

Picturing two modernities

Ecological modernisation and the media imagery of climate change

Jarkko Kangas

University of Tampere, Tampere, Finland

Abstract

The article analyses the discursive roles of two prominent themes of the habitual media climate change imagery: “the smokestack” and “renewable energy”. Through semiotic analysis of connotation and thematic content analysis of images in *The Guardian*, the article argues that the constant reliance on these two themes and the particular ways of representing them sustain a definition of climate change as a *technological dualism*. The article argues further that this dualism of “dirty” and “clean” technologies, as the predominant way of visualising direct causes of and responses to climate change, articulates ecological modernisation discourse and its central storyline of progressing from “defiling growth” toward “sustainable development” (Hajer, 1995). The article suggests (1) further research on conventional thematic imageries as a meaningful approach to studying policy discourses and (2) the relevance of applying concepts of policy research to understanding and challenging the political bearings of prominent visualisations.

Keywords: climate change, visualisation, media, discourse, ecological modernisation

Introduction

Few would deny the significance of visual images in communicating environmental threats. To be regarded as problems needing political response, environmental risks need visualisations (Doyle, 2007; Hannigan, 2006) that make complex issues understandable and culturally meaningful (Lester & Cottle, 2009; O’Neill, 2013; Schneider & Nocke, 2014). For journalism, aesthetically appealing and culturally resonant images can grab the readers’ attention, enhance the news value of a story (Anderson, 1997; Caple, 2013), and make it more memorable (Graber, 1990). While visualisations communicate environmental risks effectively, they also embody discursive views (Hansen & Machin, 2008) and ideological messages (Messaris & Abraham, 2001). This article concentrates on photographically articulated discourses in the context of climate change journalism.

Kangas, Jarkko (2019). Picturing two modernities: Ecological modernisation and the media imagery of climate change in *Nordicom Review* 40 (2019) 1, pp. 61-74. doi:10.2478/nor-2019-0003.

During the past ten years, there has been a growing interest in journalistic images of climate change (e.g. DiFrancesco & Young, 2010; Grittmann, 2014; Hahn et al., 2012; Kangas, 2016; Lester & Cottle, 2009; O'Neill, 2013; Rebich-Hespanha et al., 2015; Smith & Joffe, 2009). Despite varying foci, the studies point to a somewhat established gallery of visual themes that largely represents climate change in the media. The imagery is dominated by (1) key social actors, especially politicians and activists/protesters, (2) the causes of warming such as fossil energy production, industry, and traffic, and (3) the dire consequences such as extreme weather, melting ice, affected people, and endangered animals. Schneider and Nocke (2014) use the concept of “normalization”, where a handful of constantly recurring visual themes are viewed as unquestioned representatives of a complex issue. Indeed, we could approach the habitual motifs of the climate imagery as part of an ever-present pictorial environment, the individual “particles” of which seem to become unimportant (see Frosh, 2002).

Precisely because of the easy-to-ignore character of conventional imageries, they require a critical look. As iconic and indexical sign complexes that (1) seemingly reproduce their object and (2) imply instead of proposing, photographs could convey ideologically loaded messages as “natural” or unproblematic (Messaris & Abraham, 2001; also Barthes, 1987). The problem of naturalising messages becomes pronounced with established imageries that present something *conventionally relevant* to the issue and so participate in defining the limits of what is “thinkable” (Hajer, 1996) concerning a topic. To critically appreciate and challenge this discursive work of the media climate imagery, I will analyse it in the broad context of environmental policy discourses. Such an approach, which few studies have taken so far (however see Remillard, 2011), can effectively shed light on the definition-limiting influence of discursive accounts, strip the imagery from its mundane innocence, and suggest useful conceptual tools for understanding its political bearings.

This article analyses media photography of climate change in the context of *ecological modernisation discourse* (Dryzek, 2005; Hajer, 1995; Hannigan, 2006). Instead of offering another vast scale content analysis of visual motifs, the study focuses on two prominent image themes: fossil fuel factories (“smokestacks”) and renewable energy technologies. Both themes are recurring elements of the established media climate imagery (e.g. Grittmann, 2014; O'Neill, 2013; Rebich-Hespanha et al., 2015). Through an analysis of climate-related photos published by *The Guardian Online* during the 2015 UN Climate Change Conference (Paris), I aim to describe the discursive roles of these two visual themes and analyse how they help to sustain an eco-modernist view of global warming. By introducing the concepts of ecological modernisation to the media climate change imagery, the article strives to open up a relevant, yet so far neglected, viewpoint on the issue.

Ecological modernisation as a discourse

The term “ecological modernisation” was initially introduced by sociologists Joseph Huber and Martin Jänicke. They applied the concept to analyse the complex relations between modern industrial societies and natural environments, to theorise observed developments in Western European environmental policies during the 1980s, and to normatively describe paths for techno-social development (for an overview, see Spaar-

garen, 2000). As an environmental *discourse* (Hajer, 1995, 1996) or “ideology” (Weale, 1992), ecological modernisation became prevalent in Western Europe and Japan during the 1980s, mobilized to describe such large-scale ecological threats as acid rain and ozone depletion.

