecting technological and Promethean fantasies of creating an artificial

world (Ibid.). Similarly, Kate Fletcher underscores the critical role of sustainability in reshaping fashion:

The goal is to show that there is a wealth of different ways in which we can go about building long-lasting environmental and social quality through the design, production and use of fashion and textiles that go beyond traditional ideas or expectations. After all, the challenge of sustainability – that is, of integrating human well-being and natural integrity – is such that we can't go on as before. Business as usual or, more to the point, fashion as usual, is not an option. So what should we do instead? (Fletcher, 2008, p. xii)

Re-evaluating and reconceptualizing fashion design with a focus on sustainability demands a fundamental shift in perspective. Sustainability necessitates a systematic approach that embraces diverse and pluralistic perspectives. For instance, material and fibre processing should be considered holistically, encompassing the entire lifecycle. Sustainable fashion design challenges the prevailing monolithic practices, particularly the contemporary dominance of non-renewable and non-biodegradable cotton and polyester. Fletcher advocates for material diversity, which, while not excluding cotton and polyester, emphasizes the processing and promotion of a wide array of alternative fibres. These include cellulosic fibres such as organic or low-chemical cotton, flax, hemp, lyocell, organically grown wool, and biodegradable synthetics derived from plants. These alternatives significantly contribute to sustainable and environmentally friendly practices.

The redistribution of relations (which, according to Latouche, is especially necessary when it comes to the geopolitical and economic relationship between the North and the South) means a turn in the understanding that it is not so much about giving more as taking less. This also requires moving production to the local level. Local needs simply have to be met locally, and most products need to be produced in local factories, financed locally (Latouche, 2009, p. 37). The same applies to sustainable fashion. The concept of minority fibres juxtaposed against the dominance of cotton and polyester promotes the development of local agriculture and the use of regional fibres, thereby enhancing diversity and reducing resource consumption. Redistributing the fashion industry

entails prioritizing local services and crafts, with a special emphasis on preserving the natural and cultural heritage of specific regions.

Latouche's principles of reduce, reuse, and recycle are epitomized by the imperative to shift from viewing the economy as a linear system that produces and discards, to embracing a cyclical economy that repurposes materials as resources for new goods. Fletcher encapsulates this idea, stating, "everything is recycled and all waste from one component of the system becomes 'food' for another. Here what appears to be waste is actually exchange" (Fletcher, 2008, p.108). Reuse entails not purchasing new items, but selecting products crafted through environmentally friendly practices, and recycle involves creating new garments from existing items (Fletcher, 2008, p. 95).

These steps can steer the fashion industry towards sustainable production practices and new prosperity. Next, we shall explore how fashion design can convey the message of sustainability to its users. One powerful avenue is through its inherent visual and aesthetic language. By utilizing this language, fashion can disseminate the message of sustainability and ecology, thereby indirectly and directly influencing the environmental awareness of its audience and fostering ecologically responsible individuals. It is certainly a slow process of visual learning, which can nevertheless transform the user from a passive, unskilled and unaware consumer into an active and responsible citizen of the world we live in, where, given the state of climate danger, we can no longer afford ignorance or denial about ecological and environmental problems.

VISUAL LITERACY AND VISUAL EPISTEMOLOGY IN ECO-FASHION DESIGN

How to see the invisible?

In this segment, we delve into the possibility of comprehending fashion through the lenses of visual literacy and visual epistemology, which could significantly impact the cultivation of ecologically aware users and the broader participation of fashion in driving social changes towards sustainability.

Visual literacy and visual epistemology are interdisciplinary methodologies that explore the visual realm. The visual encompasses visual knowledge, visual language, visual communication, and diverse forms of visual representations. These methodologies rest on the premise that our world

is predominantly visual, often communicating through visual means. Stemming from new visual studies (Bildwissenschaft), emerging in the 1990s as an "iconic turn", visual epistemology asserts that visual thinking isn't merely a translation of linguistic form into a visual one, but it possesses its own principles of construction (Klinke, 2014). Thus, it becomes possible to read and interpret visual images, fostering a specialized form of literacy (Elkins, 2007). Literacy and knowledge are not confined to textual forms and words; they can be visual as well.

