Know Where You Stand:

The Awareness of a Place's Historical Dimension on Affective and Cognitive Outcomes

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Der Traum meines Großvaters, Rudolf Weiss, war es, Lehrer zu werden. Leider wuchs er in einer anderen Zeit auf als ich. In jener Zeit auf welche diese Arbeit Bezug nimmt. Eine Zeit voller Zwang, Angst, Hass, Grausamkeiten und Entbehrungen. Einer Zeit, in der (Nächsten)Liebe, Mut, Hilfsbereitschaft und der Traum von Freiheit wohl die wichtigsten Komponenten des Überlebenskompasses darstellten. Während ich nach dem Abitur an einer Universität studieren dufte, musste mein Opa nach dem Abitur in den Kriegsdienst. Er wurde als Soldat an die Front geschickt, in einen sinnlosen Krieg gegen Russland. Anschließend verbrachte er fünf lange Jahre seines jungen Erwachsenenlebens in russischer Kriegsgefangenschaft. Als kleines Kind erzählte er mir, dass er in dieser Zeit die russische Sprache lernte und wie man Körbe flechtet. Erst nach seinem Tod habe ich verstanden, was diese Zeit sonst noch für Erlebnisse für ihn mit sich gebracht haben muss.

Ich weiß, dass diese Promotion meinem Opa, dem Bildung sehr wichtig war, viel bedeutet hätte. Lieber Opa, diese Arbeit sei Dir gewidmet. Danke, dass Du mir das russische Alphabet beigebracht hast, wie der Rasenmäher funktioniert und noch vieles mehr!

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Summary

Previous research has focused on visitors' experiences at historic sites such as concentration camp memorial sites. As such sites usually hold both, a historic dimension and physical attributes resembling the site's history, it is an open question whether it is either the historic dimension, the physical attributes, or the interplay of both that fosters the effects on visitors. In addition, to the best of my knowledge there is no theoretical framework about the impact of historic places from a psychological perspective yet.

The goal of this thesis was to address these research gaps. I summarized the literature and derived a theoretical framework about the impact of historic sites. To investigate the impact of becoming aware of a site's historic dimension on affective and cognitive outcomes, I conducted three empirical studies. The studies' setting was the Leibniz-Institut für Wissensmedien in Tübingen, a former women's clinic, in which a multitude of crimes were committed during the period of National Socialism (NS). Today the building offers no physical traces of its former history. By providing different prior information to the participants, their awareness of the historical dimension was systematically manipulated. The results reveal that history awareness has a substantial influence on the participants' personal mood, but the additional information about the place's NS history did not add much to this effect. The results indicate further that history and place awareness influences the perceived valence of related NS photos in a negative way and influences the interpretation of these photos. Also, there is partial evidence that the awareness of a site's NS history has a negative effect on the evaluation of the site itself. However, history awareness did not influence the description or the recognition memory performance of related historic photos.

This dissertation begins with situating the topic within the current sociocultural discourse, and then postulates a theoretical framework about the impact of historic places from a psychological perspective. This is followed by an overview of the conducted empirical

studies. In the final section, the results are discussed and located in the theoretical framework, strengths and limitations are pointed out, and outlooks and ideas for further research are presented.

Zusammenfassung

Bisherige Forschung untersuchte die Erfahrungen von Besucher*innen historischer Orte, wie Gedenkstätten ehemaliger Konzentrationslager. Da solche Orte neben der historischen Dimension meist auch physikalische Attribute aufweisen, welche die Geschichte des Ortes widerspiegeln, ist es unklar, ob die Effekte auf Seiten der Besuchenden durch das Bewusstsein sich an einem historischen Ort zu befinden, durch die physikalischen Attribute des Ortes, oder eine Mischung beider Komponenten hervorgerufen wird. Zudem gibt es bislang kein theoretisches Modell, welches die Wirkungen historischer Orte aus psychologischer Perspektive abbildet.

Das Ziel der vorliegenden Dissertation war es, diese Forschungslücken zu beleuchten. Zunächst habe ich die bestehende Literatur gesichtet und hieraus ein theoretisches Modell über die Wirkungen historischer Orte abgeleitet. Um empirisch zu untersuchen, wie sich die Bewusstwerdung sich an einem Ort mit Nationalsozialistischer (NS) Geschichte zu befinden auf affektive und kognitive Variablen auswirkt, habe ich drei empirische Studien durchgeführt. Die Studien wurden im Leibniz-Institut für Wissensmedien in Tübingen, einer ehemaligen Frauenklinik, in welcher eine Vielzahl von Verbrechen während der NS Zeit begangen wurden, durchgeführt. Das Gebäude weist heutzutage keine physischen Spuren dieser Geschichte mehr auf. Das Geschichtsbewusstsein der Proband*innen wurde durch die Gabe von systematisch variierten Vorinformationen manipuliert. Es zeigte sich, dass die Stimmung von Proband*innen, die Vorinformationen über die NS Zeit im Allgemeinen erhielten, stark negativ beeinflusst wird. Die zusätzliche Information sich an einem Ort mit NS Geschichte zu befinden, verstärkte diesen Effekt jedoch nicht erkennbar. Allerdings zeigte sich, dass die Vorinformation

sich an einem Ort mit NS Geschichte zu befinden, die Interpretation assoziierter Fotos beeinflusst, und diese zudem negativer beurteilt werden. Weiterhin zeigte sich eine partielle Evidenz dafür, dass die Bewusstheit sich an einem Ort mit NS Geschichte zu befinden, einen negativen Effekt auf die Beurteilung des Ortes hat. Es wurde kein Effekt der Geschichtsbewusstheit auf die Beschreibung und Wiedererkennungsleistung von assoziierten historischen Fotos gefunden.

Die vorliegende Dissertation beginnt mit der Einordung des Themas in den aktuellen soziokulturellen Diskurs und postuliert im Anschluss ein theoretisches Modell zu den Wirkungen historischer Orte aus psychologischer Perspektive. Es folgt ein Überblick über die genannten empirischen Studien. Im letzten Abschnitt werden die Ergebnisse diskutiert und in dem theoretischen Modell verortet. Stärken und Grenzen der vorliegenden Arbeit werden aufgezeigt und Ausblicke sowie Ideen für weitere Forschung werden präsentiert.

1. General Introduction

The handling of historic places related to the National Socialism (NS) is a persistently discussed topic in Germany and other European countries (Macdonald, 2006; Tietz, 2020). Discussed options within these ongoing debates include the purposeful destruction, the guarded decay, the preservation, the resurrection, or the renovation. While some of these places are utilized as memorial sites or informal learning settings, others have been rebuilt or renovated and function today for regular daily businesses.

Within the NS period (1933-1945) a countless number of War Crimes took place. Among others these crimes include the Holocaust, that is the mass murder of about six million European Jews, the persecution and murder of political dissidents, the so-called *Aktion T4*, that is the systematic murder of people with mental and physical disabilities, as well as the forced sterilization of so-called 'racially inferior' people. Theodor W. Adorno (1966) formulated the objection that similar crimes should never happen again. Accordingly, the education about the NS period as well as the remembrance of the victims is considered of great importance in Germany (Brumlik, 2008; Bundesregierung Deutschland, 2022), and memorials and documentation centers are frequently visited during school field trips and report large annual numbers of visitors, for example, 900.000 visitors in 2018 at the concentration camp (Konzentrationslager, KZ) memorial Dachau, 700.000 at the KZ memorial Sachsenhausen, and 500.000 at the KZ memorial Buchenwald (Das Gupta & Sandkuhl, 2019). With regard to their former usage some historians differentiate between *victim* and *offender places*, well knowing that this differentiation is problematic as there may be offender places without victims, such as the former Berghof (Hitlers second headquarter), while there cannot be victim places without offenders (Dahm, Feiber, Mehringer, & Möller, 2016). Usually, victim places, such as former KZs, are utilized as memorial sites (e.g., Auschwitz memorial site), while offender places are utilized as informal learning settings (e.g., the documentation center at the former NS party congress site in Nuremberg). While there is this underlying assumption that learning about the

historical time is enhanced when being at a place that was a part of the particular period in time, to the best of my knowledge, this assumption has yet not been empirically investigated.

Besides these rather prominent historic NS places, exists a vast number of everyday places holding a NS history including residential buildings, marketplaces, commercial areas, universities, and clinics, among others. Attempts to make the NS history of everyday places visible include so called *Stolpersteine*[1], 'stumbling blocks' along the sidewalks, having a brass plate engraved with the names and personal life data of persons who used to live there before they were deported and often killed by the NS regime, or *information plaques*[2] which usually combine text explanations with historical photos of the site. While there is research on the motives and experiences of visitors of prominent historic places, such as KZ memorial sites (Bilewicz & Wojcik, 2018; Nawijn & Fricke, 2015; Oren, Poria, & Reichel, 2021), there is a lack of empirical investigation regarding the effects of everyday places holding a NS history.

A further research gap concerns a theoretical framework summarizing the impact of historic places from a psychological perspective. Even though I conducted an extensive literature research, I could not find such a framework. While the psychological science offers a huge amount of research dedicated to the concept of *place attachment*, this concept does not sufficiently hold for historic places associated with the NS period. That is, place attachment research usually focusses on places where people prefer to remain and where they feel comfortable and safe (Hernández at al., 2007), namely residential places, such as the own home, neighborhood, communities, cities, towns or regions. But as there certainly are certain ambiguous peculiarities regarding historic places, I claim, that this concept does not specifically hold for it (see the next chapter for a more detailed discussion).

Another interesting approach can be found within the field of history education. Baron (2012) assumes that the history of a building can be *read* when persons visiting a historic place

[1] cf. https://www.stolpersteine.eu/
[2] cf. https://www.geschichtswerkstatt-tuebingen.de/projekte/geschichtspfad-zum-nationalsozialismus

possess a certain extend of prior historical knowledge about it. Therefore, she conducted a study with historians experiencing the Old North Church, a historic building in Boston, Massachusetts. She postulates a framework of historical thinking at historic sites, based on five major components, which she identified within her study. The components which can be applied by asking oneself certain questions are: origination ("How did this building come be to this place?"), intertectonality ("How does what they did here compare with what has been done elsewhere?"), stratification ("What are the multiple time periods evident in this building, and what do they tell me about its history?"), supposition ("Given the available evidence, my prior knowledge, and how I understand the world to work, what plausible scenario or outcome could explain this feature or phenomenon?"), and empathetic insight ("Given the available evidence, my prior knowledge, and how I understand the world to work, how would the people who occupied this space have responded (socially, emotionally, intellectually) to the space and the circumstances of the time?").

As mentioned before, there exists a vast number of everyday places holding a NS history, but these places often lack physical features resembling their history. This may be because the former building got destroyed, the place was recaptured by nature, or the building got completely renovated over the years and today holds a completely different function. Therefore, some buildings' history cannot be 'read' through physical features. As the research investigating the (affective) experiences of visitors has mainly been conducted at historic sites, holding both, a historical dimension and physical attributes resembling this history, it is an open research question whether it is the awareness of being at a place holding a historical dimension, the physical attributes of the site resembling this history, or a mixture of both fostering the effects on visitors.

The aim of the present thesis is to shed light on this empirical research gap and further postulate a theoretical framework where the previous, present and future findings can be

located. The compiled theoretical framework about the impact of historic places from a psychological perspective is presented and discussed in the next chapter.

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Declaration according to § 5 Abs. 2 No. 8

of the PhD regulations of the Faculty of Science

-Collaborative Publications-

The following chapter (Chapter 1.1) consists of a manuscript that was co-authored by Stephan Schwan. The manuscript is currently under review. The proportional contributions to this manuscript are presented in the subsequent table.