As a political discourse, ecological modernisation presented a *moderate* antithesis to more radical understandings, where ecological hazards were thought to require “demonisation”, that is, turning back some of the key processes of industrial modernisation (Hajer, 1995, 1996). At the core of the eco-modernist discourse is the idea of *internalisation*: while environmental risks are understood as structural problems of modern industrial societies, the current institutions can be made more ecologically “efficient” and “smart” (Dryzek, 2005; Hajer, 1995; Weale, 1992) through what Hajer (1996) calls “institutional learning”. Environmental risk assessments or cost-benefit analyses as part of business planning present two examples of internalisation (Hajer, 1995; Spaargaren, 2000). In essence, ecological modernisation is a reformist environmental discourse that highlights “politico-administrative responses” (Hajer, 1996: 248) and technological progress as sensible responses to environmental threats.

The belief that environmental protection can support economic growth instead of hindering it – or challenging the idea altogether – is another key component of ecological modernisation (Hajer, 1995; Weale, 1992). Here, as in the whole process of regulating environmental risks, *technological innovations* play a key role. According to Hajer (1995: 65) the progress from “defiling growth” toward “sustainable development” is an essential storyline within the eco-modernist discourse, which is techno-optimistic by nature (Hannigan, 2006; cf. Spaargaren, 2000: 52). The eco-modernist response to environmental threats means *further modernisation* from “inefficient” toward “smart” (Hajer, 1995) practices and technologies. The concept of “limits to growth” is therefore absent from the eco-modernist vocabulary (Dryzek, 2005), although the “balance of nature” is a recognized idea (Hajer, 1995). Overall, the eco-modernist understanding of environmental problems favours responses based on current institutional structures, sensitive to economic goals and favourable to technological development.

Several researchers of climate journalism in various countries have observed the influence of eco-modernist discourse, especially the “techno-fix” approach to solving the problem (Davidsen & Graham, 2014; Djerf-Pierre et al., 2016; Howard-Williams, 2009; Lewis & Boyce, 2009). Carvalho (2005) notes that ecological modernisation – and the “friendship” between economic growth and nature – forms a point of political consensus in the British public debate. Unfortunately, none of the mentioned studies focused on how ecological modernisation is visually articulated.

Visualised discourses

The present study analyses the discursive roles of two prominent thematic components (fossil and renewable energy production) of the conventional media climate imagery. I approach “discourse” following Foucault (1989), who defines discourses as groups of statements that (1) are situated within a specific domain among other statements, (2) construct subjectivities and positions, and (3) take on somewhat repetitive material forms. Discourses are interpretive constructs comprised of central concepts, statements, categorizations (Hajer, 1995), and conceptual *relations* formed through continuous (re)

articulation (Laclau & Mouffe, 1985). Following Laclau and Mouffe (*ibid.*), the fundamental function of discourses is to (partially and temporarily) freeze the ever-evolving network of conceptual relations related to a theme. By supporting certain conceptual relations and statements, discourses limit the scale of interpretations of an issue (Hannigan, 2006) and make some accounts more sensible or “thinkable” (Hajer, 1996) than others. Finally, as Kress and van Leeuwen (2001) emphasised, the construction of discourse is multimodal including modes like still and moving images, dance, colour, music, and spoken and written language.

Broadly speaking, images construct discursive accounts in two fundamental ways: by sharing (in)visibility and suggesting ways of seeing (Rose, 2007). The following analysis follows this distinction and includes two stages and methods. I will approach the sharing of visibility through a *quantitative content analysis*, a method for researching manifest qualities of communicative “texts” within a theoretical context to make sense of something latent or abstract beyond the studied “texts” (Krippendorff, 2013). This stage involves categorising each image by its central denotative element, counting the frequencies of themes and discussing the findings within the current theoretical context. The categorisation is guided by earlier studies of media climate imagery (DiFrancesco & Young, 2010; Grittmann, 2014; Hahn et al., 2012; O’Neill, 2013; Rebich-Hespanha et al., 2015) and my interest in visualising causes of and remedies to global warming. The basic unit of analysis is the single image *without* textual elements unless necessary for identifying the objects.

Rose’s (2007) second point refers to *how* something is visualised. I will approach this through a *semiotic analysis* of constructing “connoted messages”, that is, supplementary messages of social/cultural associations and values related to the depicted things (“denoted message”) (Barthes, 1987). Connoted messages are constructed through various photographic choices such as angle, distance, sharpness, focal point, and amount of light (*ibid.*), which result in various connoting features in the image. The present analysis focuses on two connoting features that were most consistently emphasised in the material: (1) colour and (2) compositional factors. The foregrounding of connoting features in each image was determined by posing the following questions: “which qualities or aspects of the central object does the image emphasise”, “what are the photographic choices determining this emphasis”, “what other objects are the main elements related to”, and “which qualities or aspects of the main object does this relation accentuate?”