Visual literacy and visual epistemology aim to understand how people perceive objects, what can be learned from this perception, how to develop visual language and communication, how to transmit visual information, and how to create concepts and knowledge that are not necessarily discursive. The benefits of visual literacy are now the subject of numerous studies that often explore the impact that the use of visual tools has on the development of other forms of literacy. A good example is research focused on the development of health literacy (HL) with the help of visual materials, as images enable a better patient understanding of medications and treatments. As shown by Allan Paivio's Dual Coding Theory, images have a greater impact than verbal language (so called the picture superiority effect), as they are encoded by the inherent processes of the sensory and verbal systems (Paivio, 2013).

However, there is a slight distinction between visual literacy and visual epistemology. Visual literacy refers to the ability to interpret, understand, and create meaning from visual elements such as images, symbols, diagrams, and other visual representations. It's about "reading" visuals the way we read text, enabling us to communicate and make sense of the world through visual means. For example, being visually literate might involve understanding a complex chart, interpreting body language, or effectively using visuals in a presentation. It's also tied to improving skills in related areas, such as learning visual cues for specific disciplines, like medicine, or ecology.

Visual epistemology is more focused on how visual tools and methods contribute to knowledge creation and understanding. It looks at the role of visuals in shaping our behaviours, thoughts, and perceptions of reality. For instance, how a well-designed infographic can influence public opinion or how visual media might shape

cultural norms. Visual epistemology demonstrates that visuals aren't just tools for communication, but also powerful forces that impact how we learn and think. We will demonstrate this with a very simple example.

Consider the Hollywood film *The Devil Wears Prada* (2006). The editor-in-chief of *Runway* magazine (played by Meryl Streep) illustrates fashion's evolution using a blue sweater worn by her employee (played by Anne Hathaway). Despite the employee's disinterest in fashion, the editor demonstrates that every fashion choice is influenced by others' decisions. As the editor famously remarks, "it's really comical that you think you made your own fashion choices when you're basically wearing a sweater that was chosen for you."

The movie scene reveals the ideological state of the modern fashion world, in which our subject-autonomy and choice are not necessarily supported by fashion. Quite opposite. The fashion industry often invisibly dictates our aesthetic choices. Beyond revealing the ideology of contemporary fashion reality, the scene also underscores the importance of visual literacy. The visual knowledge makes visible what is usually invisible, such as the entire system of ideological fashion power. The editor-in-chief's fashion-trained eye enables her to recognize that blue is not just blue, but cerulean, connecting it to past fashion styles that had developed a few years earlier and launched a certain blue colour, which then filled stores for mass consumers and influenced mass consumer choices. This example highlights how those proficient in visual reading possess an advantage. Reading colours correctly involves decoding the entire fashion process of creation, decision-making, production, and consumption processes.

The film scene thus illustrates two key roles that visual literacy can play. Visual literacy can expose the invisible ideological power structures that influence the decisions of fashion users. At the same time, visual literacy also illustrates the discrepancy in visual epistemology between the employee and the editor-in-chief. The employee's visual knowledge is almost entirely lacking, while the entire dominant position of the editor is built, among other things, on the possession of fashion visual knowledge.

Considering the powerful significance that visual fashion literacy and knowledge could have,

we are now interested in how this could be applied to environmental issues. Visual literacy and visual epistemology play a vital role in understanding ecological systems, as these are often represented through images like maps, charts, diagrams, and photographs. For instance, visual literacy can help someone interpret a satellite image showing deforestation or understand a graph depicting the decline of biodiversity. It enables individuals to critically analyse these visuals, draw conclusions, and take informed actions toward ecological conservation. Visual epistemology adds another layer by examining how these ecological visuals shape our understanding of the environment. For example, the widespread use of stunning nature photography in campaigns for climate action can influence people's perceptions and attitudes toward environmental issues. Similarly, the design of visual models, such as an ecosystem flowchart, can guide how we conceptualize interactions within nature. These visual tools don't just communicate ecological knowledge – they actively shape it, influencing how we view our relationship with the planet.