Authors	Author position	Scientific ideas (%)	Data generation (%)	Analysis and Interpretation (%)	Paper writing (%)
Melissa Ries	First author	90	100	100	90
Stephan Schwan	Second author	10	0	0	10
Title of the paper	Experiencing the History of Places: A Psychological Framework and Empirical Overview				
Status in publication process	under review				

1.1 The Impact of Historic Places: A Theoretical Framework

Experiencing the History of Places: A Psychological Framework and Empirical Overview

Imagine that you are out for a walk, carrying a history book in your backpack. When you find yourself at a place with some benches, you decide to sit down and rest for a while. The place appears to be totally normal to you. You take out the history book and browse through the pages. One chapter about the history of the current area catches your interest, and you begin to read. The pages in the book reveal to you that this place where you currently are is a place where awful tragedies happened in the past. The awareness of being at a place where tragic historic events, such as humanitarian crimes, took place is of great importance: In Germany, much effort is taken to make people aware of the historical dimension of places and buildings, especially in relation to the crimes of the regime of National Socialism (NS, 1933-1945), but also with respect to the regime of the Socialist Unity Party of Germany (SED, in the German Democratic Republic, 1948-1989). These methods range from so-called *Stolpersteine*[3] to concentration camp memorials and documentation centers). Placing documentation centers about history of the NS regime or the SED regime at authentic historic places is based on the assumption that at such places informing and educating about historic events is particularly effective. Accordingly, memorials and documentation centers are frequently visited during school field trips and report large annual numbers of visitors, for example, 900.000 visitors in 2018 at the Concentration Camp (Konzentrationslager, KZ) memorial Dachau, 700.000 at the KZ memorial Sachsenhausen, and 500.000 at the KZ memorial Buchenwald (Das Gupta & Sandkuhl, 2019).

[3] *Stolpersteine* are so-called ‘stumbling blocks’ along the sidewalks, having a brass plate engraved with the names and personal life data of persons who used to live there before they were deported and often killed by the NS regime.

From a psychological point of view, this implies that the impact of a given location on psychological processes not only depends on its current atmosphere, but also on the visitor's awareness of its historical dimension. While the impact of the current environment depending on physical dimensions is well-documented (Nasar & Bokharaei, 2017; Peponis et al., 2004; Stamps, 2011), less is known about the psychological effects evoked by the historical dimensions of places. The aim of the present article is to illuminate this gap. First, we will discuss the term 'historic place' and point out what we are referring to when using it. Then we will outline a framework of the impact of historic places on visitors, derived from empirical findings reported in the literature. Finally, we will discuss the framework as well as open research questions.

Historic Places

There is a great variety of what is considered a historic place. The spectrum ranges from the *dig where you stand* movement focusing on the exploration of local history (Lindquist, 1978), to the *National Register of Historic Places*, a list of places in the United States that are considered worthy of preservation, authorized by the National Historic Preservation Act of 1966 (cf. https://www.nps.gov/subjects/nationalregister/faqs.htm), to UNESCO's list of world heritage sites. The *dig where you stand* approach acts as a network consisting of many autonomous and diverse groups focusing on sites of memory in everyday life rather than on popular heritage sites. Its strategy is to persistently document many small changes, such as renaming streets that had their origin during the Nazi period, thereby reinventing attitudes, landscapes, and institutions of commemoration, and transforming the prevailing memory politics (Wüstenberg, 2017). The *National Register of Historic Places* is an official list including buildings, sites, districts, structures, and objects normally aged fifty years or older (Wells, 2017). The aim of this initiative is to "protect America's historic and archeological resources", therefore qualified historic properties receive preservation benefits and incentives.

Regarding historic places, UNESCO aims to protect and preserve cultural and natural sites that are of 'outstanding universal value'. Within the *Operational Guidelines for the Implementation of the World Heritage Convention* (UNESCO, 2021, p. 24), outstanding universal value is described as "cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity." Further criteria required for the consideration of a world heritage site include integrity, authenticity, and "an adequate protection and management system to ensure its safeguarding."

Overall, in a broad sense one might say most places are historical because they have been inhabited, cultivated, or shaped by individuals and societies during past periods of time. In a far narrower sense one could use the criteria of world heritage sites for identifying outstanding historic places. In between these two extremes, one may speak of a historic place if it is seen to be the setting of an event of historic relevance or to be prototypical for a certain aspect of a historical period. This view is taken in the present paper, knowing that this definition leaves room for negotiable interpretation. In particular, as Manzo (2003) points out, "the dominant political culture influences the appearance, meanings and uses of space" (p.55). The same holds for what is remembered. Often historic places hold references to different events in time, but what is going to be remembered depends on the dominant political culture and the visitor's expertise in history. For example, Lähdesmäki (2017) criticizes the affective rhetoric used in promotional videos of sites awarded the European Heritage Label. She claims that the history of several sites includes "agony, violence, hatred, oppression, and injustice" (Lähdesmäki, 2017, p. 709), but the stories in the videos "turn their legacy into a positive ethos of conquering these negative extremes and cherishing their positive opposites: freedom, justice, solidarity, and peace." (Lähdesmäki, 2017, p.709) In addition, while some places have a prominent historic event or period attributed to them, others may have none or even multiple historic attributions, and these attributions may change in the course of time.

Impact of the History of Places on Visitors: A Framework

Given that a certain site is considered a historic place in the sense described above, the question arises if and how this historical dimension is reflected in a visitor's perception and what effects arise from becoming aware of it. Regarding a person's relationship to places, Scannell and Giffords (2010) framework of place attachment provides a promising conceptual starting point. The notion of place attachment has been described as an affective bond that people establish with specific areas where they prefer to remain and where they feel comfortable and safe (Hernández et al., 2007) or, more generally, as a bonding occurring between individuals and their meaningful environments that gradually develops over time (Lewicka, 2013). Accordingly, most of the research covering place attachment is dedicated to places of residence, namely home, neighborhood, communities, cities, towns, or regions, but the concept has also been applied to non-residential places such as second and seasonal homes, places of recreation, sacred sites, working places, football grounds, and virtual or imagined places, among others (see Lewicka, 2011, for an overview).

To conceptualize place attachment in a differentiated way, Scannell and Gifford (2010) propose a tripartite organization of dimensions, including a person dimension, a process dimension, and a place dimension. In their approach, place attachment results from an intricate interplay of collective and individual prerequisites and experiences (person dimension), social and physical characteristics of the site (place dimension), and cognitive, affective, and behavioral mechanisms (process dimension). Such an interplay of personal, place-related, and processual characteristics may also be assumed in the case of visiting historic places but with several important complements and modifications.

Firstly, while place attachment focuses on places in their current state, a framework of experiencing historic places has to take the relationships between a site's current and historic

states into account. This includes, among others, the presence or absence of material remains, reconstructions, and didactical means (such as explanation plates), all pertaining to the historical *readability* of a place. Accordingly, in the case of historic places, physical characteristics must be given greater consideration than is normally done in the field of place attachment.

Secondly. while place attachment is usually defined in positive terms, historic places such as the memorial places of concentration camps or documentation centers often offer ambiguous or negative connotations. Regarding place attachment, Guiliani and Feldman (1993) addressed this when they noticed: "If we accept the prevalent definitions of place attachment […] that it is an affective bond to place, we need to consider whether or not to include […] a negative emotional relationship. To speak of negative attachment contrasts with the everyday meaning of the word. The places where Nazi lagers were located are certainly 'place' with a strong emotive value in particular for Jewish people. Would they say that they are 'attached' to them?" (p. 272).

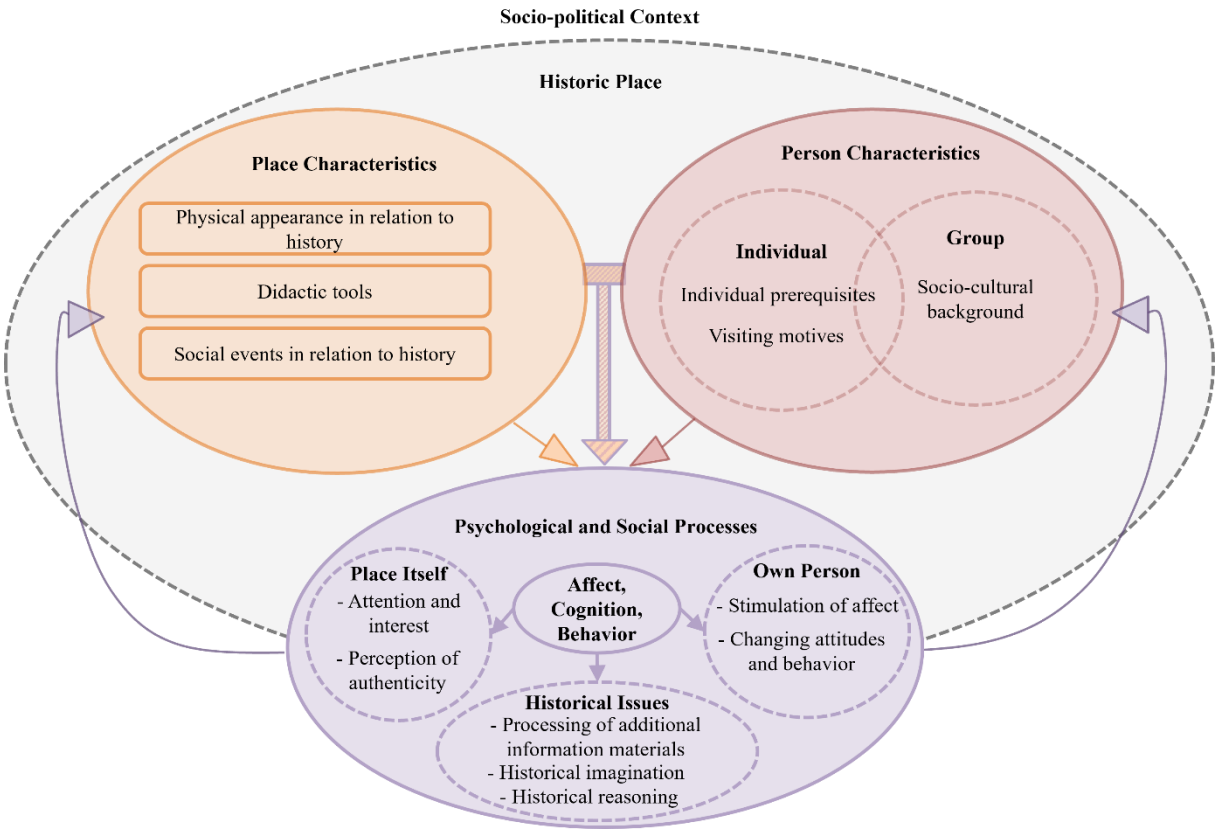
Thirdly, while place attachment is seen as a permanent, long-term relation gradually developing over time, visits to historical sites often are one-time experiences of brief duration. Therefore, besides personal traits, visitors' current states, such as visiting motivation, affective state, time schedule, and health and fitness condition, have to be considered to a greater extent. In addition, visiting a historic place or becoming aware of a place's history does not necessarily have to result in place attachment. Instead, the framework should include changes in place attachment as one possible effect among others. Specifically, regarding historical experiences while encountering complex historical resources (such as historic places), Zachrich et al. (2020) have proposed a set of cognitive, affective, and physical dimensions that come into play in such encounters and together constitute a unified historic experience. In the cognitive dimension, this includes a focusing of attention, imagination of historic scenes and events, recognizing the perspective of historic agents, contextualization of the resource information, and a sense of

insight. The affective dimension includes feelings such as awe and reverence, being moved, being personally attached, feeling close to history but also being irritated. Finally, the behavioral dimension includes physiological responses as well as sensory and physical interactions.

Based on these considerations, the proposed framework includes three main components: the characteristics of *the historic place*, the characteristics of *the person* visiting the historic place, and *the psychological and social processes* resulting during or after the visit (see Figure 1).

Figure 1

Framework About the Impact of Historic Places.



From a psychological perspective, the impact of historic places emerges through an interplay of the three components. Therefore, the framework includes loops to schematically represent the influences of the components on one another. We claim that person characteristics

(e.g., lifepath) are of great importance, as they shape the perception of a historic place. Thus, the perception of a historic place not only depends on the characteristics of the place itself but emerges within the person visiting the place. Also, it should be noted that, when applying this framework, one has to be aware of the implications of the socio-political context in which the impact of a historic place is embedded. This could among others relate to the following questions: When is a place labeled as being a historic place? What is the main remembrance focus at the historic place? The framework does not claim completeness but should rather be seen as a heuristic starting point open for further refinements.

Characteristics of the Historic Place

We postulate three main dimensions that mainly influence a place's historic character, namely, its present physical appearance in relation to its history, social events in relation to its history, and didactical means to point out its historic dimension.

The Physical Appearance of Places in Relation to History

Depending on culture and available technology, places strongly differed in their appearance in former times compared to the present state. For example, due to the absence of modern electric light, places were usually much darker at night than today. This holds also for soundscape, smell, and surface morphology, among others. Therefore, in former times, places did have particular atmospheric "fingerprints" that in turn should have evoked particular impressions and experiences. For example, regarding lighting conditions, Nasar & Bokharaei, (2017) found that a uniform, bright, or overhead lighting achieved higher scores than did a non-uniform, dim, or peripheral lighting. The authors assume that after dark the preferred lighting conditions reduce hidden information and therefore threatening and unpleasant feelings.