Composition refers to the way the visual elements “are integrated into a meaningful whole” (Kress & van Leeuwen, 1996: 181) or the organization of the image space (Rose, 2007). Kress and van Leeuwen (1996) discuss three functions of composition: *salience* (noticeability of elements), *information value* (given/new, ideal/real), and *framing* (elements as connected or separated). While these will be guiding concepts throughout the analysis, I will specifically focus on two features, which Caple (2013) terms *intensification* and using *evaluative elements*. Intensification (Caple, 2013: 41) refers to how a picture “serializes/repeats information in the image frame” to highlight the size, scale, or impact of an object. The use of evaluative elements means associating visual elements in a way that adds to their meaning. A classic example is a car commercial that associates the product with pristine natural scenery to connote ecological sensitivity.

Material

For the quantitative content analysis of image themes, the data comprise photographs published in the “climate change” section of *The Guardian Online* (international version) in November–December 2015, the period of the UN Paris climate summit. The material includes only images from stories with a primary focus on climate issues. Furthermore, the analysis covers only images depicting actions, technologies, and other objects that can be reasonably understood as *directly and concretely causing or mitigating* climate change. In other words, the analysis solely covers photographs of direct causes of and responses to climate change.

These limitations are based first on my research interests in how “we” in the wealthy West are able to encounter the deep social and cultural – not only technological – implications of global warming. Secondly, in the need for rapid responses, it is important to analyse and challenge the discursive representations that *restrict* conceiving these issues. Thirdly, such a focus enables reflecting the findings in the relevant context of alternative visual themes that also represent “causes” and “responses” but which gain less visibility in the media.

Overall, The Guardian Online published 1,046 photographs in its climate change stories during the study period with politicians and protesters/activists as the most frequent visual themes. The total set of images contains 140 (13.3%) photos of direct causes and responses of which 87 depict causes and 53 potential responses. As mentioned, it is not within the interests of the study to produce an extensive content analysis of climate change images but to analyse in detail the discursive functions of two specific themes, which existing research has identified as components of an established media imagery. For these goals, restricting the content analysis to photos of direct causes of and responses to global warming constructs a meaningful point of departure. Where a broader view is needed, references will be made to existing studies.

The UN Paris climate conference offers a promising period for approaching the questions at hand. The summit marks a “critical discourse moment” (Carvalho, 2007) when the struggle of problem definitions intensifies and gains attention. For a brief period, the climate topic dominated headlines, and public spaces for battling discursive accounts were opened. For the purposes of the current study, the summit ideally means pronounced attention to issues of causes and responses. Also, to emphasise the news value of the conference, journalism needs striking and emotionally appealing visualisations while the tight working schedules could still invite visual editors to favour familiar images.

The Guardian is arguably among the most devoted, active, and influential online newspapers to cover climate change. Since the turn of the millennium, its climate reporting has increased to comparatively high levels (Carvalho, 2007) and remained so during the Paris climate summit (Painter et al., 2018). *The Guardian*’s climate reporting reached over 2 million unique readers monthly in 2012 (Painter, 2013). Given that (1) about two thirds of *The Guardian*’s online users are non-UK residents, (2) the newspaper’s publicly announced identity as a “global news and media brand” (Cordney, 2013), and (3) the observed global perspective on climate change (Carvalho, 2005), *The Guardian* can be regarded as a globally relevant arena for environmental policy debates, which makes it a meaningful locus for analysing widely circulated media imagery. Finally, O’Neill’s (2013) analysis of 13 major online newspapers hints that we could anticipate

a comparatively high-volume visual coverage with diverse themes instead of focusing excessively on people, striking impacts, or protests.

Finally, it should be noted that while the analysis covers a specific case, the study is not an orthodox case study with detailed contextualisation and a multi-perspective approach. Rather, it is a predominantly qualitative semiotic analysis supported by a rudimentary quantitative examination to describe the cultural and social relevance of the examined themes. The particular case of the Paris summit was mainly chosen in the hope for a rich visual coverage of how global warming is caused and relieved.

Technological dualism: images of causes and responses

The image themes connected to causing and mitigating climate change are presented in Table 1 (causes) and Table 2 (responses). As Table 1 shows, only a few themes dominate the category. About half of the photos represent fossil fuel energy production and (to a lesser degree) other industries, while a little over 10 per cent of the images depict traffic. Besides industrial complexes and traffic, several repeating but much less prevalent visual themes represent direct causes of climate change (Table 1). The basic finding is that the clearly dominant visual theme here is the fossil fuel factory or “smokestack”. In other words, when visualising direct causes of global warming, *The Guardian* largely relied on the most habitual climate imagery. In this sense, the present study supports findings from more extensive content analyses (DiFrancesco & Young, 2010; Grittmann, 2014; Kangas, 2016; León & Erviti, 2013, O’Neill, 2013; Rebich-Hespanha et al., 2015).

Lester and Cottle (2009) describe “smokestack” images as “symbolic visuals” that represent the abstract idea of human impact on nature. They also posit that this symbolism effortlessly reaches Western media audiences (Lester & Cottle, 2009: 928). In the context of discourse theory, this suggests that the continuous communicative use of this particular visual theme works to sustain the conceptual relation between “climate change” and “fossil fuels” and, more abstractly, energy technology. The images suggest understanding climate change as a large-scale technological problem where there is,

Table 1. Themes of images visualising causes of climate change.

