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Chornobyl visual lexicon: exploring the visual framing of toxic heritage from the point of view of participatory culture

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Even though the Chornobyl exclusion zone (CEZ) is a well-photographed and visually documented site, little is known about the evolution of its visual representations from the point of view of participatory culture. This study investigates how the CEZ is represented on the open photo-sharing platform Flickr and focuses on visual heritage framing from the point of view of participatory culture. Flickr, a social networking site founded in 2004, has a large portfolio of photographs that have been classified and categorised. Thus, it provides a prime container of visual information in the form of user-uploaded digital photographs with an almost 20-year time frame. The data of the study consist of participant-generated images and qualitative interviews from the visitors who visited the site at three different points in time – 2008, 2013, and 2018 – revealing the emerging photographic activities of visitors to the CEZ. During the chosen 10-year timeframe, the exclusion zone was also transformed by the intentional marketing of the site for touristic purposes, and the exponential flow of visitors transformed its landscape into a dynamically developing touristscape. The longitudinal approach of the study, supplemented by a social semiotic data analysis, elaborates on evolving entanglements of materiality, embodiment, and digital devices as captured from the participants' pictures. With this approach, the study sheds light on the visitors' practices of visual engagement with the heritage resources in CEZ and the altering affordances of materiality, sensory experiences, and digital technology devices. The analysis of visitors' visual engagements with the zone's heritage artefacts reveals visitors' evolving engagements and pictorial interests in the context of participatory digital visual culture. Moreover, this study provides insights into participatory culture as an agent that changes how heritage is viewed, perceived, and experienced.

INTRODUCTION, AIM, AND PURPOSE OF THE RESEARCH

Over the past decades, supported by technological inventions and social media, the world has become smaller

and more interconnected, and images have acquired prominence as the primary language of our time (Hillel 2021). Since the digital revolution, visitors' engagements with heritage resources in sites of remembrance comprise hybrid activities and varying patterns of meaning-making that forward the experience both on the site and online platforms. Anyone visiting a heritage site sees countless visitors taking digital photos, many of which are shared online on platforms like Facebook, Instagram, or Flickr. Sites of contested and difficult heritage are not an exception. The practices of photography, collection, representation, and communication have facilitated new ways of understanding and experiencing heritage (Giaccardi 2012).

The Chornobyl exclusion zone (CEZ) was established on May 2, 1986, six days after the explosion at the power plant. Before the Russian full-scale invasion of Ukraine in February 2022, the CEZ was steadily growing and developing as a tourist site. It's a prime example of a heritage site where taking photographs and sharing content is a popular activity. The (CEZ) has become a 'global web museum' where visitors actively create and share visual representations of the site (Irvine 2012, 242). Visitors to the site do not simply consume products from tour organisers; they actively shape and contribute to the content and collective imagery of the heritage site. Prior to the global COVID-19 pandemic and the Russian full-scale attack on Ukraine, the CEZ was on track to become a prominent international tourism destination. However, these events interrupted this progress, leaving the future of the exclusion zone uncertain.

This article discusses widely distributed pictures taken in the CEZ that are available on the social networking site Flickr. Established in 2004, Flickr is a platform containing hundreds of thousands of visual testimonies uploaded by CEZ visitors. Therefore, it is a repository or archive of radioactive heritage (Hryhorczuk 2018). It was in existence before the official opening of the CEZ to tourists in 2011 when tours of the zone were operating

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on a smaller scale. It has served as a community platform for users and CEZ visitors during the gradual increase in visitors and technological development. Therefore, the Flickr platform provides insight into potential changes in visitors' visual perception of the CEZ's toxic heritage over time.

The CEZ's visual culture has received limited academic attention. In addition to pioneering visual studies (Bürkner 2014; Goatcher and Brunnsden 2011) that examined the communicational function of visitors' photographs taken in the CEZ, phenomenological and autoethnographic investigations into visitors' embodied responses, interpretation processes, and engagements with sites of contested and difficult heritage have recently gained academic attention (Farkiç 2020; Hryhorczuk 2018; Rush-Cooper 2019). Fortunately, new emerging attention through the lens of the visual practices of visitors to the CEZ has started to take shape through the recent works of authors such as Duda (2023), Farkiç and Kennell (2021), and Ojala (2022). The authors elevate the role and function of the visual practices of the visitors to the new attention, not only as a medium of communication of the site experience but as a socio-cultural activity that reveals and shapes cultural perceptions about the meaning and significance of the heritage resources in CEZ. Taking digital participatory culture (Fuchs 2014; Jenkins 2009) as its starting point and focusing on the practices of photographing the material resources in the zone at three different points in time (2008, 2013, and 2018), this study provides a perspective on the visitors' emerging pictorial interests in the CEZ and the utilisation of semiotic resources – the actions, materials, and artifacts – to communicate one's experience and presence in the place. By implementing a longitudinal content analysis combined with the theoretical framework of social semiotics (Kress and Van Leeuwen 2021), supplemented by qualitative interviews and participant-generated images, this study seeks to elaborate on the elements and rules underlying a culture-specific form of visual communication around the heritage discourse of the zone.