Similarly, throughout history, nations and their leaders have used constructional conditions, such as the size of rooms and buildings, to demonstrate and symbolize their power. When the leader is positioned on an elevated space, may it be a throne or a balcony, the vertical

position itself can create the impression of the person being powerful (Schubert, 2005). Schubert (2005) postulates that the concept of power is partly represented in perceptual form as vertical difference. While some factors in architecture may give rise to positive awe, others may give rise to threat-based awe (Negami, 2020). Regarding fascist regimes, monumental architecture may be intentionally used to politically pacify people, to stun them and make them unable to act. In line with that, Joye and Dewitte (2016) found that monumentality of architecture leads not only to a feeling of awe but also to behavioral and mental freezing, which manifests in a lack of physical agility and hesitation at a button-press-task (Joye & Dewitte, 2016). Room size has also a substantial influence on time perception, with larger rooms giving the impression of longer durations (DeLong, 1981). Whereas on an aesthetic dimension rooms with higher ceilings are more likely to be judged as beautiful (Vartanian et al., 2014), ceiling height also influences the mode of information processing, with higher ceilings prompting relational instead of item-specific processing of information (Meyers-Levy & Zhu, 2007). Accordingly, one can assume that the monumentality of a building plays an important role in the perception and affective and cognitive reactions of visitors.

However, while every place has physical attributes that on their own create a certain atmosphere, not every place has a strong relation to one or more historic events or periods. In addition, even places considered to be of historic relevance need not necessarily bear much similarity to their former historical state. Instead, they may have undergone fundamental changes by decay, destruction, changes of use, or redesign, or, on the other hand, may have been carefully restored and reconstructed to create the appearance of a certain historical period. According to Baron (2012), the historical dimension of a given place or building can be more or less *readable* for a visitor, depending on how easy historical layers and elements can be identified. Thus, *historical readability* depends on at least two components: *the state of preservation or transformation* (to which extent it is in its original configuration, restored,

redesigned) and the prior knowledge of the visitor about the place, its course of events, and its history (which will be discussed below).

There is much ongoing debate about preservation, restoration or reconstruction of places or buildings (e.g., Tietz, 2020). While conservation focuses on fixing original remains in its present state, restoration tries to recreate the original appearance of historical remains. Reconstruction goes beyond by trying to recreate the appearance of a certain historical period by eliminating modern elements or buildings, replacing them with elements or buildings that do not necessarily consist of original parts but nevertheless closely resemble a certain historical period. In addition, the *patina* of buildings can give cues about its physical age, an attribute of its historicity (Wells, 2017). Particularly in places with only few remains, conservation and restoration may keep the authenticity of originals, but at the cost of being barely visible to visitors. On the other hand, reconstructions may make the historic character of a place more salient but often tend to portray it in an idealized way and, at the same time, "freeze" the place to a certain point in time, neglecting different time layers that also happened to be relevant for the place's history.

As physical features may provide cues about a place's history (Lewicka, 2008), historical readability should be facilitated at places where much substance is preserved, restored, or reconstructed, compared to places where hardly anything is left. Hence, from the perspective of historical readability, reconstructions may be preferable over conservations in cases where only few historical remains have survived, but it is nevertheless considered important to give visitors an impression of a place's appearance at a certain historical point in time. Alternatively, media-based visualizations may be used to vividly recreate that point in time without intervening with the material conditions of a place (see section on didactical means below).

Historical readability can be assumed to have at least two implications for a visitor's experience of a historic place. First, high readability may recreate a place's atmosphere during

a former historical period, thus allowing visitors to feel more or less transported back in time and to be able to get an impression of the place's past look-and-feel qualities. Second, high readability of a historic place should also help visitors to activate their historical knowledge related to the place and to acquire new insights into its historic conditions, which in turn can be integrated into previous knowledge structures (Baron, 2012; O'Brien et al., 2016).

Didactic Tools

Many historic places are supplemented by supportive didactic tools intended to increase the place's historic readability, provide visitors with additional background information to contextualize the place and to foster visitor's imagination. There is a broad spectrum of didactic media options, ranging from small plaques and stumbling stones to text panels, audio guides, multimedia guides, and augmented reality apps (Amakawa & Westin, 2017; Ayton et al., 2020; Boletsis & Chasanidou, 2018; Oleksy & Wnuk, 2016; Stefaniak et al., 2017).

Even small cues to the history of a place or a building may have some impact on its perception and appraisal. For example, Ayton et al. (2020) found that attaching a commemorative blue plaque to a building indicating that it was inhabited by a well-known historic person led to an 27% increase in market value. Similarly, stumbling stones may make pedestrians aware that a seemingly ordinary building was formerly inhabited by Jewish fellow citizens that were displaced or deported by NS regime. While blue plaques or stumbling stones focus visitors' attention on the historical dimension of a place, other didactic tools go one step further by providing background information, pictures, or sounds of the historical conditions, thereby contextualizing and stimulating imagination.

This has traditionally been done in form of static panels at selected spots of a historic place but is increasingly supplemented or even replaced by digital tools, such as audio guides, multimedia guides, or augmented reality apps, each of them with certain advantages and disadvantages. To begin with, because static panels are continuously visible, they may catch

visitors' attention by chance, while digital tools require that visitors know of them, have the appropriate hardware at hand, download and actively start them. On the other hand, static panels may visually "clutter" a historic place, thereby compromising its atmosphere and are strongly restricted in the amount and type of information. In contrast, digital tools operate more unobtrusively, may contain large amounts of information which can be tailored to the visitor's needs (e.g., in terms of different languages, age groups, or thematic interests) and may also provide not only text and static pictures but also sound clips, video material, or animations. Within the spectrum of digital tools, there are also some differences (Bekele et al., 2018). While audio guides are confined to spoken language and sound and thus do not allow for additional pictorial information, they have the advantage of not distracting visitors' visual inspection of the place by an additional screen medium (Boletsis & Chasanidou, 2018). On the other hand, multimedia guides may provide a rich set of pictorial material, bringing historic times to life via historic views or images of equipment, furnishings, and inhabitants (Efstathiou et al., 2018; Harley et al., 2016; Price et al., 2016). Finally, while multimedia guides present these pieces of information on separate screens, advanced technologies such as augmented reality allow for overlaying the real scenery with digital elements, thereby integrating both into a single view (Bekele et al., 2018; Geroimenko, 2021).

Provision of additional information, including verbal explanations, historic photographs, or digital reconstructions have been found to support the visitors' experience of the historic dimensions of places (Cameron & Gatewood, 2000). More specifically, multimedia guides and augmented reality tools have been found to provide reference points that guide visitors' attention on the site (Javornik et al., 2019; Price, et al., 2016). Pictorial material but also "soundscapes" allow visitors to become aware of the differences between historical and current conditions, from a place's overall appearance to subtle details (Efstathiou et al., 2018; Price et al., 2016). Similarly, pictures of former conditions and digital reconstruction are particularly helpful for places where historic remains are largely absent, but care should be

taken that the uncertainty and tentativeness of reconstruction is made explicit (Amakawa & Westin, 2017; Glaser & Schwan, in press). Finally, uses of digital media accompanying the visit to a historic place have been found to foster visitors' historical empathy, historical reasoning, and comprehension of historical conditions (Efstathiou et al., 2018; Price et al., 2016). For example, Oleksy and Wnuk (2016) found that visitors to the former ghetto district in Warsaw developed a better understanding of the multicultural significance of the urban district when they were shown digitalized historic photographs of the respective location using augmented reality glasses during the tour.

Social Events in Relation to the History of Places

Devine-Wright and Lyon (1997) state that "[…] people attach meanings to the environment and engage in different activities in a specific environment. They assume different roles and are expected to behave according to certain rules." (p.33). Activities occurring at a historic place contribute strongly to its overall atmosphere, the prevailing rules, and possibilities. Regarding historic places, one can find many different activities depending on the kind of historic place, its usage and purpose, ranging from concerts reinstating the special acoustics of a historic church to commemoration ceremonies at concentration camp sites. In addition, important historic places are often used for staging historic events in the form pageantries, reenactments, or living history, (Agnew et al., 2019). The underlying idea is to teach visitors a deeper understanding of a place's history, the living conditions in a historical period, or a particular historic event by recreating as close as possible a historic situation in terms of its people, their clothes, tools, and behavior. Although often being hobbyists without professional background in history or education, reenactors typically take great care in becoming highly knowledgeable about the relevant historical aspects (Español-Solana & Franco-Calvo, 2021). Regarding their educational performance, first-person living history can be distinguished from third-person history (Douglas et al., 2018). While during first-person

living history, "interpreters assume the role of an actual person and speak and act in character" (Douglas et al., 2018, p.34), "during third-person living history the interpreter may use period dress and idiom but moves freely in and out of time periods" (Douglas et al., 2018, p.35).

In a study on reenactments of medieval warfare, the majority of educators from reenactment groups claimed that they consider third-person history as a combination of historic character performance and 21st century explanation and interpretation to be an appropriate educational strategy for fostering learning and understanding (Español-Solana & Franco-Calvo, 2021). The reenactors also emphasized the role of interactions with the visitors as being important for stimulating emotions and helping visitors to understand emotions and actions of people from the past. By comparing visitors' judgements of their needs and their gains from live interpretation, Malcolm-Davies (2004) found that costumed interpretation contributed to a sense of the past but did not necessarily meet visitors' expectations regarding learning and understanding. Only those historic sites with a high investment in reenactor training succeeded in providing both a recreation of the sense of past and a high educational benefit. In addition, a study by Van Dijk et al. (2012) found that third-person interpretation combining reenactment with historic explanation outperformed first-person interpretation on visitors' cognitive and emotional outcomes, including perceived meaningfulness, empathy, and cognitive elaboration.

The necessity of adapting to the various visitors' needs and prerequisites is also highlighted in a study conducted at the Wailing Wall in Jerusalem (Poria et al., 2009). While the visitors' expressed a general preference for personal interpretation, those visitors who considered the place as part of their personal heritage did formulate different needs than those who did not. This is also acknowledged by tour guides at heritage sites, as they typically do not adhere to a strictly scripted interpretation but, instead, engage in a flexible recipient design, depending on the visitor group they are interacting with (Best, 2012; Best & Hindmarsh, 2019; Specht & Loreit, 2021); that is, individual tour members have a significant impact on the ongoing guidance because they are not just passive listeners but often behave in an interactive

manner. Also, in-depth analysis of guided tours has shown the important role of the concrete spatial conditions at the historic site (Best, 2012; Best & Hindmarsh, 2019). Tour guides face the task of shaping the visitor group's movement across spots or rooms and also have to reorient the group's attention from one artefact to the next. Accordingly, from the perspective of the guide, the various parts of a historic place establish a temporary workspace that is interactively configured, eliciting various instructional practices (e.g., question asking, pointing, holding up objects) depending on the spatial conditions at hand.

Taken together, the closer a place's appearance resembles the historical conditions, the more authentic the visitor experience of a place's past look-and-feel qualities should be. Accordingly, various measures have been developed to recreate a vivid impression of a place's historical atmosphere, ranging from material reconstructions to re-enactments, to multimedia presentations, and augmented reality visualizations (Cameron & Gatewood, 2000; Chronis & Hampton, 2008). Historic places can thereby exert an influence on their visitors, both by making visitors aware that they are at a historic place and by recreating the places' former atmosphere. While both lines of influence may go together perfectly, if a visitor, for example, takes a guided tour at a well-preserved historical site, both lines may also work in isolation. Thus, a visitor may experience the atmosphere of a certain place without being aware that it corresponds to the look-and-feel of a past period. In contrast, a visitor may be aware of the historic dimension of a place even if its present state does not at all resemble its former historic appearance.

Visitor Characteristics

Depending on the visitors' prior experiences, their motivation and background knowledge, and their membership in a particular social group, to name just a few personal attributes, visitors react differently to historic places. This interaction between environmental and personal characteristics is also acknowledged in the frameworks developed by Scannell and Gifford (2010) and Zachrich et al. (2020). Following Scannell and Gifford (2010), we

distinguish between two main personal dimensions that influence a visitor's experience of a historic place, namely, the person's socio-cultural background (group dimension) and the person's individual prerequisites and visiting motives (individual dimension).