Visual theme	N	Per cent
Fossil energy & industry	45	52
Traffic	10	11
Air pollution	5	6
Agriculture	5	6
Food	4	5
Deforestation	3	3
Waste	3	3
Housing	2	2
Population	2	2
Other	8	9
Total	87	100

for example, little room for individual responsibility and cultural or lifestyle considerations, which are perhaps more potently evoked by images of traffic, housing, and food. This is a rather radical limitation to the multiple relevant ways of approaching the phenomenon, especially when such central issues as global population growth and deforestation are all but neglected. Even as fossil energy production is unquestionably a central driver of global warming, the proportion of visibility afforded to these issues by media imagery seems distorting and constricting to the ways of discussing climate change.

Looking at photographs representing potential responses to climate change (Table 2), we can again note the dominance of two closely related themes: wind farms and solar panels. Combined, they make up about 60 per cent of the image category. Other recurring themes include forests and plantations, energy-saving buildings, and technology related to lightning. Compared to photos of “causes”, traffic was less present, and motifs such as public transportation or electric cars were completely absent during the study period. As a counterpart to the prevalent theme of polluting traffic, *The Guardian* uses – although very sparsely – the theme of bicycling.

As with the category of “causes”, the eminent role of technology becomes immediately clear. This regularity as part of a habitual media climate imagery has been observed in earlier research (León & Erviti, 2013; O’Neill, 2013; Rebich-Hespanha et al., 2015). By sharing constant visibility to renewable energy technologies, *The Guardian*’s visualisation suggests viewing climate change as linked to *technological choices*. The limiting effect of such emphasis becomes clear when we look at the category “other”. There we find occasional photos of interesting perspectives such as social structure (urbanization) and alternatives to prevailing economic practices (local economy and food production), whereas such complex topics as alternatives to consumerist lifestyles and non-materialist subcultures are not made visible.

Table 2. Themes of images visualising responses to climate change.

Visual theme	N	Per cent
Wind energy	19	36
Solar energy	13	24
Forest/plantation	5	9
Building/lightning	4	8
Bicycling	2	4
Other energy	2	4
Other	8	15
Total	53	100

León and Erviti view images of renewable energy as representing “alternatives to the current polluting way of life” (2014: 11). Rebich-Hespanha and colleagues note that such images place “emphasis on the technological and economic aspects of possible transitions to alternative sources of energy” (2015: 508). The key word here is “alternative”. Photos of wind and solar farms represent alternatives to the fossil-fuel factories, and vice versa. Indeed, I would argue that this is the central dynamic that enables the discursive function of the two image themes; they represent alternatives to each other

while they both emphasise a technological aspect of the climate problem. Hence, I would suggest that to enable critical interpretations of their discursive role, the two image themes should be approached as connected, as one dynamic unit of an established set of visual themes.

Viewed this way, we could describe the *technological dualism* inherent in the conventional media climate imagery. This dualism builds on the constant co-presence and use of two particular visual themes – fossil fuel factories and wind/solar energy – that (1) represent alternatives to each other, (2) embody more abstract conceptual categories of “cause” and “response”, and (3) suggest a technology-oriented view on climate change. As “smokestacks” symbolise the anthropogenic impacts on nature (Lester & Cottle, 2009), pictures of wind and solar farms symbolise a way out of environmental crisis through “clean technology”. The media imagery thus articulates the conceptual binary of “defiling growth” and “sustainable development”, a binary that forms a central storyline of ecological modernisation (Hajer, 1995). Considered as elements of a storyline, the central discursive role of the two image themes is to visualise a trajectory, an orientation for social development that is tightly linked to technological innovations and the idea of “progress” (see Dryzek, 2005).

In the following sections, I will analyse through concrete examples¹ how photographic representation of the two studied themes connote meanings that, in effect, harmonise with the described narrative and technological dualism. I will begin with analysis of colour and light and move on to discuss compositional factors.

Constructing symbolism: colours and light

Of all pictures depicting fossil fuel factories, 27 per cent emphasise colour as a means of connoting messages. Most consistently, the images stress the harmful effects of industry by sharing salience (Kress & van Leeuwen, 1996) to what is orange and grey in the picture. The foregrounded colours are mostly not those of the central objects but their environment like the sky. The use of colour is then entangled with several photographic choices (the moment of the shot, distance, angle, cropping, and the exact viewpoint) that aim at making the surroundings into a noticeable part of the image by affecting its relative share of the image space.

For example, on 12 November 2015, *The Guardian* published a photograph² that represents fossil fuel pictures at their most striking yet banal. The photo depicts a coal-fuelled power station from a very long distance. The selected viewpoint places the power plant in the lower left corner of the image. Both the distance and the viewpoint leave much space to the orange-red sky and clouds and make them into a salient part of the image. In general, the colours red and orange connote warmth or heat (Ball, 1965; Gage, 1993; Kress & van Leeuwen, 2002) and – in the context of climate communication – danger, risk, and catastrophe (Schneider, 2012). Another photo³ (published on 30 November 2015) with a similar theme applies different methods for highlighting colour. The image focuses the viewer’s attention on both the chimneys and especially the concrete emissions that cover most of the image space including the centre of the picture. Compared to the previous photo, the distance is a lot shorter and the scene is cropped very tightly, leaving the milieu out of sight. As a result, the overall greyness of the smoke and the chimneys is accentuated, which helps to connote ideas like dirtiness

and pollution. The two examples show how colours are used to construct quite simple and even obvious symbolism and to connote meanings like heat, danger, and dirtiness. Such connotations are in line with the discursive role of this visual theme as the polluted departure point for ecological modernisation.