TOURISM IN CEZ

During the 10-year study period, the CEZ underwent significant changes and is now considered one of the top tourist attractions in Ukraine, despite being seen as an extreme adventure destination just a decade ago (Banaszkiewicz 2022, 67). From the mid-90s onwards, administrative structures were established to manage visitors (Banaszkiewicz 2022; Banaszkiewicz, Kruczek, and Duda 2017; Goatcher and Brunnsden 2011). The first

government agency to handle these activities was the International Information Cooperation and Development Agency 'ChernobylInterInform', and in the following years, several tour companies started organising trips to the zone in collaboration with ChernobylInterInform. By 2008, ChernobylInterInform had issued 5000 permits. According to Banaszkiewicz (2022, 76), in the early years, the potential for tourism in the CEZ had not yet been fully realised, and it was still considered a risky place to visit.

In 2011, management of tourism in the CEZ was transferred to the State Agency of Ukraine on Exclusion Zone Management, initiating the development of tourism. In 2013, 17 757 individuals visited the CEZ. In the subsequent years, the development of CEZ as a tourist destination reached the level of mass tourism (Banaszkiewicz 2022). Several factors contributed to this development, including improvements in infrastructure, the construction of new accommodation and sanitation facilities, and the simplification of the visitor clearance process, making entry into the zone smoother (Banaszkiewicz, Kruczek, and Duda 2017). In 2018, 72 163 visitors entered the zone. The visual presence of the CEZ's heterotopic spaces (Stone 2013) on social media platforms is arguably one of the contributing factors behind the increase in visits to the site. Technological development of cameras, internet and Wi-Fi access, and the practices of visual culture enhance photography practices and create visually appealing experiences. As noted by Banaszkiewicz (2022, 73), social media and improved visitor services have contributed to the promotion of the CEZ, but what is lacking in this picture are the experiences and activities of the visitors themselves.

This study examines a ten-year period with three specific points in time: 2008, 2013, and 2018. The area experienced gradual development as a tourist destination during these years, and the changing number of visitors can be used to understand how the interests of visitors and their use of semiotic signs to communicate their presence in the area evolved over time.

PHOTOGRAPHY, FRAMING AND TOXIC HERITAGE

The consumer is a vital part of producing the tourism product, the heritage place. The consumer creates the final tourism product: the experience (Bærenholdt et al. 2004, 17). Visitors express their connection to these sites through various activities, such as taking photos and interacting with the physical surroundings. Their engagement with the site is diverse, leading to different ways of experiencing and interacting with it (Ojala 2024;

2022). Tourists' engagements with the site are ways of 'networking and negotiating material, social, and cultural elements' (Bærenholdt et al. 2004, 31).

As Urry and Larsen (2011, 178) note, as people become amateur photographers, they also become amateur semioticians. Visitors to the heritage sites have access to the semiotic resources available in society and produced within a culture. Conventions and norms at the heritage sites are socially constructed but never fixed, and they dictate the way people create meaning and signs. Meaning and sign-creation are guided by interests, sociocultural inheritance, and awareness of present and contemporary events, always as modifications of semiotic materials that already exist, and thus they are continuously evolving. Visual structures, rather than reproducing 'reality', produce images of reality related to the interests of the social contexts they are in (Kress and Van Leeuwen 2021). Memory is thus a socially organised process that is reliant upon cultural practices as the means through which people express their attitudes and relations to the past (Bell 2012, 4). Tourists take responsibility for the development and curating of the site, such as CEZ, as visitors play an active role in shaping the narrative of post-disaster spaces and indirectly contribute to subsequent decisions on tourist infrastructure development (Duda 2023). As Larsen acknowledges (2006, 254), photography should be reconfigured as a medium of world-making; an embodied performance that takes place in the ambivalent space between prefixing gazes and images, technological affordances and productive, expressive bodies that encounter places and place-images multi-sensually, materially as well as symbolically.

The focus of this study is to investigate user-created content of participatory culture – members of the Flickr platform who are also visitors to the CEZ – and their practices of visual framing that 'structure the relationship to the material past' (DeSilvey 2017, 8). As Lehner (2023, 186) indicates, facilitated by the advent of the internet, the rapid expansion of social media, and ensuing cultural shifts, the power to create images has shifted and dispersed. Along with Web 2.0, tourists increasingly produce and consume photographs taken at heritage sites on public display and social media platforms like Flickr. Digitalisation has transformed the practices of picture-making by reorganising the sites of production, consumption, and image circulation, in addition to the technical affordances that expand the possibilities to shape the depicted reality in the pictures. In contrast to analogue pictorial aesthetics, the dimension of time is foregrounded through the image's durational, performative, and relational characteristics (Dewdney

and Sluis 2023). These entangled ways of seeing require new ways of thinking about visuality, temporality, and the human sensorium (ibid.). Therefore, images must be studied in combination with the experiences they participate in (Bareither 2021).