Visitors' Socio-Cultural Background

In their conceptual framework of tradition, Jacobi and Stokols (1983) postulate that places are important constituents of historical traditions. The authors emphasize the importance of historic places in acquiring social significance by symbolizing values and being associated with particular emotions and experiences remembered and considered important by the group (see also Scannell & Gifford, 2016). The historic significance of places can be presented in stories, rites, landmarks, or artifacts, which can either have "a value of their own (value-in-self) and/or be allotted value as a part of a contextual story (value-in-context)" (Ram, Björk, & Weidenfeld, 2016). In turn, the visitors' cultural background has an influence on how a particular historic place is perceived and interpreted, as Kyle and Chick (2007) state: "The socio-cultural lens through which informants' experiences are interpreted impacted the meanings they associated with the settings." (p. 215). Accordingly, the literature about place related research (such as place identity, place attachment, or meaning of place) offers some empirical evidence that culture, ethnicity, social class, gender, age, religion, nationality, and political attitudes and convictions are of importance regarding the perception of places or, moreover ,the bond between people and places (Devine-Wright & Lyons, 1997; Hidalgo & Hernández, 2001; Kyle & Chick, 2007; Lewicka, 2008; Oleksy & Wnuk, 2016; Manzo, 2005; Proshansky et al., 1983).

One important role of historic places is the construction of national identities. As an example, Devine-Wright and Lyons (1997) investigated the role played by four historic places in Ireland in the construction of Irish national identity. In their study, a sample of more than 100 participants, who either were considered traditional versus nontraditional, was asked for the feelings and the values associated with each of the places as well as the perceived

importance of each of the places in maintaining a positive evaluation of Irish national identity. It was found that the two oldest places were represented in a similar way by both groups, whereas the two newer places were represented in different ways. The authors conclude that historic places play a role in the construction of national identity, as they act as cues for social memories for different groups and that the symbolic and temporal functions of historic places for groups may not be static constellations. Summarizing their findings, Devine-Wright and Lyons (1997) state that "places can be interpreted as repositories of specific meanings, memories, values and emotions which are shared by members of a particular group" (p. 35) but furthermore indicate that the same place can be represented in different ways by different groups.

Similarly, Lewicka (2008) found that the perception of the history of a city is ethnically biased, as people tended to overestimate the role played by their own ethnic group in a city's history. The function of this bias could be to justify the currently dominant group's right to that place (Oleksy & Wnuk, 2016). Moremore, Lewicka (2008) found that higher age of a citizen predicted higher place attachment and that age and education were positively related to the knowledge about a city's past. Manzo (2005) found that emotional relationships to places are underpinned socio-politically by the impact of gender, race, and class. While many researchers found evidence for and assumed that the place of residence or home is positively connotated, Ahrentzen (1992) showed that this is not always true when taking into account that home can be a place of violence rather than refuge, especially for women. Regarding historic places, gender could also play an important role. When we consider the historic place being a former women's clinic where women during the time of NS-dictatorship were sterilized against their will, one could assume that different feelings arise when visiting that place for women, who used to be the victims in this place versus men, who used to be the traitors.

Visitors' Individual Prerequisites: Personal Experience and Prior Historical Knowledge

Places may not only gain a historical dimension from time periods more than hundreds of years ago but may also have been the scene of important events that have taken place within the lifetime of the present generation, such as the fall of the Berlin Wall or the tragedy of the Twin Towers in New York. Therefore, contemporary histories of places may become closely related to personal biographies, loaded with highly personal meanings. This is reflected in the discussion of the life path concept by Gustafson (2001): “Meanings of place also often involve a temporal dimension. This is explicit in the `life path' theme, where places become connected to the life path of the individual through origin, length of residence, important events or life stages, or frequent visits. […] there are also important elements of continuity in, for example, place-bound social relations, place as a historical environment and local traditions.” (p. 13).

In addition, the personal significance of historic places may extend beyond the lifespan of visitors through family ancestors who had some particular biographical relation to that place. For example, Yankholmes (2015) found that more than 80% of the visitors who were somehow connected to slavery heritage identified a personal connection or the desire to remember and revere their ancestors as at least one of the reasons for their visit to sites associated with the Transatlantic Slave Trade in Ghana.

Besides direct personal links to a place’s history, general knowledge about its history has also been shown to have an impact on visitors' experiences. Blaison and Hess (2016) found that knowledge about historic threats has an impact on the judgement of a housing area in the present. This is in line with the notion of contagion, which describes the widely held essentialist belief that attributes of humans and their activities (for example, crimes) transfer to objects or places that have been in contact with that person or have been used in the activity (Rozin et al., 1986). A related mechanism of contagion, termed emotional residues, has been reported in a study by Savani, et al. (2011). In a series of studies, they showed that a large proportion of the participants believed that traces of previous emotions accumulate in physical spaces, thereby

transferring affective states to subsequent visitors. Accordingly, the participants tended to prefer to fill out a questionnaire in a room in which previous participants had experienced positive emotions rather than negative emotions. Taken together, these findings indicate that even in the absence of an authentic historic atmosphere, the knowledge of its history may exert an influence on the visitors' experience of a place, particularly with regard to the affective dimension.

Visitors differ both in their specific background knowledge about a historic place and regarding different levels of general historical competence and expertise, including skills in the use of historical sources and their contextualization, asking historical questions, historical argumentation, and application of historical concepts and meta-concepts (van Drie & van Boxtel, 2008; Baron, 2012). Not only do prior historical knowledge and general historical expertise influence the visitors' experiences at historic places, it also conditions their ability to draw conclusions about the history of a building by "reading" the existing matter, including among others the localization, the different layers, the style elements of the building, and its comparison to other buildings of similar age (Baron, 2012). The phenomenon, named contextualization, which means linking the displayed information given at a historic place to the prior personal historical knowledge that one has about the particular time, place, or events, has also been described as an element for encountering complex historical sources, including historic places and buildings (Baron, 2012; Zachrich et al., 2020). It should be kept in mind that the visitors' historical knowledge about a place or period may have been derived from different sources, not only including scholarly works but also popular history documentations from mass media and even fictional accounts. For example, in an interview study with young visitors at Auschwitz-Birkenau concentration camp, Thurnell-Read (2009) observed the importance of cinematic accounts such as Schindler's List as a reference point for interpreting the site.

Visiting Motives

We consider the motive for visiting a historic place to be either short-term, long-term, or a mixture of both. When people are on vacation, they may visit a historic place because it is one of the main local attractions listed in their travel guide. They may expect to learn something about the history of the town, city, country, as well as their habitants, and the odds of visiting a roofed historic place, such as a documentation center, castle, or palace, may be higher when it is a rainy day. But the motive for visiting a historic place may also be caused by long-term person characteristics such as one's own life path or the experiences of family members.

The utilization of sites associated with natural or man-made disasters as places of remembrance and/or informal learning settings also implies that some of those sites will become tourist attractions. *Dark tourism* and *Thanatourism* have become widespread terms used within the context of visiting dark heritage sites (Cohen, 2011; Kang et al. 2012; Seaton, 1996; 2007). So-called 'dark tourists' have frequently been characterized as consumers of macabre spectacles, interested in sensationalized, inauthentic representations of historical events (Reynolds, 2016), but several empirical studies suggest that most visitors of dark heritage sites are driven by other motives. Tourism research about historic sites or memorials has identified a broad range of different visiting motives (Biran et al., 2011; Kang et al., 2012; Yankholmes & McKercher, 2015). Kang et al. (2012) investigated the motives of visitors of a contemporary dark tourism site, the April 3rd Peace Park on Jeju Island in South Korea. The site was established to commemorate the uprising of Jeju islanders against Korean Government, resulting in over 30000 victims either dead or missing. Kang et al. (2012) identified three key motives among the visitors: personal learning and obligation, social reasons and curiosity, and general education program, whereas obligation refers to an internal moral obligation to become familiar with the event rather than external forces.

Yankholmes and McKercher (2015) analyzed 550 completed surveys from visitors of one of five sites related to the Transatlantic Slave Trade (TAST) in Ghana, namely, two former

slave market sites, one former transit route station, and two European forts. The authors found that the motive to visit for remembrance or reverence, education, history, or interest in cultural tourism scored the highest in the groups who were not connected to slavery heritage. The motive to visit for personal connection to slavery scored the highest within the group connected with slavery heritage. Biran et al. (2011) interviewed 198 people at the city center of Krakow or at the entrance to the Auschwitz-Birkenau Museum who were familiar with the concentration camp memorial site Auschwitz or had even visited it before. Within a factor analysis, Biran et al. (2011) found that the motives for visiting Auschwitz could be grouped into four factors: 'see it to believe it', 'learning and understanding', 'famous death tourist attractions' and 'emotional heritage experience'. The authors found that educational motives were the foremost reason for visiting the site, while emotional motives were the least important reason. Furthermore, they found a positive relation between the perception of the site as a personal heritage and the participants' wish for an emotional experience.

For historical sites not considered to be "dark tourism" spots, surveys have determined the aim to get in touch with history by experiencing an authentic place where historic events "really" happened as a main motive (Budruk et al, 2008; Cameron & Gatewood, 2000; Moscardo & Pearce, 1986). Also, historical theme parks that stage historical life are motivated by the desire of an authentic historical experience (Moscardo & Pearce, 1986). In addition, learning and understanding, family togetherness, enjoyment and recreation, and introspection have been identified as important visiting motives (Budruk et al, 2008; Waitt, 2000).

Summed up, the desire to get in touch with history and to have an "authentic" experience play an important role for visiting historical sites. In contrast, motives, such as sensation seeking, which have been suspected in the context of dark tourism approaches, are seemingly not the main prominent motives for visiting dark heritage sites. Instead, studies found educational motives to be most prominent for visitors who are not personally connected to the particular historic site. However, when visitors tend to see the historic site as a personal

heritage, may it be through personal experiences or historic experiences of one's ancestors, emotional motives become more probable.

Experiencing Historic Places: Effects on Visitors

The visit to a historic place triggers a number of psychological and social processes that can be analyzed on an affective, cognitive, and behavioral level (Scannell & Gifford; 2010; Zachrich et al., 2020). Firstly, being aware of its historic dimension influences the visitors' perception of a place, including their distribution of attention and their attribution of authenticity. Secondly, during their visit, visitors become involved with historic issues by the processing of additional information materials and engaging in historical imagination and reasoning. Thirdly, by experiencing the historic dimension of a place, visitors reflect on their own self by responding emotionally and changing their attitudes and behavior.

Visitors' Perception of the Historic Place

Distribution of attention: The various aspects of the appearance of a place discussed in the previous sections, such as physical remains, reconstructions, panels, digital guides, and personal interpreters, all contribute to foregrounding the historical dimension of a place. In consequence, visitors tend to focus their attention on a place's elements that they consider to be indicative of its historic significance (Price et al., 2016; Sakr et al., 2016). For example, Price et al. (2016) found that students equipped with a digital guide began to search for physical indicators of a place's historic conditions or events, trying to link given information and explanations to visible features of the site. This process of distributing attention along a place's historical elements can be strongly shaped both by personal interpreters (Best, 2012) and digital tools (Javornik et al., 2019; Price et al., 2016). While Best (2012) has analyzed how visitors' attention is guided by personal interpreters' behavior, such as pointing and verbal referencing, Javornik et al. (2019) describe how provision of an augmented reality tool with overlays of historical images helped to direct the visitors' attention to spots of historical relevance on a

university campus. One may speculate that such a foregrounding of a place's history might lead to highly selective attention behavior, neglecting characteristics of places indicative of its present conditions (e.g., traffic signs, advertisements, shops). However, to the best of our knowledge, systematic research in terms of eye-tracking recording or tests of site element memory is still lacking.

Attribution of authenticity: There is abundant empirical evidence that visitors of historic sites strongly seek to experience authenticity to get "in touch" with history (Budruk et al, 2008; Cameron & Gatewood, 2000; Moscardo & Pearce, 1986; Waitt, 2000). Depending on the characteristics of the historic site, these needs may be met to a greater or lesser degree. First, being confident that certain events actually took place strongly contributes to the attribution of authenticity (Chronis & Hampton, 2008). In addition, visitors consider physical elements of sites, such as cobbled streets, timbered buildings, or objects and artefacts as important signifiers of historical authenticity (Waitt, 2000; Chronis & Hampton, 2008). Importantly, these elements need not necessarily be "original" remains; instead, life-like "inauthentic" copies or reconstructions can also trigger or intensify the impression of being at an authentic historic site (Chronis & Hampton, 2008; MacIntyre et al. 2004).