In the studied material, the role of colour is even more pronounced in photos of “clean technology”. Almost half (47%) of pictures depicting wind power emphasise colour. Most consistently, the white turbines are photographed against a blue sky partly veiled by white clouds. Several photographic choices are made to emphasize the force of colour. In the third example⁴ (published on 25 November 2015), the long distance, low angle, and viewpoint make the blue sky the dominant element in the picture. The blue is fully saturated and rather dark in value (Kress & van Leeuwen, 2002), which brings an accentuated cold feel to the image, while the whiteness of the clouds and the turbines construct a smooth colour harmony. Importantly, and supporting the connotations constructed with colour, the image constructs an impression of “airiness” through a loose cropping that leaves much space to the environment, a long depth of field and positioning the turbines.

While such images enable visual pleasure through soothing harmony, they also have a rather clear discursive function as they connote ideas such as coldness, coolness, freshness (Ball, 1965; Kress & van Leeuwen, 2002; Whitfield & Wiltshire, 1990), calmness, and serenity (Kress & van Leeuwen, 2002) commonly evoked by blue. We could also view the mentioned harmony as functional to the theme’s discursive role; the images effectively aestheticize renewable energy technology by presenting the windmills harmoniously as part of an impressive natural scene (Grittmann, 2014). Aside from constructing favourable colour symbolisms, the images make this technology appear unproblematic to the eye, which is a relevant dimension of the political struggle around wind power (see Hooff et al., 2017).

In addition to colour, light and shadow are often effectively used in constructing evocative scenes with – again – strong symbolism and connotative qualities. To start with pictures of fossil fuel power plants, 36 per cent of the photos emphasise the role of light. Strong contrasts were also used in representing renewable energy, but the ways of connoting appear less consistent than with pictures of the fossil fuel industry.

On 24 November 2015, *The Guardian* published a dramatic – yet common – example⁵ of connoting with contrasts. The image shows a smokestack and a large emission cloud against sunlight and the blue/grey sky. The chosen perspective makes the factory appear completely black and highly distinguishable while also underlining the salience of the emissions. The photo shows a long distance, which allows the viewer to see the whole smokestack, emission cloud, and black surroundings. Hence, the image stresses the scale of the smoke and the overall lack of light, which constructs a gloomy and threatening atmosphere (for cultural meanings of black, see van Leeuwen, 2011). The picture constructs powerful symbolism in how the emissions (human action) shade the sun (nature), a feature present in several of the studied photos and certainly not rare among media climate images. Notwithstanding the banality of such symbolism, the highly contrasted dark images effectively connote threat, gloom, and even death in harmony with the role of fossil fuels as the technological enemy of the climate.

To conclude, this section has analysed how media images of polluting and “clean” technology make use of colour and light to construct powerful symbolisms and to con-

note ideas that maintain the mutually dependent discursive roles of the themes. The next section focuses on compositional means of connotation.

Constructing impact, raising questions: compositional choices

This final phase of analysis deals with two compositional features that proved the most prominent and consistent during analysis, the intensification and evaluative elements. Intensification is a foregrounded means of connoting in 20 per cent of “smokestack” images. The second example image analysed above (note 3) is a telling case; the impression of impact is intensified by enabling the viewer to see several smokestacks instead of just one.

However, intensification is a more consistent feature of pictures of renewable energy (44% of images) and particularly solar farms, nearly all of which emphasise scale. A photo⁶ published on 4 December 2015 demonstrates this method of connoting solar power. In the photo, the grey-blue solar panels fill almost the whole image space. In this rather extreme example of intensification through repetition the apparent scale and mass of the depicted technology become even more accentuated when contrasted with the two tiny workers amid the sea of panels. As such, photos might be chosen for publication because of their ability to offer visual pleasure through symmetry and size. The pictures and their emphasis of scale also enable the reading of connoted meanings like impact and power. Such connotations are politically relevant in challenging the potential scepticism that renewable energy technologies face as serious alternatives to the current domination of fossil-fuels.

Finally, 31 per cent of the photos depicting polluting industry and 44 per cent of the pictures of “clean technology” employ evaluative elements to suggest connoted messages. The previous example concretises (although not very strikingly) how evaluative elements are connected to solar power. In about half of the images, the solar panels are framed as “belonging together” (Kress & van Leeuwen, 1996) with working people. Where the mentioned picture mostly stresses the scale of the solar farm, often the photos make the workers into very salient elements in the image. By associating solar panels with people at work, the photographs suggest social and economic profitability of this energy technology, thus constructing positive connotations. To conclude, the studied pictures of solar power mainly constructed connoted messages by emphasising scale, impacts, and association with social benefits.