The evolution of the visitors' images at the CEZ not only elaborates on the cultural change taking place in the realm of interpretation of the heritage, but it also opens a horizon of more general questions about transformations of heritage tourism in recent years, under the influence of the process of virtualisation of the tourist experience, affordances of contemporary digital technologies, and the digitalisation of heritage. This article also discusses the social practices and changing moral scripts that travel along the visual material (Hilmar 2016). Considering the interconnected nature of online and offline realities and the various actors involved, this study offers a more detailed understanding of how photography and visual tropes impact our perception of heritage (Sterling 2019). Instead of categorising symbolic expressions as either authentic or inauthentic, this article aims to elaborate on the wider referential discourses in the CEZ and the interaction that elevates one experience at the expense of another, destabilising any intrinsic meaning and pointing to a larger representational dynamic (Uricchio 2011).

STUDY DESIGN AND ANALYSIS

Data Collection

An initial sample was manually collected on the Flickr platform in January and February 2023 by implementing purposive sampling with a maximum variation strategy (Bryman 2016; Creswell and Poth 2017). I used three keyword searches, exemplified in detail in the table below, which produced three categories of images. From each year category (2008, 2013, and 2018), a sample size of 200 was retrieved. The first phase included the initial familiarisation with the search results by observing the visual material and making preliminary remarks on the pictures with the assistance of the social semiotic toolbox. To verify the representativeness of the sample, the sample size collection was continued manually, ensuring that the final sample would include the maximum variation regarding the uploaded pictures by different individual platform members in addition to the maximum variation regarding the content of the visual images. Table 1 shows that the content uploaded on the Flickr platform was duplicated between the years 2008 and 2013. However, in 2018, there was a slight decrease

TABLE 1. Longitudinal data characteristics.

Sample year	2008	2013	2018
Keywords	Chernobyl 2008	Chernobyl 2013	Chernobyl 2018
Number of visits	5500*	17575*	72163*
Total number of uploaded pictures	5216	10 233	9509
Sample size	n200	n200	n200

* Data source: Source: State Agency of Ukraine on the Exclusion Zone Management, 2020

in the quantity of uploaded content. This observation can be attributed to the growing popularity of other competing social media sites among the users.

Introducing Social Semiotics into Mixed-Method Content Analysis

The study design incorporates content analysis in a mixed-methods approach, blending quantitative and qualitative methods in an explanatory manner (Creswell and Plano Clark 2011). The design comprises a quantitative phase for data collection and initial analysis, followed by a qualitative phase using social-semiotic analytical tools to interpret the results. While this combination is not new in media studies (Martinavichene 2017), its potential has been underexplored in humanities and heritage studies. As social semiotics is primarily concerned with communication, the emphasis is placed on the study of communication in context to investigate how semiotic choices have implications for meaning production (Dicks 2013). The content analysis, with the assistance of social semiotics, counts the frequency of certain visual elements such as content, size, or placement, the characteristics, and the situated social communication; how the actors' use of semiotic resources can inform about the shifts in knowledge domains (Dicks 2013; Philipps, Zerr, and Herder 2017; Van Leeuwen 2005).

Sociosemiotic interpretation acknowledges that there are systems of interaction with multiple meanings and different social agents with diverse goals and life worlds (Vannini 2007). By focusing on people's active choice to use semiotic resources in the CEZ, it is possible to elaborate on how they use signifiers to produce the signifieds they wish to communicate within sociocultural spaces constrained by historical discourses, social regulations, and institutional norms (Jewitt 2014). First, by observing the content of the images, patterns of significant actors (Bryman 2016) started to emerge. Analytical concepts derived from the theory of social semiotics – discourses, semiotic functions, change, and modality of semiotic resources – were used as the basis for quantification and comparative generalisation (Bell 2004,

29; Kress and Van Leeuwen 2021; Vannini 2007). The methodological scope of socio-semiotic inquiry revolves around a three-dimensional concern with discourses, experiences, and the sociocultural context of the study (Vannini 2007). Meanings emerge in the interplay between historically socially shaped modes and the social practices and actions in which they are used (Dicks 2013).

The longitudinal sample revealed four major semiotic changes:

- 1) A decrease in representation of the powerplant (see Figure 1)
- 2) A shift in emphasis from exteriors to interiors in the pictures (see Figures 2 and 3)
- 3) Increased complexity in image composition (see Figures 4 and 5)
- 4) Heightened modality of the images (see Figure 6)

Qualitative Interviews and Participant-Generated Images (PGI)

Much like sociosemiotics benefit from inquiries from various analytical perspectives, they also benefit from a free combination of data collection methods (Vannini 2007, 125). After the initial content analysis was conducted, the analysis of the images was supplemented



FIGURE 1. The Chernobyl nuclear power plant covered by Soviet built sarcophagus in 2008. Source: Jim Hart, use with the permission of the author.