"How to see the invisible" is therefore not just a metaphorical or provocative question, but also a crucial question of how to see invisible ecological violence. We certainly cannot expect every user to have professional visual and fashion knowledge, even less in the case of eco-fashion design. Although the greenwashing cases demonstrate the utmost urgency of developing ecological fashion literacy, this is still a gradual and slow process. So, are there other ways in which fashion can influence the formation, or better, reformation of our perceptions in the direction of sustainability?

In fact, there are nice examples of the use of fashion as an intense visual medium that can influence our perceptions and direct attention to unnoticed issues such as global warming and pollution. Lauren Bowker for example has created an ink called PdCl₂ that absorbs pollution, as the Chromic Dye can react in the presence of carbon emissions. It is a reversible process of changing the colour from yellow to black in dirty conditions; the colour can be returned if the conditions change (e.g., the air is fresh). The artist has made fashion pieces PHNX made of feathers (as a symbol of the birth of something new) impregnated with PdCl₂ ink, which changes colour in relation to environmental conditions. The whole idea shows how it is possible to use material, modern technology and fashion

products in the name of creating an innovative visual language that warns its users about concrete-ly state of pollution. Similarly, the brand Xiamen Hoda which manufactures umbrellas. Among the latest innovations are the production of umbrellas that change design due to increasing temperature. At 32 degrees Celsius, a black umbrella design becomes colourful, serving also as a medical warning to protect children from UV rays.

Both examples demonstrate how visual changes can impact users emotionally and perceptually, making the invisible – such as pollution or high temperatures – visible. The PHNX project, in particular, evokes an emotional response as colours change to black, signalling pollution. These fashion products inform us about high temperature or air pollution, but they also produce a strong visual shock. With a change in colour, something that is aesthetic, beautiful, that we wear on ourselves or with ourselves, that makes us feel safe (fashion can do that), suddenly starts behaving differently. And we suddenly become aware of external situation. Climate change becomes visible. The invisible becomes visible. It is perfect visual fashion storytelling that can produce powerful emotional experience that can also affect our perceptual apparatus even more effectively than text and words.

CONCLUSION

Developing visual literacy competencies provides a powerful tool for visual storytelling, producing emotional experiences that can influence our perceptual apparatus more effectively than words alone. The potential of visual communication is boundless, and we propose that fashion design should harness these opportunities to elevate environmental awareness. It seems to us that this is an interesting direction of fashion research, which combines science, technology, ecological problems, aesthetics, visual language and visual knowledge. It seems that right now, we really need this kind of visual and then also emotional shocks in the name of developing a prosperous vision of the world and our future.

ACKNOWLEDGEMENTS

This article is the result of the research programme P5-0452, Visual Literacy at the University of Ljubljana, Academy of Fine Arts and Design, co-financed by the Slovenian Research and Innovation Agency (ARIS).

REFERENCES

- Elkins, J. (2007). Introduction: The Concept of Visual Literacy, and its Limitations. In Elkins, J. (Ed.) *Visual Literacy* (pp. 1-9). Routledge.
- Fletcher, K. (2008). *Sustainable Fashion and Textiles: Design Journeys*, Earthscan.
- Fletcher, K. and L. Grose (2012). *Fashion & Sustainability: Design for Change*. Laurence King Publishing.
- Gorz, A. (1994). *Capitalism, Socialism, Ecology*, trans. Chris Turner. Verso.
- Hamilton, C. (2010). *Requiem for a Species: Why We Resist the Truth About Climate Change*, Allen & Unwin.
- Klinke, Harald, ed. (2014). *Art Theory as Visual Epistemology*. Cambridge Scholars Publishing.
- Latouche, S. (2009). *Farewell to Growth*, trans. David Macey. Polity Press.
- Malm, A. (2016). *Fossil Capital: The Rise of Steam-Power in the British Cotton Industry*, Verso.
- Miles, M. (2016). Eco-aesthetic dimensions: Herbert Marcuse, ecology and art, *Cogent Arts & Humanities*. Vol.3 No.2. DOI:10.1080/23311983.2016.1160640
- Paivio A. (2013). Imagery and verbal processes. *Psychology Press*. <https://doi.org/10.4324/9781315798868>.