Images of wind power, however, construct evaluative associations in a less obvious way. While wind farms are rarely associated with work, the studied pictures most commonly connect wind farms with natural landscapes and hence raise questions of the quality and desirability of this relation – whether the turbines fit in the scenery or not. One third of the images clearly suggest an affirmative answer by constructing highly aesthetic, almost aquarelle-like scenes (see Grittmann, 2014). However, just as often, the photographs present more modest, even laconic depictions that leave plenty of room for the viewer’s judgment.

That is the case with the picture⁷ published on 10 November 2015. The photo shows a rather unruly group of wind turbines scattered behind a pretty (but hardly striking) view of a field and against a grey-blue sky. As with many pictures of wind farms, the long distance and the viewpoint are the key photographic choices that give viewers the chance to observe wind turbines as part of an environment and make aesthetic judge-

ments. Yet the plain visual feel of the image, especially compared to the most spectacular ones with carefully constructed colour harmony, offers no straight answers. Where solar power is mostly associated with scale and social benefits, with wind energy questions of aesthetic desirability and taste come to the fore.

Photos of “dirty technology” also situate their main objects inside natural landscapes and evoke questions about the (dis)harmony between the two elements. One way to emphasize the dirtiness of industry is to contrast the grey smoke-puffing complex with a bright blue sky and green field or to frame the factory together with a cornfield. Such photographic choices likely invite the viewer to see the factory as an uncomfortable match with its surroundings and connote emphasised dirtiness. Yet the analysed images show no overarching manner of associating the industry with natural sceneries, and even a few harmonious and aesthetically pleasing visualisations of this relation occur in the material.

The most consistent way of suggesting connotations with evaluative elements is to link the polluting power plant with individual persons or neighbourhoods. Pictures of a child in front of a giant industrial complex, cyclists passing big black chimneys, or a lone man with a stained face walking amid humongous coal piles describe a relation between industrial production forces and the individual. Through such associations, the photographs at once emphasise the power, impact, and harmfulness of industry and the smallness and fragility of the individual. This certainly applies to the photo⁸ used by *The Guardian* on 13 December 2015 where a lone person walks past three chimneys. The image effectively combines the two discussed compositional aspects. First, the angle and the distance make three smokestacks visible in a linear, serializing configuration and intensify the perceived size and impact of the power plants. Second, the picture associates the power plant with the individual, who covers her- or himself by wearing a mask and a hooded coat and hiding hands in pockets. The constructed association articulates industrial production with ideas such as hazards or threats to human health, an interpretation supported especially by the person’s clothing and position. The example concretises the most consistent way of accentuating the dirtiness of industry through evaluative associations.

Discussion

The aim of this article has been to analyse the discursive roles and functions of two key components of the conventional media climate imagery, the “smokestack” and “clean technology”. As the presented case of *The Guardian*’s photos and earlier vast-scale content analyses demonstrate, the media imagery mainly shares visibility to technologies when direct drivers of and responses to climate change are depicted. Through quantitative and qualitative analyses, I have aimed to describe the simplistic technological dualism inherent in the conventional imagery and the strictly limited view such visualisations enable on certain aspects of climate change.

I have also suggested that the two image themes articulate the transformation from “defiling growth” (smokestacks) to “sustainable development” (wind and solar power), which is a key storyline of ecological modernisation discourse (Hajer, 1995: 65). In other words, journalism habitually pictures two modernities – the current destructive one that is the undesired starting point toward a smarter, more efficient and ecological modernity. As such, the dominance of pictures of technology in visualising “causes” and

“responses” describes a simplified techno-economic process instead of nurturing more complex discussions about what a truly ecological modernity might entail for the many dimensions of social and cultural life (see Christoff, 1996; Hajer, 1995). Also, considering climate change strictly in terms of technological development will most likely not be enough to change the course leading to a “Hothouse Earth” (Steffen et al., 2018).

So far, few (if any) studies have interpreted climate change images in the context of ecological modernisation theory. With its admittedly restricted perspective and material, this article has aimed to demonstrate the usefulness of such an effort. The analysis suggests that the widely used visualisations of climate change articulate ideas also expressed verbally in, for example, official policy documents, public announcements, speeches, and negotiations. However, while analyses of policy processes and documents are essential in understanding the complex conceptual structures that guide policy responses, studying habitual media shifts focus on the cultural practices that sustain, normalise, and severely simplify discursive accounts beyond official policy arenas. Paying attention to conventional media imageries that inhabit our every-day experiences is needed to understand how discursive ideas move from policy arenas to popular culture and what happens to them on the way. Here, a more nuanced view of the conditions and practices that determine the media landscape of climate change would be valuable. Aside from the routines and preferences of visual journalism, global image banks with their selection criteria and business logic could offer promising starting points for further studies.

To researchers of visual media, the current work hopefully demonstrates the sense in borrowing concepts from environmental sociology and policy research to interpret basic findings. In the spirit of multimodal theory, we could approach media visualisations with the assumption that, like verbal modes, they are imbued with discursive structures that are ultimately cultural resources of understanding reality (Kress, 2010). Theorisations of political discourses offer valuable conceptual tools for building bridges between seemingly banal media images and struggles of political definitions. With all the complexity determining visual communication, we should not be afraid to build that bridge.