FIGURE 2. A representative exterior picture was taken at the Pripjat amusement park in 2008.
Source: Jim Hart, use with the permission of the author.

by 18 qualitative interviews with Flickr platform members who visited the CEZ in 2008, 2013, and 2018 (see Table 2). The interviews were conducted from June 2023 to January 2024. For the interview appointment, the participants were asked to select 3–5 pictures from their visit to the CEZ, and participant-generated images (PGI) (Rose 2016) elaborated on the utilisation of the zone’s semiotic resources as those were identified in the initial sample.

The content analysis revealed four main observations, which were discussed from the perspective of the participants in the CEZ’s visual culture. The study focused on changes in the tours over the years,



FIGURE 3. A representative interior picture was taken at the Pripjat hospital in 2018.
Source: Fenja Verhagen, use with the permission of the author.



FIGURE 4. A toy left on the booth of the Ferris Wheel in Pripjat in 2008.
Source: Pedro Moura Pinheiro, use with the permission of the author.



FIGURE 5. Composition of toys in Pripjat in 2018.
Source: Frank C. Grace, use with the permission of the author.



FIGURE 6. A representative picture that elaborates on the utilisation of editorial techniques. The picture was taken at the hospital in Pripjat in 2018.
Source: Frank C. Grace, use with the permission of the author.

advancements in representational technology, and specific practices that interviewees identified as part of digital visual culture. The interview data provided clarification for the initial observations and highlighted the emergence of representational symbols and their meanings, shaped by complex uses of technology, semiotic resources, on-site experience, and visitors’

TABLE 2. Characteristics of the interview respondents.

Respondent*	Visit	Nationality	Gender	Respondent*	Visit	Nationality	Gender	Respondent*	Visit	Nationality	Gender
1	2018	Germany	Male	7	2013	France	Male	14	2008	UK	Female
2	2018	Netherlands	Female	8	2013	UK	Male	15	2008	UK	Male
3	2018	USA	Male	9	2013	France	Female	16	2008	Germany	Male
4	2018	UK	Male	10	2013	Belgium	Male	17	2008	Portugal	Male
5	2018	Netherlands	Male	11	2013	UK	Male	18	2008	Russia	Male
6	2018	Sweden	Male	12	2013	Sweden	Male				
				13	2013	Ukraine	Male				

Source: Authors' data 2024

TABLE 3. Results of the sociosemiotic content analysis.

Semiotic resource	Powerplant	Interior spaces	Artefacts	Modality
Temporal semiotic change	loss of significance	interior domination	complexity increases	increase
Semiotic function	informative	personal/expressive	imaginative	pleasure
Practice of photographing	documentation	creativity	distinction	reality of experience

Source: Authors' data 2024

prior knowledge of the site. These uses of semiotic resources are summarised in Table 3, detailing their changes and functions, as well as the photographic practice behind the semiotic engagement. The observations are further explored by presenting the practices behind each observation and by identifying patterns of semiotic meaning-making and changing modes of representation in the results section. The interviews utilised participant-generated images as a tool for discussion, providing insight into the semiotic expressions of the interviewees' on-site experiences in the next section.

RESULTS

The Symbolic Significance of the Nuclear Powerplant (NPP)

The first significant semiotic resource used in the visitors' pictures was the nuclear power plant and the Soviet-built sarcophagus, created by clean-up workers to contain the exploded reactor. This symbolism fostered a shared discursive understanding (Vannini 2007) of nuclear power's dangers. While widely used in 2008, its prevalence declined by 2013 and 2018.

In the context of prototourism, visitors develop their ideas about the site as it becomes a tourist attraction (Blomstervik and Olsen 2022). In 2008, visitors saw themselves as pioneers since the Chornobyl Exclusion Zone (CEZ) did not officially open to tourists until 2011. Information about the tours was hard to find at that time, making the visit feel unique and risky. According to respondent [15], the tourist group in 2008 was described as:

'So yeah, I was one of the first generations to have gone there. There weren't really signs in Chornobyl that anything had been set up for tourism or visitors. There was a visitor centre, but you really felt – yeah, you were the first generation – nothing special was laid on.' [15]

The combination of feeling like part of the pioneering visitors and the novelty of the experience made the old power plant, shown in Figure 1, a significant symbol in conveying the meaning of the site. In the picture, the reader can see the monument established in 2006 to honour those who protected the world from disaster, marking the 20th anniversary of the completion of the first protective cover. Behind the monument is a temporary shelter structure, known as the 'Sarcophagus', which is made of steel panels and encloses the remains of the exploded Reactor 4. Following the explosion, international media

coverage depicted the damaged reactor building with the red-white ventilation stack and the exploded reactor, which was later covered by the sarcophagus. This image became a global symbol of the dangers of nuclear power. A respondent [16] described the visual significance of the NPP in 2008:

'The old sarcophagus was rusty and also iconic somehow. I mean, in a bad way, but it was more or less the symbol of what most of us – like my generation – were born in 1985 – so I was born just one year before the catastrophe. But like the picture of Chornobyl, what I have, and I would say that my generation has, is the sarcophagus.' [16]