Being Involved with Historic Issues

When visiting a historic place, it usually happens that people become involved to a certain degree with the historic issues. This may be initiated by a combination of experiencing and reflecting on the site itself, available didactic means, and the social historic related events on site. Hence, visitors not only often process *additional on-site information materials* but also engage in *historical imagination*, and *historical reasoning*.

Processing of additional information material: Historic sites usually provide additional information materials to their visitors; these may include historical photos, texts (descriptions or narrations), maps, drawings, audios, and films. Presentation of these materials may be

accomplished by tour guides, audio guides, information plaques, display cases, screens, or within virtual or augmented reality. It has been shown that visitors value additional information (Cameron & Gatewood, 2000) but also that it is important that the information meet the visitors' needs and interests (Malcolm-Davies, 2004; Poria et al., 2004). Further, a number of studies have shown that visitors using additional media, such as audio guides or multimedia guides on site, develop a deeper understanding of the place's history (Efstathiou et al., 2018; Price et al., 2016). In a study with 3rd grade students, Leach (2011) investigated the children's recollections of their experiences during the visit to a historic house site. The children received a guided tour, including a short introduction to the history of the house and afterwards walked through the different rooms, hearing information about particular rooms and objects and being able to ask questions. She found that among others especially narrative information was well remembered.

Historical imagination: Both spontaneous fantasy and transportation are processes that may spark visitors' imagination of how a place looked at former times, how it was used, and how life used to be. Spontaneous fantasy is the occurrence of a mental image or vignette from the past in the mind's eye of a person while encountering a historic landscape or building element, without having a direct, conscience control over this phenomenon. This is most likely to occur when visiting a historic place (Wells 2010, 2017). Narrative transportation is described as an experience of mentally entering a world evoked by a (historic) narrative. This experience is generated by the empathy for the story characters and imagination of the story plot (van Laer et al., 2014).

We assume that vividness of imagination, spontaneous fantasy, and transportation may be related to iconic authenticity in such ways that imagination is facilitated when the physical manifestation of a place resembles the indexical authenticity of the place (Grayson & Martinec, 2004) or is supported by highly realistic visual or auditive presentations on site, such as re-enactments, augmented reality presentations, and reconstructions. However, the correctness of the mental images probably depends on the visitor's amount of prior knowledge about the

place's history. Therefore, the historical imagination of lay persons who collected their 'prior historic knowledge' through unreliable sources such as feature films (Thurnell-Read, 2009), compared to historians who collected their prior historic knowledge through the study of multiple historic sources (Baron, 2012) may differ in terms of complexity, inclusion of different dimensions of historic events, and the awareness of uncertainties, among others.

Historical reasoning: Trying to comprehend a given place as a historic site has been described as being engaged in historical thinking and reasoning (Baron, 2012). Historical reasoning includes asking historical questions, the use of historical sources, the contextualization of historical evidence and claims, and interpretative argumentation by using substantive historical concepts and meta-concepts (van Drie & van Boxtel, 2008). While models of historical reasoning have been mainly applied to working with historical text documents, Baron (2012) has emphasized the advantage of visiting a real building over working with traditional documents because it is virtually impossible to see a building as "decontextualized, disembodied, and authorless" (VanSledright, 2010, p. 116). Furthermore, she empirically investigated what and how historians "read" a historic building while visiting it. As a result, Baron (2012) identified five heuristics which can be seen as integral components of professional historical thinking at historic sites. These five heuristics, which can be applied by asking oneself certain questions, are origination ("How did this building come be to this place?"), intertectonality ("How does what they did here compare with what has been done elsewhere?"), stratification ("What are the multiple time periods evident in this building, and what do they tell me about its history?"), supposition ("Given the available evidence, my prior knowledge, and how I understand the world to work, what plausible scenario or outcome could explain this feature or phenomenon?"), and empathetic insight ("Given the available evidence, my prior knowledge, and how I understand the world to work, how would the people who occupied this space have responded (socially, emotionally, intellectually) to the space and the circumstances of the time?").

While Baron's (2012) study focused on professional historian's processes of attributing meaning to a historic place, other studies have investigated similar processes with pupils or undergraduate students (Harley et al., 2016; Price et al., 2016). Harley et al. (2016) investigated the learning outcomes and emotions of undergraduate students using mobile-based augmented reality applications during a guided outdoor, location-based historical tour compared to a lab-based, virtually-situated location. They found that both groups were able to identify differences between past and present and enjoyed the learning session. However, students who were on site during the learning session identified more differences and therefore required fewer scaffolding prompts. Overall, the findings suggest that on-site scaffolding prompts are effective to support historical reasoning. Similarly, Price and colleagues (2016) evaluated a field trip of primary school students, equipped with a mobile device, to a local Common in England, a large space directly associated with the Second World War (WWII). On site, digital information was provided in relation to specific physical locations, and students were able to create physical markers and to create their own artefacts in form of photographs, audio recordings, and typed notes. At first, students tried to link the digital information to the physical environment. Next, comparisons between the place's present and former appearance were made. In addition, these multimodal layers of experience were linked to emotions felt (Sakr et al., 2016). Price and colleagues (2016) conclude that the combination of physical activities and digital information can lead to an embodied experience of history, as the students were enabled to contrast experiences of WWII and the present day and to create physical markers within the space, hereby creating meanings based on both new and known information in otherwise familiar places. On the other hand, the authors discuss the problematic of conflation of time; that is, almost all students conflated different time points in history during the trip (e.g., WWI and WWII). The authors mention that this must be addressed within a classroom-based learning activity following the field trip.

Responding Personally to the Historicity of Places

Affective reactions: Depending on the particular character of a historic place, different emotions can be evoked. In addition, visitors may affectively react differently to a historic place, depending on their cultural background and their individual predispositions (Hoare, 2020; Leach, 2011). For example, by combining physiological data with emotion questionnaires, Hoare (2020) observed that visiting a historic country-house mansion elicited a broad range of positive emotions, including enjoyment, awe, and curiosity. Interestingly, two different tours through the house, the "maid route" and the "lady route", led to a different pattern of emotions.

In several studies, visitors describe being at a historic place as an enjoyable experience (Cameron & Gatewood, 2000; Hoare, 2020; Leach, 2011). This is partly due to the restorative character of historic places (Scopelliti et al., 2019) but is also closely linked to cognitive processes such as historical imagination and historical reasoning. For example, successfully recognizing differences between the past and present appearance of a place led to feelings of enjoyment (Harley, et al., 2016). Accordingly, enjoyment of a historic site is strongly linked to the availability of informative information or interpretation (Cameron & Gatewood, 2000; Harley, et al., 2016). In addition, practical aspects such as accessibility of the site and its parts as well as service facilities also contribute to an enjoyable experience (Cameron & Gatewood, 2000).

A particular feeling reported when visiting a historic place is awe or being moved. The notion of awe is conceptualized as an epistemological positive emotion in the presence of something greater than the self (Shiota et al., 2007). Accordingly, tall, monumental historical buildings, such as cathedrals, pyramids or temples, may foster the feeling of awe and smallness, which may even be accompanied by a short-term behavioral effect of a reduced response speed termed behavioral freezing (Joye & Dewitte, 2016). Awe has also been found to be closely related to attributions of authenticity to historic places (Wang, et al., 2021; Yan et al., 2021).

Memorial places such as battlefields, torture prisons, or concentration camps may also cause strong negative feelings, such as sadness, shame, guilt, fear, or anger. Several studies investigated the emotions occurring when visiting concentration camp memorials, historic places where cruelties happened on a large scale during the time of the NS dictatorship. Nawijn and Fricke (2015) found that people visiting the camp memorial Neuengamme experienced negative emotions more intensely compared to positive emotions. In a longitudinal study, Bilewicz and Wojcik (2018) investigated the emotional reactions of high school visitors at the Auschwitz memorial museums. They found the syndrome of secondary traumatic stress among 13.2% of high school visitors. Traumatic stress is defined as empathic responses among people exposed to traumatic experiences of another person, a set of negative effects (behaviors and emotions) of secondary exposure to a traumatic event that are highly similar to those of primary exposure. That is why the authors emphasize the importance of intense elaboration of Holocaust history and proper psychological preparation before a visit to places related to traumatic past events. Besides the negative emotions occurring when visiting a place with a dark history, collective guilt and shame may also play an important role regarding the affective dimension of visitors (Brown et al. 2008). However, Oren et al. (2021) found that visiting a dark heritage site elicited both negative emotions and positive emotions such as satisfaction and pride.

Changing attitudes and behavior: The visit to a historic place may not only foster a range of emotions, but these emotions, especially the negative ones, may give the impulse and therefore the proactive motivation for (long-term) behavioral consequences. (Nawijn & Fricke, 2015). Nawijn and Fricke (2015) also found that the visitors of a concentration camp memorial not only experienced intense negative emotions but also developed the behavioral intention to revisit the site. Other long-term behavioral effects initiated by the visit to a historic place may be civic engagement, pilgrimages, social support, and place restoration. Stefaniak, Bilewicz and Lewicka (2017) provide empirical evidence that learning about local history (lectures about the past, visiting sites, and performing one's own historical research) fosters increased interest in

that history, greater place attachment, civic engagement intentions, and generalized social trust. Also, the development of national identity has been postulated to be supported by the symbolic significance of historic places (Devine-Wright & Lyons, 1997), along with visiting and engaging with them. Bull and De Angeli, (2020) found that Italian and Slovene visitors of the Kobarid Museum in Slovenia, a permanent exhibition at a dark heritage site associated with the First World War, generated antagonistic emotions. The authors suggest that by balancing emotional, educational, and transformation outcomes of exhibitions, by presenting contrasting perspectives and unsettling issues, and by promoting a discussion among visitors critical thinking, self-reflection, and cross-national dialogues can be promoted instead.

Discussion

To the best of our knowledge, the framework proposed in the present article is the first attempt to build a psychological framework about the impact of historic places based on empirical findings, compiled from a broad range of disciplines, including environmental, educational, and social psychology, tourism, and heritage studies. The model offers an overview of the actual state of research concerning historic places, analytically broken down into three main components: place characteristics, person characteristics, and resulting psychological and social processes. Furthermore, we have considered the interconnectedness of the different components; that is, person and place characteristics may have a combined effect on the psychological and social processes during the visit, and in turn, these processes may exert an influence on both the person and the place. It should also be noted that the whole model is embedded in a wider socio-political context, taking into account that countries and institutions may differ in their criteria for defining a historic place, in their ascribed value, memoire, and the handling of the site. As a major goal, the framework not only allows for locating existing empirical findings but also helps to identify research gaps within the field, as outlined below.

Regarding the historic place itself, it is still an open question whether it is the present physical attributes, the historic dimension of the place, or a combination of both fostering the effects on its visitors. Concerning the didactic means presented on site, more systematic empirical research is needed on the different effects of various alternatives of presenting on-site information (e.g., texts, videos, personal guides, augmented reality). In addition, systematic empirical research is lacking comparisons between processing information material at an authentic historic site versus elsewhere. Would there be a difference if the same information material is processed on site, at a somehow neutral place after the visit, or even without the related visit to the corresponding historic site?

Regarding persons visiting a historic place, it can be either individual or group characteristics, or a combination of both influencing the resulting psychological and social processes. As it is hardly possible to manipulate a person's socio-cultural background in order to gather evidence of its influence, one could either stimulate the visitors' perspective taking for other group characteristics or compare the processes resulting from the visit to a historic place among visitors belonging to different groups (Bull & De Angeli, 2020). Similar difficulties exist regarding the investigation of individual person characteristics. While several studies indicate that the visitors' prior knowledge about a place's history influence historical reasoning (Baron, 201;, Price et al., 2016), more insight into these processes could be provided by systematically varying the prior information given to visitors (without prior knowledge) and investigating its effects.

Regarding the psychological and social processes, not much is known about the historical reasoning of adult leisure time visitors in comparison to professional historians or students on a school field trip (Baron, 2012; Price et al., 2016). Further, the relation of historical imagination and historical reasoning remains an open question. Are they complementary or mutually exclusive? Also, while historical readability has been acknowledged as an important factor (Baron, 2012), systematic empirical research between high versus low readability is

lacking. Another open question concerns visitors' perception of historical time. While there is evidence that students tend to experience problems with the conflation of time at historic places which hold references to different layers in time (Price et al., 2016), it is not clear whether this is a common phenomenon also occurring among adult visitors. And, finally, it is not clear what role the attribution of authenticity plays for affective (awe/being moved) and cognitive (historical imagination and reasoning) processes.