Notes

1. All images were initially accessed between December 2016 and January 2017.
2. Photo: Hamish Blair/Getty Images. <https://www.theguardian.com/environment/2015/nov/12/carbon-abatement-government-spends-another-557m-to-buy-45m-tonnes>
3. Photo: Kevin Frayer/Getty Images. <https://www.theguardian.com/commentisfree/2015/nov/30/paris-climate-summit-can-deliver-deal-if-national-legislators-lead-the-way>
4. Photo: Andy Wong/AP. <https://www.theguardian.com/environment/2015/nov/25/global-emissions-nearly-stall-after-a-decade-of-growth-report-shows>
5. Photo: Eckehard Schulz/AP. <https://www.theguardian.com/environment/2015/nov/24/allianz-to-cut-investments-in-companies-using-coal-in-favour-of-renewable-energy>
6. Photo: n/a. <https://www.theguardian.com/environment/2015/dec/04/week-one-at-the-paris-climate-talks-quiz>
7. Photo: Bloomberg/Getty Images. <https://www.theguardian.com/environment/2015/nov/10/direct-action-destined-to-fail-even-with-low-paris-pledge-climate-institute-says>
8. Photo: Kevin Frayer/Getty Images. <https://www.theguardian.com/environment/datablog/2015/dec/13/emissions-peak-by-2030-climate-deal-co2>

Acknowledgements

The research reported in this article was supported by The Finnish Cultural Foundation [grant number 50131311].

References

- Anderson, A. (1997). *Media, culture and the environment*. London: UCL Press.
- Ball, V. K. (1965). The aesthetics of colour: A review of fifty years of experimentation. *The Journal of Aesthetics and Art Criticism*, 23(4): 441-452.
- Barthes, R. (1987). The photographic message. In S. Heath (ed.), *Image, music, text: Essays* (pp. 15-31). London: Fontana Press.
- Beckham Hooff, S., Botetzagias, I. & Kizos, A. (2017). Seeing the wind (farm): Applying q-methodology to understand the public's reception of the visuals around a wind farm development. *Environmental Communication*, 11(5): 700-722.
- Boykoff, M. T. (2011). *Who speaks for the climate: Making sense of media reporting on climate change*. Cambridge: Cambridge University Press.
- Caple, H. (2013). *Photojournalism: A social semiotic approach*. Basingstoke: Palgrave Macmillan.
- Carvalho, A. (2005). Representing the politics of the greenhouse effect: Discursive strategies in the British media. *Critical Discourse Studies*, 2(1): 1-29.
- Carvalho, A. (2007). Ideological cultures and media discourses of scientific knowledge: Re-reading news of climate change. *Public Understanding of Science*, 16(2): 223-243.
- Christoff, P. (1996). Ecological modernisation, ecological modernities. *Environmental Politics*, 5(3): 476-500.
- Cordney, T. (2013). Going global on our digital journey. *The Guardian*, 24 May 2013 [online]. Retrieved from < <https://www.theguardian.com/help/insideguardian/2013/may/24/the-guardian-global-domain>>. [accessed 2018, August 8].
- Davidson, C. & Graham, D. (2014). Newspaper reporting on climate change, green energy and carbon reduction strategies across Canada 1999-2009. *American Review of Canadian Studies*, 44(2): 151-168.
- DiFrancesco, D. A. & Young, N. (2010). Seeing climate change: The visual construction of global warming in Canadian national print media. *Cultural Geographies*, 18(4): 517-536.
- Djerf-Pierre, M., Cokley, J. & Kuchel, L. J. (2016). Framing renewable energy: A comparative study of newspapers in Australia and Sweden. *Environmental Communication*, 10(5): 634-655.
- Doyle, J. (2007). Picturing the clima(c)tic: Greenpeace and the representational politics of climate change communication. *Science as Culture*, 16(2): 129-150.
- Dryzek, J. S. (2005). *The politics of the Earth: Environmental discourses (2nd ed.)*. Oxford: Oxford University Press.
- Foucault, M. (1989). *The archaeology of knowledge*. London: Routledge.
- Frosh, P. (2002). Rhetorics of the overlooked: On the communicative modes of stock advertising images. *Journal of Consumer Culture*, 2(2): 171-196.
- Gage, J. (1993). *Colour and culture: Practice and meaning from antiquity to abstraction*. London: Thames & Hudson.
- Grittmann, E. (2014). Between beauty, risk and the sublime: The visualisation of climate change in media coverage during COP 15 in Copenhagen 2009. In B. Schneider & T. Nocke (eds.), *Image politics of climate change* (pp. 127-150). Bielefeld: Transcript Verlag.
- Hahn, O., Eide, E. & Zarqa, S. A. (2012). The evidence of things unseen: Visualising global warming. In E. Eide & R. Kunelius (eds.), *Media meets climate: The global challenge for journalism* (pp. 221-246). Göteborg: Nordicom.
- Hajer, M. A. (1995). *The politics of environmental discourse: Ecological modernisation and the policy process*. Oxford: Oxford University Press.
- Hajer, M. A. (1996). Ecological modernisation as cultural politics. In S. Lash, B. Szerszynski & B. Wynne (eds.), *Risk, environment & modernity: Towards a new ecology* (pp. 246-268). London: Sage.
- Hannigan, J. (2006). *Environmental sociology (2nd ed.)*. London: Routledge.
- Hansen, A. & Machin, D. (2008). Visually branding the environment: Climate change as a marketing opportunity. *Discourse Studies*, 10(6): 777-794.
- Howard-Williams, R. (2009). Ideological construction of climate change in Australian and New Zealand newspapers. In T. Boyce & J. Lewis (eds.), *Climate change and the media* (pp. 28-40). New York: Lang.
- Kangas, J. (2016). Näkyvätön ilmasto, näkyviä kuvia: Ilmastonriskin visualisointi ja kuvallinen kehystäminen Helsingin Sanomissa [Invisible climate, visible images: The visualisation and pictorial framing of the climate change risk in Helsingin Sanomat]. *Media & viestintä*, 39(4): 209-227.
- Kress, G. (2010). *Multimodality: A social semiotic approach to contemporary communication*. London: Routledge.
- Kress, G. & van Leeuwen, T. (1996). *Reading images: The grammar of visual design*. London: Routledge.
- Kress, G. & van Leeuwen, T. (2002). Colour as a semiotic mode: Notes for a grammar of colour. *Visual Communication*, 1(3): 343-368.
- Krippendorff, K. (2013). *Content analysis: An introduction to its methodology*. Los Angeles, London, New Delhi, Singapore: Sage Publications.