The nuclear power plant's original appearance qualified as a storyboard because of its strong narrative and mnemonic quality (Hilmar 2016, 456). The sarcophagus was not only informative but also served as a visual reference for the disaster and signalled the visitors' engagement with its historical narrative, while the red and white ventilation stack was a familiar visual element from the global media. The chimney was demolished with the establishment of the New Safe Confinement (NSC) in 2016. A visitor who went to the zone in 2013 described this:

'I was fortunate because I went ten years ago. I managed to see the chimney and the funnel before it got demolished because it became demolished before they moved the NSC over.' [7]

As Figure 1 also illustrates, the photographic engagement with semiotically informative objects such as the old power plant, sarcophagus, and chimney was based on *documentation*, thus the visitors were recording with their devices the scenes as they encountered them. The visual status of the NPP changed with the development of tourism, gradual marketisation, and the establishment of the NSC. An interviewee [2] described the experience of standing in front of the NSC in 2018:

'It's covered up. So, we couldn't see everything, but yeah, of course, the monument that was in front of it, we stood there and measured the radiation level, and it was high. So yeah, of course, it made you realise how bad it was and how it would be if it was not covered. You can't see much anymore of that place because it's all cleared up and covered up, so I think the places around it were perhaps even more impressive because you could still see the damage there, you know.' [2]

The practice of urban exploration focuses on engaging with and appreciating abandoned structures, which has

introduced the power plant to a new set of performative practices, thus contributing to its lack of significance as the marker of the disaster. A visitor who went to the CEZ in 2018 shared their experience:

‘It’s almost, yeah, a modern building. With the shiny cap on it. So yeah, not really ... Urbex beneath, yes, but not on the outside.’ [5]

The photographic exploration of the use of the power plant and sarcophagus as a semiotic resource has shown that all semiotic discourses are continually subject to contestation, negotiation, and change (Vannini 2007). Initially, visitors’ photographs served *documentary* purposes, and the location provided significance to the images (Uricchio 2011). The semiotic signs functioned based on their *informational* value, emphasising that images convey truth and prioritise realism. As tourism evolved, the power plant became integrated into a novel set of interpretive practices and performances, leading to new expressions of the heritage resources within CEZ.

Exteriors versus Interiors

In 2008, the majority of the pictures taken were in exterior settings, while in the 2018 sample, interior pictures were more prominent. Figure 2 is a representative picture from 2008, showing the practice of documenting the exterior scenes in the zone. The picture depicts the amusement park in Pripyat, with the Ferris Wheel and a broken wagon from one of the attractions. In 2008, respondents repeatedly expressed that the tours focused more on exteriors, and the limitations of camera devices restricted what could be captured. Therefore, scenes in daylight conditions, such as Figure 2, were ideal for visual reproduction of the area. Interior representations were less prominent in the 2008 sample as it was impossible to capture inner scenes due to darker lighting conditions. A respondent [15] described the limitations placed by the cameras in 2008:

‘Yeah, there was the back view. I couldn’t really see what I was photographing. So yeah, much of the time with that old camera, it was really kind of, say, spray and pray. We take lots of photographs, and we just hope you get some good ones. It would have been a lot different if I had my digital SLR with me.’ [15]

The technological development has led to the use of tripods and advancements in cameras, enabling the utilisation of new set of semiotic resources with emphasis on the interior material resources. As tourist flows have increased, so has the diversification of visitor profiles, tour itineraries, and the recognition of different

visitor needs (Banaszkiewicz 2022; Ojala 2024; 2022). This development has also led to a diversification of pictorial motifs in visual representations. Importantly, visitors’ expectations for their visits have been increasingly influenced by other visitors and their recommendations for tour choices. In 2013 and 2018, participants who visited the area had already gathered a lot of secondary information from their acquaintances and online communities about the tours. Unofficial knowledge about the benefits of the tours began circulating, as did the way these tour choices translated into different site experiences and visual representations. One respondent [8] described their choice of tour:

‘If you take a private tour, it means that you can explore the area in more detail. You can ask to visit certain places. And I guess, in a way, you have more freedom to explore because if you were in a bigger group, it means fighting for the photo. Everyone wants to take a photo of the same thing.’ [8]

The private tour category emerged as a material-discursive practice, influencing the possibilities to explore and photograph the site and negotiate freedom for exploration, as exemplified by the excerpt above. The identified semiotic change shifted from the exteriors to the interiors, and it placed its functional discursive emphasis on *personal, expressive engagement* rather than merely documenting the site. Supported by the development of technology, the interiors of the buildings allowed more space for creativity, as an interviewee [1] who visited Chornobyl in 2018 expressed:

‘So, I think inside you’re not limited; you want to have a shallow depth of field close up of something, or you want to have like a room that has, let’s say, a mural and then stuff on the ground. So, I think your creative freedom inside is wider and bigger than if it comes down to the exterior of a building.’ [1]

By 2013, the area not only attracted more visitors, but it also began to appeal to urban exploration enthusiasts. Urban exploration, known as Urbex, involves exploring abandoned and derelict sites. This activity has long represented human curiosity to see what is considered off-limits (Garret 2015, 73). The rise of technology, social media communities, and digital photography has arguably contributed to the growing popularity of urban exploration as both an activity and a form of visual production and consumption of ruins. Emphasising the importance of personal, visual, and material meaning-making, Urbex interactions with abandoned sites have

influenced the selection and use of the zone's semiotic resources.