Finally, stepping outside of the present model, one could ask to what extent the effects of visiting a historic place differ from other engagements with historic places, such as elaborating historical documents, watching historic documentations, or visiting the historic place *just* in virtual or augmented reality.

To sum up, the model is intended to give an integrated view of the broad range of findings on psychological effects of visiting historic places within a common model. It could be argued that the differences between certain types of historic places are so immense that they should be separated into single models rather than uniting them. We agree that there are huge differences between historic places. There are *Täterorte* and *Opferorte* (Dahm et al., 2008), places dedicated to remembrance and places dedicated to informing, learning, and teaching. There are buildings with high aesthetical value and others which offer little or no aesthetic attraction, as there is completely different or even no substance left. But all of those places have one thing in common: They are historical places, places where important decisions were made, where the destiny of whole generations or groups of people was decided, where people suffered, died, or performed resistance. They are places of importance. This importance can come from beneficial or malicious events in the past. Altogether they build a jigsaw of the past which defined the future, our present. The intention of a common framework is to shed light on these places, including their differences and contradictions. But, of course, we agree that each and every place has inherent qualities and deserves individual consideration.

1.2 Overview of the Empirical Studies

The literature research for conducting the theoretical framework revealed several open research questions and a lack of empirical evidence regarding all major components of the framework, namely the characteristics of different kinds of historic places, the characteristics of the persons visiting the place, as well as the resulting psychological and social processes. The aim of the empirical studies conducted within this thesis was to shed light on the effects of everyday places holding a NS history without offering physical cues about it, and hereby to address at least some selected of the open research questions within the framework. That is, I wanted to investigate the effects of participants receiving systematical variations of prior information about the NS history of a building on their personal affect, on their perception and processing of additional information materials, and on their affective evaluations of the place itself. The following tables offer an overview of the research questions investigated in (Table 1), and the main characteristics of the three empirical studies conducted within this thesis (Table 2).

Table 1

Overview of the Research Questions Investigated in the Three Empirical Studies.

	Research Question
Study 1	How does becoming aware of NS history in general and a place's NS history in particular influence participants' affective state, their evaluation of a large set of NS pictorial materials, and the evaluation of the place itself?
Study 2	How does becoming aware of NS history in general and a place's NS history in particular influence participants' affective state, their description of a small set of NS pictorial materials, and the evaluation of the place itself?
Study 3	How does becoming aware of NS history in general and a place's NS history in particular influence participants' affective state, their recognition of a medium set of NS pictorial materials, and the evaluation of the place itself?

Table 2

Overview of the Main Characteristics of the Three Empirical Studies.

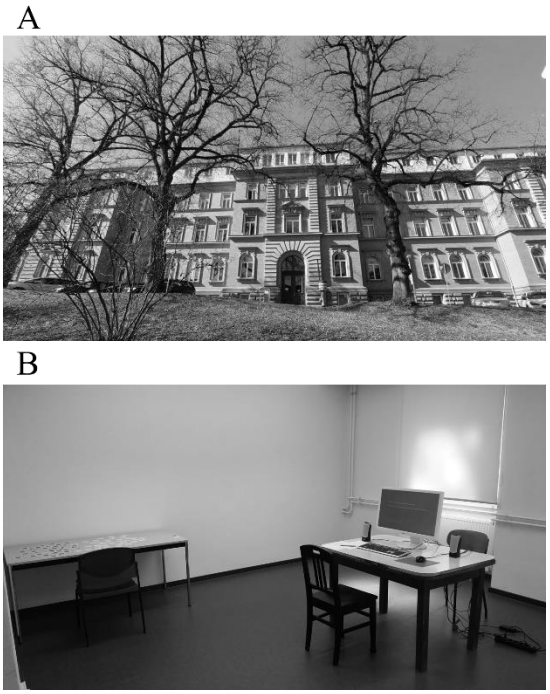
	Study 1	Study 2	Study 3
Setting	Laboratory / Historic site	Laboratory / Historic site	Laboratory / Historic site
Equipment	Table, chair, laptop Vertical screen Headphone	Table, chair, laptop Horizontal screen Headset	Table, chair, laptop Horizontal screen Speakers Second table (filler task)
Design	One factorial between subjects design with the factor history awareness (history and place awareness, history awareness, control group)	One factorial between subjects design with the factor history awareness (history and place awareness, history awareness, control group)	One factorial between subjects design with the factor history awareness (history and place awareness, history awareness, control group)
Main dependent variables	Personal mood and arousal (t1, t2, t3) Evaluation of the site Evaluation of 80 historic photos	Personal mood and arousal (t1, t2) Evaluation of the site Description of 3 historic photos	Personal mood and arousal (t1, t2) Evaluation of the site Recognition of 40 historic photos
Participants	Men and women, mainly students	Women, mainly students	Women, mainly students
Sample size	101	88	90

Firstly, regarding the characteristics of the historic place, I aimed to investigate the effects of a place that is inherent of a NS history, without offering physical, didactical or social cues in relation to this history. While Germany and other European countries exhibit numerous of those places, there is hardly any empirical research investigating its effects on visitors. I found my own research institute to fulfill these criteria, as it used to be a women's clinic where during the period of NS dictatorship several hundred forced sterilizations where conducted. Built in 1890, its function as gynecological clinic ended in 2002. Extensive renovations lasted until the year 2011, when a department of the university and the Leibniz-Institut für Wissensmedien moved in. Today, the building houses several offices and experimental rooms, appointed with modern equipment. Regarding the crimes conducted in it during the NS period,

the building offers no physical *readable* cues, as there are no information plaques in front or inside the building, and the institute's website offers no information about it. Also, its NS history is hardly known by public. All three studies were conducted in the same experimental room, located in the basement of the building. The following Figure 2 depicts an image of the building and the experimental room.

Figure 2

Facade (A) of and Experimental Room (B) in the Former Women's Clinic Tübingen.



Note. The depicted former women's clinic today houses a research institute, the Leibniz-Institut für Wissensmedien (A). The experimental room (B) is located in its basement.

Secondly, regarding the characteristics of the person, participants' history awareness was systematically varied in all three studies by providing audio texts offering different prior information: the history and place awareness group (HP) received prior information about the NS history in general combined with the particular information about the NS history of the building (Study 1, 2, and 3), the history awareness group (H) received information about the NS history in general without the additional information about the particular NS history of the building (Study 1, 2, and 3), and the control group (C) received either no prior information at

all (Study 1) or neutral information about the research institute which is located in the building today (Study 2, and 3). All three studies included questions to make sure, that there were no a priori differences in prior knowledge about the building's NS history (manipulation check). Differences between the groups HP and H were meant to indicate an effect of the awareness of the NS history of the place, whereas differences between the control group C and the groups H and HP were meant to indicate an effect of history awareness in general. Participants in all three studies were mainly students. While both, male and female participants were invited in Study 1, most participants were female. To homogenize the sample and prevent possible gender biases due to the study implications (victims were female, while offenders were both, male and female), in Study 2 and 3 only female participants were invited. The big sample sizes in all three studies were meant to statistically equalize possible other biasing person characteristics. Also, in Study 3 participants were additionally asked about their self-estimated interest and knowledge in the topics NS history and the Berlin Wall, to keep this covariate stable.

Thirdly, regarding the psychological and social processes, I investigated different affective and cognitive outcomes. The affective outcomes include the personal mood and arousal (Study 1, 2, and 3), the affective evaluation of the experimental room (Study 1, 2, and 3) as well as the affective evaluation of historic photos related to the NS history (Study 1). An overview of the expected results is given in Table 3.

Previous studies conducted at historic sites, such as KZ memorial sites mainly found negative effects on visitors affect (Bilewicz & Wojcik, 2018; Nawijn & Fricke, 2015; Oren et al., 2021). However, as KZ memorial sites usually hold both a historic dimension and physical attributes resembling the sites history, the present studies investigated whether visiting a historic place lacking the physical cues about its NS history would foster negative effects on visitors affect as well. Further, previous studies showed evidence that the prior information about the historical dimension of a place influences the evaluation of the place itself (Ayton et al., 2022) as well as the whole area (Blaison & Hess, 2016). Therefore, the present studies

investigated whether prior information about a place's negative NS history would influence the evaluation of the place itself, hypothesizing that the awareness of the place's negative NS history would influence the valence of the experimental room in a negative way, and increase the arousal evoked by it.

Table 3

Expected Results in all Three Studies.

		Study 1	Study 2	Study 3
Affective Outcomes	Personal Mood	time x condition t1: C = H = HP t2: HP < H, C; H < C t3: HP < H, C; H < C	replicating Study 1 time x condition t1: C = H = HP t2: HP < H, C; H < C	replicating Study 1, and 2
	Personal Arousal	time x condition t1: C = H = HP t2: HP > H, C; H > C t3: HP > H, C; H > C	replicating Study 1 time x condition t1: C = H = HP t2: HP > H, C; H > C	replicating Study 1, and 2
	Room Valence	HP < H, C	replicating Study 1	replicating Study 1, and 2
	Room Arousal	HP > H, C	replicating Study 1	replicating Study 1, and 2
	Photo Evaluation -Valence	HP < H, C; H < C	-	-
	Photo Evaluation -Arousal	HP > H, C; H > C	-	-
Cognitive Outcomes	Photo Categorization	exploratively		
	Photo Description -wordcount	-	HP > H, C; H > C	-
	Photo Description - elements		HP > H, C; H > C	
	Photo Recognition	-	-	photo set x condition NS: HP > H, C; H > C valence x condition neg.: HP > H, C; H > C

Note. C = Control group, H = History awareness group, HP = History and place awareness group, NS = Photo Set National Socialism, BW = Photo Set Berlin Wall; lower 'numbers' indicate negative mood / low arousal.

Finally, as historic places utilized as informal learning settings usually provide additional historic information materials informing about the particular historic time span, I aimed to investigate whether the awareness of being at a place with NS history would foster affective and cognitive effects regarding related historic documents. In Study 1 participants were presented 80 historic photos related to the NS history along with a short caption and had to evaluate each photo due to its valence and the arousal it evoked (affective evaluation). Previous studies found that negative mood fosters affect congruent responses (Forgas, 2013), therefore, I hypothesized that the negative mood induced by the awareness of being at a place with negative NS history would result in the negative evaluation of and an increase in arousal evoked by the related historic photos.

The cognitive outcomes investigated in this thesis were the categorization (Study 1), the description (Study 2), and the recognition performance (Study 3) of historic photos related to the NS period. The categorization (determination of the main focus, and the content shown on each photo) of the 80 historic photos related to the NS history in Study 1 was gathered exploratively, without previous defined hypotheses. Previous studies showed that negative mood enhances a bottom-up processing style characterized by analytical thinking, local focus, attention for details, and a search for differences (Bless & Burger, 2017; Forgas, 2013; Huntsinger, 2014). Regarding the description of related historic photos, it was hypothesized that the awareness of being at a place with negative NS history would induce a bottom-up processing style, indicated by a higher overall word count and a greater amount of named photo elements. Previous studies found evidence that activating prior knowledge fosters memory for new information by connecting it to existing knowledge structures, hereby the strength of this effect depends on the congruence between prior association and the new information to be acquired (van Kesteren et al., 2018, 2020). Therefore, regarding the recognition performance of related historic photos, it was hypothesized that prior information about the NS history should facilitate encoding and retention of photos associated with the NS period compared to

stimuli not associated with the NS period. In addition, previous studies found evidence that in a recognition task, pictures with negative valence are remembered better compared to neutral or positive ones. Further, according to Singer's and Salovey's (1988) mood congruity principle, it was expected that negative mood induced by knowing about the negative history of a place should facilitate the learning of affective stimuli which are congruent to the current personal mood.

To sum up, as previous research has focused on visitors' experiences at historic sites, which usually hold both a historic dimension and physical attributes resembling the sites history, it is an open question whether it is either the historic dimension or the physical attributes or the interplay of both that fosters the effects on visitors. The present studies took up this issue by disentangling the effect of the historic dimension (operationalized as history awareness) from the effect of a site's current historic atmosphere. Hereby investigating whether the historic dimension of a place is sufficient enough to foster affective and cognitive effects on its' visitors. The operationalization of the empirical studies is discussed in more detail in the following chapters.