- Laclau, E. & Mouffe, C. (1985). *Hegemony & socialist strategy*. London: Verso.
- León, B. & Erviti, M. C. (2015). Science in pictures: Visual representation of climate change in Spain's television news. *Public Understanding of Science*, 24(2): 183-199.
- Lester, L. & Cottle, S. (2009). Visualising climate change: Television news and ecological citizenship. *International Journal of Communication*, 3, 920-936.
- Lewis, J. & Boyce, T. (2009). Climate change and the media: The scale of the challenge. In T. Boyce & J. Lewis (eds.), *Climate change and the media* (pp. 4-16). New York: Lang.
- Macnaghten, P. & Urry, J. (1998). *Contested natures*. London: Sage.
- Messaris, P. & Abraham, L. (2001). The role of images in framing news stories. In S. D. Reese, O. H. Gandy Jr. & A. E. Grant (eds.), *Framing public life: Perspectives on media and our understanding of the social world* (pp. 215-226). Mahwah: Lawrence Erlbaum Associates.
- O'Neill, S. J. (2013). Image matters: Climate change imagery in US, UK and Australian newspapers. *Geoforum*, 49: 10-19.
- Painter, J. (2013). United Kingdom. In J. Painter (ed.), *Climate change in the media: Reporting risk and uncertainty* (pp. 116-125). London: Tauris.
- Painter, J., Kristiansen, S. & Schäfer, M. S. (2018). How "digital-born" media cover climate change in comparison to legacy media: A case study of the cop 21 summit in paris. *Global Environmental Change*, 48: 1-10.
- Rebich-Hespanha, S., Rice, R. E., Montello, D. R., Retzlöff, S., Tien, S. & Hespanha, J. P. (2015). Image themes and frames in US print news stories about climate change. *Environmental Communication*, 9(4): 491-519.
- Remillard, C. (2011). Picturing environmental risk: The Canadian oil sands and the national geography. *The International Communication Gazette*, 73(1-2): 127-143.
- Rose, G. (2007). *Visual methodologies: An introduction to researching with visual materials*. London: Sage.
- Schneider, B. (2012). Climate model simulation visualisation from a visual studies perspective. *WIREs Climate Change*, 3(2).
- Schneider, B. & Nocke, T. (2014). Image politics of climate change: Introduction. In B. Schneider & T. Nocke (eds.), *Image politics of climate change* (pp. 9-24). Bielefeld: Transcript Verlag.
- Smith, N. W. & Joffe, H. (2009). Climate change in the British press: The role of the visual. *Journal of Risk Research*, 12(5): 647-663.
- Spaargaren, G. (2000). Ecological modernisation theory and the changing discourse on environment and sociology. In G. Spaargaren, A. P. J. Mol & F. H. Buttel (eds.), *Environment and global modernity* (pp. 41-71). London: Sage.
- Steffen, W., Rockström, J., Richardson, K., Lenton, T. M., Folke, C., Liverman, D., Summerhayes, C. P., Barnosky, A. D., Cornell, S. E., Cricifix, M., Donges, J. F., Fetzer, I., Lade, S. J., Scheffer, M., Winkelmann, R. & Schellnhuber, H. J. (2018). Trajectories of the Earth System in the Anthropocene. *PNAS*, 115(33): 8252-8259.
- van Leeuwen, T. (2011). *The language of colour: An introduction*. Abingdon: Routledge.
- Weale, A. (1992). *The new politics of pollution*. Manchester: Manchester University Press.
- Whitfield, T. W. & Whiltshire, T. J. (1990). Colour psychology: A critical review. *Genetic, Social, and General Psychology Monographs*, 116(4): 385-411.