'While I was interested in Chornobyl, it was almost like the icing on the cake of the Urbex community. Since then, things have developed; there was Fukushima, another area, obviously where an accident happened and people had to evacuate, but Chornobyl has always touched the system, like the Mecca of Urbex at the time'. [11]

Figure 3 portrays a waiting room in Pripyat Hospital in 2018. In the picture, the photographer has utilised typical interior semiotic resources: the peeling wallpaper, interior decay of the furniture, moss growing on the floor, and the recognisably familiar object, a plant in a flower pot amid a deteriorating scene. Interior picture-making expanded the scale of representative possibilities as decay enables a broader array of practices based on creativity. While the expression of atmosphere and feeling can be imagined and thought of in terms of ecstasies, extensions, and volumes of things, atmospheres are at the same time social and result from the interaction of persons and non-material factors within the material environment (Zuev and Simpson 2023, 5). The evolution of tourism, supported by informal knowledge about the affordances of the tours, merged with the interest in interior visual consumption.

These elements created a new texture of representation, formed by social agents and the dynamics of semiotic change (Vannini 2007), shifting from exteriors to interiors. A respondent [1] summarised:

'And you know, there's all those grey zones of what you can do, what you're not supposed to do, and what you're still doing (...) I have to break some of the rules because otherwise you're only getting half of the experience, but some of the rules I am not going to break.' [1]

As tourism has grown, resources have been distributed along both tourist and non-tourist routes. This shift highlights the connection between the digital distribution of images and the social practices that accompany them. Photography became a popular way to creatively represent the interiors, as it allowed for more experimental freedom and space for personal meaning-making, as an interactive and attentive approach to things themselves (Pétursdóttir and Olsen 2014). The interior engagements negotiated within the visitors' request for personal experience is a semiotic discourse that allows social agents 'to make aesthetic, moral and logical sense of meaning' (Vannini 2007, 134). Consequently, taking pictures of the interiors became a possible way for visitors to communicate their presence

in the zone and to present themselves as a visitor in interaction with other visitor subjects.

Compositional Complexity

From 2008–2018, there was a noticeable increase in the complexity of the composition of the pictures. Photography has always had a storytelling capacity, with photographs embodying the tension between the objective neutrality and the subjective engagement of the photographer (Becker 2015). The staging of artifacts in pictures has been an integral part of photography since its inception. In the pictures taken in Chornobyl in 2008, the element of pictorial storytelling was already evident. A respondent [17] who visited the zone in 2008 described the placement of certain artifacts encountered during the tour.

'This was manipulated for emotional value. Someone put this saying: See, now you think of the children that have used this amusement park. So, you create something like a link. But it's not real because, you know, this wouldn't be it was clearly placed after the glass was broken, so it wasn't left there.' [17]

The act of creating connections, or making one's presence known on the site using meaningful semiotic symbols, should be understood in the context of photography as a means of communication. A photograph possesses testimonial power, derived not from the object itself, but from the historical context it references (Barthes 1984). In Figure 4, the reader sees a toy bear placed on the booth of the Ferris Wheel in Pripyat, serving as a reminder of the sudden disruption of daily life during the city's evacuation.

Certain connections to past narratives have held visual appeal in depicting the nuclear disaster and its aftermath, becoming culturally recognised symbols that visitors were consciously or unconsciously familiar with before their visit. With the rise of the internet and social media, the amount of visual information has become limitless, enabling a visually saturated information space. A respondent [9] who visited the zone in 2013 described:

'Well, maybe it was not a conscious choice to do things like these very stereotypical pictures that everybody took, the gas mask and the nursery. And it is probably just because, even if I didn't have consciousness of it, I fit into that kind of imagery of disaster. And just without thinking, I just reproduced what I had seen before.' [9]

A factor that contributed to the complexity of the visual framing – the increase of artefacts in the pictures – was

due to the increment in the number of visitors, as there is a straight correlation between the visitor numbers and the multiplicity of the artefacts in the pictures. As more visitors flow through the spaces, they leave their traces on the materiality. The organisation of the artefacts, supported by the affordances of the tour and freedom for personal exploration, has enabled complex visual framing, where the semiotic resources are utilised through their *imaginative* function referencing to the wider discourse of storytelling through objects. The imaginative representations increased, and the semiotic resources that were easily linked to the disaster and the broader semiotic discourse (Van Leeuwen 2005; Vannini 2007) started to gain prominence to communicate one's interpretation of Chornobyl. Instead of favouring the documentary and *informative* reading of the landscape, the pictures seen before became the reference point. A respondent [4] expressed this in the following way:

'I was taking pictures anyway, even though I realised the scene was staged. Yeah, but to be honest with you, even though they have been staged, they've been staged in such a way it still makes a good photograph. It makes an interesting photograph. That's why they've been staged that way.' [4]

In Figure 5, an assortment of toys is arranged on a bench in a kindergarten in Pripyat, creating an impression of the scene frozen in time, utilising the narrative familiar from Figure 4, which emphasises the loss of everyday lives due to the evacuation in Pripyat. The photograph incorporates familiar objects that evoke nostalgia while also displaying a complex compositional style; the objects used for the storytelling have multiplied. In 2018, many visitors to the site were aware of others who had also journeyed there, and they had encountered numerous photographs captured within the CEZ. As a result, visitors expressed a desire to craft their unique photographic narratives, creating visual representations with their individual and personal imprints. Thus, the practice of photographing was based on *distinction*.

'If you can't go there, you know, maybe by looking at the photo, the way it's processed and edited, and everything else, you'll get the same feeling that I did. So, I want you to. You know, see the place. Look around the place. Smell the place through just looking at it, and yeah, I wanted to get my own, to put my own take on.' [3]

As Figures 4 and 5 illustrate, the element of staging has always been present in the pictures in CEZ, and it should be comprehended in the context of photography as a medium of expression and the broader semiotic discourse they co-construct. That is the essential

function of semiotic resources; by excluding, rearranging, and substituting elements to fit them into categories of premade discourse, active agents use these resources to accomplish their goals (Van Leeuwen 2005; Vannini 2007).

The compositional complexity, as exemplified in Figure 5, particularly highlights the emergence and abundance of recognisable visual representations taken in CEZ, which created socially shared imaginaries in the minds of the visitors and which worked as a background for the photographic practice of *distinction*. As Kress and Van Leeuwen (2021, 230) note; it is crucial to consider the relationship between the materialities in which the images are produced and the distribution media in which they are viewed and their potentials for reception as reproduction. The *imaginative* semiotic function has given preference to the language of powerful pictures – to the image worlds – as a reminder of semiosis; the interpretation is changing a sign into a new sign, which in turn then becomes interpreted again, a constant reformation of material resources at the heritage sites through its symbols and their subjective interpretation.

Modality Increases

In sociosemiotics, modality refers to the reality value of a semiotic resource (Kress and Van Leeuwen 2021). In the initial sample and the data verified by participants in 2008, Photoshop techniques were only marginally used. However, the tones in the photographs began to darken in 2013, and by 2018, modified images became the dominant mode of representation. These practices have evolved simultaneously with new digital image and photo-modification practices and in which the discursive statement of 'the fidelity of the photograph is related to how well it conveys the emotions of the photographer at the time of taking the picture' (Boeriis 2024, 319). In the early years of tourism, the visitor's photography worked for documentation purposes, in the later years, *the reality of experience* became the dominant mode of representation. Gradually, the semiotic resources were used to express how 'credible a representation is to be taken' (Kress and Van Leeuwen 2021, 154). As such, there is a noticeable departure in the manner in which semiotic resources are being employed, almost as if they are being fashioned into imaginative constructs, fantasies, and caricatures (Kress and Van Leeuwen 2021). Supported by the affordances of technological devices and Photoshop techniques, the interviewees expressed a desire to forward subjective experience instead of objective reality. A respondent [9]

who visited the CEZ in 2013 expressed their idea of picture-making:

‘It is what I felt. I have no intention of saying that’s the truth or that’s the reality. But that’s my reality. When I went there, what did I feel at that moment? And it’s personal to me. And someone else, at the same time, probably sees something different or does something different. Everyone has their own conclusion about the place.’ [9]

Capturing the atmosphere of a place has always been a key objective of photographers, as has to capture a decisive moment (Zuev and Simpson 2023, 6). The reality of experience as a photographic practice never intended to make claims concerning objective reality. Instead, the photographs are expressions of subjectively construed experiences of reality in a given moment. In Figure 6, the viewer is presented with a room in the maternity ward of Pripyat Hospital. The photographer manipulates the lighting and contrast to draw attention to the crib placed in the foreground, evoking an immersive atmosphere that transcends the ordinary. This approach aims to break the confines of mundanity and create a compelling visual experience. One participant [2] explained the rationale behind using modality in photography.:

‘Yeah, I edited the pictures. I think I made them a bit more intense, like adding more contrast. And some pictures I used filter to make it a bit darker or a bit more mysterious in a way just to really express the feeling that I got there. So, the pictures – yeah, I really want to show my feelings in the pictures that I took. So that’s what I tried to transfer into the pictures.’ [2]

The maximum representation of detail through saturation in Figure 6 brings forth the peeling wallpaper and the figures on the floor. Saturation changes the intensity of the picture, placing the emphasis on the materiality of the things, the cracking, grounding, and splintering of all matter. The development of representational devices has contributed to ‘the new concerns for the material and how we present and mediate things and our encounter with them’ (Pétursdóttir and Olsen 2014, 13). Thus, the decay of materiality is an affordance of the ‘things themselves’, and these encounters have become possible to record and forward with the combination of digital camera devices as affordances of these material and non-material agents (Bareither 2021; Pétursdóttir and Olsen 2014).