Declaration according to § 5 Abs. 2 No. 8

of the PhD regulations of the Faculty of Science

-Collaborative Publications-

The following chapter (Chapter 2) consists of a manuscript that is published and was co-authored by Stephan Schwan. The proportional contributions to this manuscript are presented in the subsequent table.

Authors	Author position	Scientific ideas (%)	Data generation (%)	Analysis and Interpretation (%)	Paper writing (%)
Melissa Ries	First author	80	100	90	90
Stephan Schwan	Second author	20	0	10	10
Title of the paper	Know Where You Stand: Affective Effects of Becoming Aware of a Place's National Socialist History				
Status in publication process	Published. Ries, M. & Schwan, S. (2022). Know Where You Stand: Affective Effects of Becoming Aware of a Place's National Socialist History. *Frontiers in Psychology, 13*, Article 936621. https://doi.org/10.3389/fpsyg.2022.936621				

2. Study 1 and 2

Know Where You Stand: Affective Effects of Becoming Aware of a Place's National Socialist History

In Germany, much effort is taken to make people aware of the historical dimension of places, especially regarding the crimes of the National Socialist regime (NS; 1933-1945). Providing memorials, museums and documentation centers at places which are related to the NS history is based on the assumption that at such sites informing and educating about historical events is particularly effective. Accordingly, memorials and documentation centers are frequently visited during school field trips and report large annual numbers of visitors, for example, 900.000 visitors in 2018 at the Concentration Camp (Konzentrationslager; KZ) memorial Dachau, 700.000 at the KZ memorial Sachsenhausen, and 500.000 at the KZ memorial Buchenwald (Das Gupta & Sandkuhl, 2019).

While the historical dimension is evident at sites that host KZ memorials or documentation centers, there are also sites that are not utilized in such ways and therefore often not identifiable as historic sites as such. Among others, this may be either because there is hardly any substance or structure of the former building left or because the building has been renovated and modernized over the years and now holds a completely different function. Methods to raise the awareness of the historical dimension of such everyday places in Germany range from so-called *Stolpersteine* (golden stumbling blocks embedded in the pavements in front of buildings, where people were deported and killed by the NS regime, engraved with their names and personal life data) to information plaques which usually combine text explanations with historical photos of the site.

Visitors of KZ memorials or NS related documentation centers have usually deliberately chosen to visit these sites, are aware of the historical dimension and therefore more or less mentally prepared for the visiting experience. Empirical studies found that the main motive of

visitors of so-called dark heritage sites is a desire to understand the historical events, circumstances, and causes (Biran et al., 2011; Yankholmes & McKercher, 2015). Furthermore, Biran et al. (2011) found a positive relation between the perception of the site as closely related to personal family history and the visitor's motive for an emotional experience.

In contrast, at an everyday place people may at first be unaware of its historical dimension and stumbling stones or information plaques may either remain unnoticed or lead only to a casual recognition of the place's history.

In two empirical studies we addressed the affective impact of an everyday place's historical dimension on visitors. We found a site holding a ferocious history which is hardly known by the public: a former women's clinic where hundreds of forced sterilizations took place during the time of NS dictatorship. The building got completely renovated and today houses a research institute. We systematically manipulated the awareness of the building's history by the type of prior information given to participants. The aim of the two studies was to investigate the impact of history awareness on the affective personal level, the perception and evaluation of related information materials, and on the site itself.

Personal Affect

Usually, visitors report a high emotional involvement while being at a dark heritage site (Biran et al., 2011; Nawijn & Fricke, 2015). Brown (2015) found that on a cognitive level, tourists visiting memorials of the victims of Nazism increased their knowledge about NS history, while on an emotional level, they experienced feelings of sadness, shock, anger, despair, and incomprehension. Some tourists were overwhelmed by the affective experience and found it hard to resume the role of a tourist after their visit to the memorial. Nawijn and Fricke (2015) found that visitors of the KZ memorial Neuengamme experienced intense negative emotions but also developed behavioral intentions to revisit the site. The authors discuss that the negative emotions associated with the visit may give the proactive motivation

for (long-term) behavioral consequences. In a longitudinal study, Bilewicz and Wojcik (2018) investigated the emotional reactions of high school visitors of the KZ memorial Auschwitz and found the syndrome of secondary traumatic stress among 13.2% of them. The authors emphasize the importance of intense elaborations of Holocaust history and proper psychological preparations before the visit to places related to traumatic past events.

One reason for the extremely strong emotional reactions to dark heritage sites may be that visitors are not only aware of their historical dimension but also experience them as authentic places resembling the historic situation both in terms of appearance and atmosphere, described either by objective parameters such as size, lightning, spectrum of color, or by more abstract qualities such as legibility, coherence, complexity, and mystery (Kaplan & Kaplan, 1989). In contrast, everyday places having a dark heritage background often lack a strong visual resemblance to the former historical situation. Therefore, emotional reactions should be primarily caused by becoming aware of the place's historical dimension and to a much fewer degree by its current visual appearance.

Effect of Mood on the Evaluation of Further Information

It has been postulated that the personal affective state has influence on informational effects and on processing effects (Forgas, 2013). Affect congruence would be an informational effect, that is, when the affective state influences the valence of responses. This could be explained by the feelings-as-information approach from Schwarz (2001) postulating that people consciously or unconsciously use their mood as a source of information. Thus, their own negative mood is interpreted in such way that one finds oneself in a problematic situation, thereby influencing in turn the evaluation of stimuli in that situation. Accordingly, it has been shown that prior positive, negative, or neutral information can affect the subsequent emotional experience of pictorial stimuli (Wu et al., 2012).

A processing effect would be when affect influences the way information is processed, such as the usage of different processing strategies. According to Bless and Fiedler (2006) moods signal whether a situation holds assimilative opportunities or accommodative challenges to the self. Accordingly, subconscious positive mood has been found to enhance a top-down processing style characterized by heuristic thinking, global focus, little attention for details, and a search for similarities, whereas negative mood enhances a bottom-up processing style characterized by analytical thinking, local focus, attention for details, and a search for differences (Bless & Burger, 2017; Forgas, 2013; Huntsinger, 2014).

Based on these findings, we assume that the negative mood induced by the awareness of being at a place with negative history should influence the evaluation (affect congruent judgments) and description (bottom-up processing style) of further information material.

Perception and Evaluation of the Place Itself

In contrast to the effects of a place's atmosphere, few studies have dealt with the cognitive and affective effects of one's awareness of the historical dimension of a place itself (Baron, 2012; Blaison & Hess, 2016; Lewicka, 2005, 2008). Blaison and Hess (2016) found that a real threat (landfill) influenced participants' evaluations of places in the same way as a bygone and therefore historic threat (house, in which a murder took place 20 years ago): Participants would pay less rent for a flat, which was near the threat. If the distance to the threat passed a critical distance, the effect inverted, and participants were willing to pay even more for a flat which was far away from the threat compared to an area with no threat at all. These effects are indicative of contagion, which describes the essentialist belief that attributes of humans and their activities (for example, crimes) transfer to objects or places that have been in contact with that person or have been used in the activity (Rozin et al., 1986). A related mechanism, termed emotional residues, has been reported by Savani and colleagues (2011). In a series of studies, they showed that a large proportion of participants believed that traces of

previous emotions accumulate in physical spaces, thereby transferring affective states to subsequent visitors. Accordingly, participants tended to prefer to fill out a questionnaire in a room in which previous participants had experienced positive emotions rather than negative emotions. Taken together, these findings indicate that even in the absence of an authentic historic atmosphere, the awareness of its history may exert an influence on the visitor's experience of a site, particularly regarding the affective dimension.

Research Questions

In two empirical studies, we investigated the impact of becoming aware of an everyday place's NS history. We expected that the history awareness should induce effects on all of our dependent variables, namely, participant's mood and arousal, the affective evaluation (Study 1) and description (Study 2) of photographic material related to NS history, and the affective evaluation of the site itself. History awareness was manipulated by providing participants different kinds of prior information: the history and place awareness group (HP) received information about NS crimes in general combined with the information about the particular NS history of the building, the history awareness group (H) just received information about NS crimes in general, and the control group (C) received eighter no information at all (Study 1) or general information about the buildings function today (Study 2).

It has been shown that the visit to a place with a tragic history (Nawijan & Fricke, 2015) influences visitor's mood in a negative way. Therefore, we expected that participants of group H, should report more negative mood, compared to the control group C. Moreover, participants of group HP should experience even more negative mood, compared to both groups H and C. Regarding the participant's arousal we expected the same pattern.

Also, it has been shown that negative mood fosters affect congruent responses (Forgas, 2013). Therefore, in Study 1, in which the task was to rate the valence and arousal evoked by each of 80 NS related photos, we expected that group H should rate the photos more negatively

and with higher evoked arousal compared to group C. Furthermore, group HP should rate the photos even more negatively and with even higher evoked arousal compared to both groups H and C.

Also, there is evidence that negative mood induces a bottom-up processing style which fosters attention to details (Bless & Burger, 2017; Forgas, 2013). In Study 2, the task was to describe three NS related photos, we expected differences regarding the level of detail in the descriptions of the different groups. A more detailed description could be indicated by naming more photo elements and a higher overall word count. We expected that group H's descriptions should include more photo elements and consist of higher overall word count compared to group C. Furthermore, we expected that group HP's descriptions should include even more photo elements and consist of a higher overall word count compared to both groups H and C.

Finally, based on studies showing that prior information about the negative history of a place affects the evaluation of the whole area (Blaison & Hess, 2016), we expected that group HP should rate the room in which the studies took place more negatively and with higher evoked arousal compared to both groups H and C.

Study 1

Methods

Both Studies were approved by the local institution's ethics committee. Participants were invited via email based on the institute's database of study volunteers. Participants who took part in Study 1 were not invited to participate in Study 2. All participants gave their informed consent before taking part in the studies and received eight euro for participation. At the end of each study, a debriefing took place.

Participants

A total of n = 108 participants took part in the study. Seven participants were excluded, three failed the manipulation check, three due to lack of language skills, and one due to technical problems that led to data loss. The final sample included 101 participants (C = 34, H = 33, HP = 34) between the ages of 18 and 31 (M = 22.95, SD = 2.75; 81 women).

Study Setting

The study took place in a former gynecological clinic, built in 1890. During the time of NS dictatorship at least 655 so-called 'eugenic' sterilizations were conducted in the building (Bayer, 2008). The buildings function as women's clinic ended in 2002. Extensive renovations lasted until the year 2011 when subsequently a department of the university and a research institute moved in. Today, as the building houses several laboratory rooms, appointed with modern equipment, one can hardly imagine its history.

Design

We used a single factorial between-subjects design with three conditions differing in their received prior information. To check participants' prior knowledge (manipulation check), two questions were queried at the end of the study: "Did you know beforehand that the building in which you currently are is a former women's clinic?" and "Did you know beforehand that in the time of NS regime in the former women's clinic forced sterilizations took place?". Exclusion criteria were adapted to the contents of the groups' received prior information.

Materials

The independent variable was the (non-)presence of prior information. While group C did not receive any prior information, the groups H and HP received prior information via two different audio texts. Both audio texts were read by the same female speaker, consisted of 221 words, and had a total length of 2:42 minutes. Group H`s audio text offered general information

about the various crimes authorized by the NS regime, namely, the Holocaust, the persecution of people with different political views, the murder of people who were physically or mentally challenged, as well as the forced sterilizations carried out on women who were classified as "racially inferior". Group HP's audio text offered the same general information about the NS crimes as provided to group H, complemented with information about the building's NS history, namely, that it used to be a women's clinic where hundreds of forced sterilizations took place. To keep the duration of both audio texts similar, group H's text began by briefly mentioning parts of the instruction that all participants had received before in written form.

Each participant was asked to evaluate 80 *historical photographs*. Each of the photos dated back to the period of the NS regime and showed scenes associated with clinics and hospitals. The photos were gathered from the local university's archives and from research on the internet and presented achromatic and either in a fixed horizontal (560 x 450 px) or vertical format (450 x 560 px) with a short caption describing its content and the approximate year it was taken.

Measures

To rate their mood and arousal (at 3 points in time) participants were asked "In what kind of mood are you in right now?" along with a nine-point Likert-scale extending from "very negative" to "very positive". Analogously, to rate their arousal, participants were asked "How aroused/activated are you right now?" along with a nine-point Likert-scale extending from "not aroused at all" to "very aroused".