Technological advancements have bolstered the style of camera interaction and the allure of ruins. The pixel-by-pixel portrayal of decay, wallpaper peeling, structural disintegration, and material rustiness is visually striking, and Photoshop techniques can intensify these processes to underscore the subject matter. The semiotic function is based on the effect of *visual pleasure* (Van Leeuwen 2005), and it should be understood as a representation of the intrinsic layeredness of reality and to be used as a lens to uncover the picture’s intricate relations of in-betweenness. The evolution of the zone’s visual representations must be understood within the framework of wider definitional dynamics and turn into things. Definitional referents are part of an ages-old social dynamic that elevates one experience at the expense of another, destabilising any intrinsic meaning and pointing to a larger dynamic (Uricchio 2011, 33–34). Figure 6 is a visual reference of a shared truth within a framework of a visual culture and a statement of truth value established through the discourse in the social group for which the representation is intended (Kress and Van Leeuwen 2021).

The types of encounters with the materiality of the zone can be understood as subjective and ‘interactive engagement with things and ruins’ (Pétursdóttir and Olsen 2014, 23), which is a photographic practice through which the zone’s traumatic events are interpreted through the practitioners of visual culture. The truth claims of the later pictures taken in CEZ and their emphasis on emotional and sensory coding set the scene for ‘how individual pictures are to be perceived concerning a given cultural and situational context’ (Boeriis 2024, 320). This in turn hints at the constantly evolving styles and practices of participatory visual cultures and the meaning-making of the zone’s materiality through changing photographic practices.

DISCUSSION

The approach of this study reveals how visitors use semiotic resources in sites of contested, toxic heritage, such as CEZ, to produce objects and communicative events and interpret the past inscribed in the landscapes of the zone. As Uricchio (2011, 34) depicts, the notion of authenticity in the modern world, where subjects and objects encounter one another in relative space, should be reconceptualized in an age where algorithmic interventions have modified the agency and place of both. Vannini (2007, 131) further indicates, that semiotic resources work because people with specific interests and specific strategies produce signs to achieve their goals. The longitudinal analysis of this study

provided an understanding of how zones' semiotic resources are employed differently over time. The indicated change in the pictures must be understood in the context of gradual marketisation and an evolving and constantly developing digital visual culture. Not merely understanding the staging of the pictures as a tourist act (Duda 2023), this study elaborated on the activity of storytelling concerning photography as a representational medium and the semiotic functions of the pictures, which are used for different communicative purposes. Staging of pictures has always been an inherent part of the history of photography. The utilisation of semiotic resources through photographic practices forms discursive spaces where their semiotic function is *informative, expressive, imaginative*, or based on *pleasure*.

As Bareither (2021) indicates, the affordances of digital mediums and cultural interactions are a fruitful basis for the analysis. Therefore, the findings of this study suggest that both the process of gradual marketisation and the improvement of photographic equipment and social media have made it easier to publish and access images. This in turn has enabled context-specific visual language to evolve in the zone. Bareither (2021, 588) also notes that considering the vast quantity of digital images of the contested heritage sites on the Internet and the circulation of such images within private networks changes the way the site is perceived by others. This study elaborated on the photographic practices of *documentation, creativity, distinction*, and the *reality of experience* and how they communicate engagements with the heritage. The emerging informal knowledge regarding the visits, the separation of the actual place and the place as experience and imagination, and the possibility to engage with the materiality of the zone creatively have been those processes that have influenced perceptions of the zone's heritage.

A further contribution of this study is that it indicated, with clear examples, how the appeal of the zone merged with the activity of urban exploration and how this influenced its visual representations and practices of engagement at the site. Urban exploration as an activity modified certain visual experiences and particular ways of communicating one's presence in the place. Also, the Urbex movement allows insights into the question posed by Hilmar (2016) regarding the change of visitors' moral scripts in the heritage sites; the inherent requirement for personal exploration and engagement with the off-limits sites established a spatial material-discourse in the zone. This article on the evolution of the utilisation of semiotic resources in the CEZ to communicate experiences contributed to a deeper understanding of 'how people, emotions, objects, and environments are reconstituted in

the continuous process of change' (Zuev and Simpson 2023, 15).

Thus, this research provided a clearer understanding of the practices of the zone's visual culture and the utilisation of communicative and persuasive strategies concerning the accident and its present manifestation in the CEZ. This result offers references for future atmosphere studies on tourism in sites of contested heritage. It particularly encourages investigating the types of fantasies, imaginings, desires, and practices of engagement urban exploration might insert on other nuclear and toxic heritage sites.

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ELECTRONIC SOURCES

State agency of Ukraine on exclusion zone management, 2020. Chernobyl tourist boom: over 100,000 people visited the zone of alienation this year. [online] Available at: [Accessed 16 May 2024]

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