To evaluate the 80 photos, participants were presented each photo and its caption along with the question "What kind of emotions does the picture evoke in you?" and the corresponding Self-Assessment Manikin (SAM; Lang, 1980; Bradley & Lang, 1994) valence rating scale, followed by the question "What is the extent of arousal that the picture evokes in you?" and the corresponding SAM arousal rating scale.

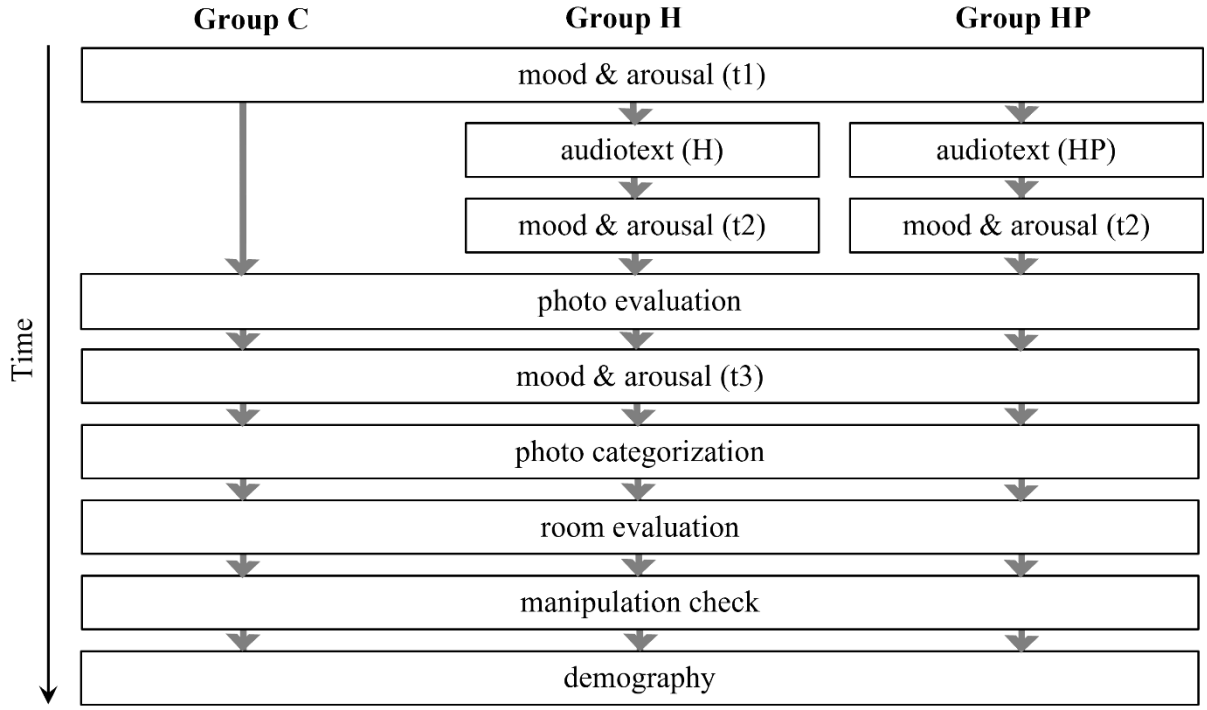
To categorize the photos, participants were given two tasks. First, they had to interpret each photo's content by choosing one or more of the following multiple-choice answers: "victim", "offender", "person neither victim nor offender", "building", "room" and "other". In order to gain a comparable unit revealing possible differences between the interpretation of the 80 photos of the different groups (C, H and HP) we calculated the mean overall selection of each category within each of the different groups, with a possible range between 0 and 80. Second, participants had to rate which group of persons was put into the photo's focus of attention on a nine-point Likert-scale ranging from "definitely offender" to "definitely victim".

Procedure

The experimental room was equipped with a chair and a table on which a vertically positioned computer screen, a keyboard, a mouse, and a headphone were positioned. Participants were randomly assigned to one of the three conditions and received information about the procedure and the instructions for the study task. The first task was to rate their current mood and arousal (t1). Groups HP and H then heard an audio text and subsequently had to rate their current mood and arousal again (t2). The photo evaluation task began with an example to familiarize participants with the rating procedure. The 80 photos were presented randomly, and participants had to rate the valence and arousal evoked of each photo while watching it. Participants were asked to rate their current mood and arousal (t3) again. Afterwards the photo categorization took place, whereby the photos were presented randomly. Afterwards, participants had to evaluate the room, and the manipulation check, and the query of some demographic variables took place. The procedure is visualized in Figure 3.

Figure 3

Procedure of Study 1.



Note. C = Control group, H = History awareness group, HP = History and place awareness group.

Results

Mood

To compare the personal mood of all three groups, we conducted a 3x2 Mixed Model ANOVA with the between-subjects factor condition (C vs. H vs. HP) and the within-subjects factor time (t1 vs. t3). The ANOVA revealed a main effect for condition, $F(2,98) = 3.472$, $p < .05$, $\eta_p^2 = .066$, indicating that the mood of group HP was more negative than that of group C. Further, there was main effect for time, $F(1,98) = 345.224$, $p < .001$, $\eta_p^2 = .779$, indicating that mood was significantly more negative at t3 than at t1. The ANOVA indicated no interaction between condition and time, $F(2,98) = .678$, $p = .510$, $\eta_p^2 = .014$. Descriptive data of mood and arousal is shown in Table 4.

Table 4

Participants' Mood and Arousal at Three Different Times (t1, t2, t3) by Condition.

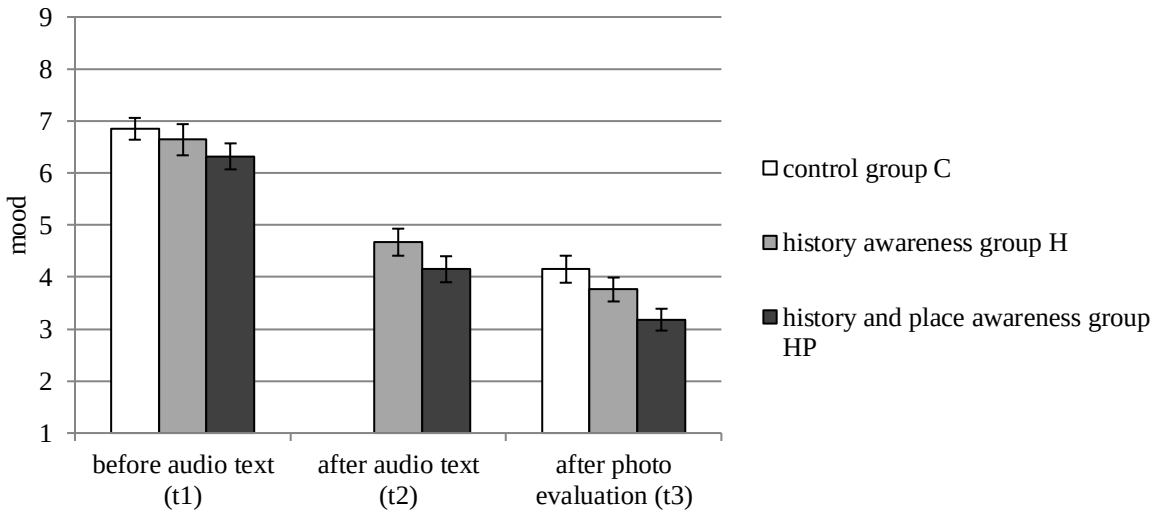
		mood		arousal	
		M	*SD*	*M*	*SD*
C	t1	6.85	1.21	5.29	1.73
	t2	-	-	-	-
	t3	4.15	1.52	5.76	1.76
H	t1	6.64	1.75	5.03	1.76
	t2	4.67	1.51	4.88	1.58
	t3	3.76	1.30	5.39	1.87
HP	t1	6.32	1.45	5.29	2.02
	t2	4.15	1.44	5.62	1.65
	t3	3.18	1.22	6.24	1.76

Note. M = Means, *SD* = Standard Deviations, C = Control group, H = History awareness group, HP = History and place awareness group; lower numbers indicate negative mood / low arousal.

To compare the mood of the groups H and HP, we conducted a 2x3 Mixed Model ANOVA with the between-subjects factor condition (H vs. HP) and the within-subjects factor time (t1 vs. t2 vs. t3). The ANOVA revealed no main effect for condition, $F(1,65) = 2.768$, $p = .101$, $\eta_p^2 = .041$, but again a main effect for time, $F(2,130) = 138.149$, $p < .001$, $\eta_p^2 = .680$, indicating that mood became more negative over time. Further, the ANOVA indicated no interaction between condition and time, $F(2,130) = .287$, $p = .751$, $\eta_p^2 = .004$. The ratings of mood at the different times are visualized in Figure 4.

Figure 4

Participants' Personal Mood and Arousal at Three Different Times (t1, t2, t3) by Condition.



Note. Lower scores indicate a more negative mood. Error bars represent standard error of mean.

Arousal

To compare the arousal of all three groups, we conducted a 3x2 Mixed Model ANOVA with the between-subjects factor condition (C vs. H vs. HP) and the within-subjects factor time (t1 vs. t3). The ANOVA revealed no main effect for condition, $F(2,98) = 1.117$, $p = .331$, $\eta_p^2 = .022$, but a main effect for time, $F(1,98) = 8.752$, $p < .01$, $\eta_p^2 = .082$, indicating that participants' arousal significantly increased from t1 to t3. Additionally, the ANOVA revealed no interaction between condition and time, $F(2,98) = 1.592$, $p = .458$, $\eta_p^2 = .016$. Also, to compare the arousal of the groups H and HP, we conducted a 2x3 Mixed Model ANOVA with the between-subjects factor condition (H vs. HP) and the within-subjects factor time (t1 vs. t2 vs. t3). Again, the ANOVA revealed no main effect for condition, $F(1,65) = 2.776$, $p = .100$, $\eta_p^2 = .041$, but a main effect for time, $F(2,130) = 6.318$, $p < .05$, $\eta_p^2 = .089$, indicating that arousal both at t2 and at t3 was higher than at t1. Again, there was no interaction between condition and time, $F(2,130) = 1.194$, $p = .306$, $\eta_p^2 = .018$.

Evaluation of the Photos

To compare the photo evaluation of all three groups, we computed the mean overall valence and arousal regarding all 80 photos and conducted ANOVAs with the factor condition (C vs. H vs. HP). Descriptive data of the photo ratings are shown in Table 5.

Table 5

Participants' Ratings of the 80 NS Related Photos by Condition.

	valence		arousal	
	M	*SD*	*M*	*SD*
C	3.81	.43	4.40	1.13
H	3.59	.50	4.19	1.26
HP	3.45	.71	4.72	1.30

Note. M = Means, *SD* = Standard Deviations, C = Control group, H = History awareness group, HP = History and place awareness group; lower numbers indicate negative valence / low arousal.

The ANOVA indicated significant differences in the mean valence ratings due to condition, F (2,98) = 3.505, $p < .05$, $\eta_p^2 = .067$. Pairwise comparisons revealed that group HP (M = 3.45, SD = 0.71) rated the photos more negatively than group C (M = 3.80, SD = 0.43). Regarding the mean arousal ratings of the photos, the ANOVA indicated no significant differences due to condition, F (2,97) = 1.418, $p = .247$, $\eta_p^2 = .028$.

The photo categorization consisted of two tasks regarding the content and focus of each photo and was analyzed exploratively. To compare the ratings of the content of all three groups, we computed the mean overall selection of each category regarding all 80 photos and conducted ANOVAs with the factor condition (C vs. H vs. HP). Descriptive data of the photos' content categorization are shown in Table 6.

Table 6

Participants' Interpretation of Content of the 80 NS Related Photos by Condition.

	C		H		HP	
	M	*SD*	*M*	*SD*	*M*	*SD*
victim	37.29	7.33	39.73	7.28	40.56	8.22
offender	23.88	9.83	26.76	8.88	30.62	9.88
Neither v nor o	28.82	9.88	23.75	9.65	23.70	9.67
building	7.29	3.10	7.48	3.63	7.32	6.58
room	19.88	8.27	18.91	8.27	18.35	9.14
other	6.67	6.31	2.00	1.81	4.79	5.96

Note. M = Means, *SD* = Standard Deviations, C = Control group, H = History awareness group, HP = History and place awareness group.

The ANOVA indicated significant differences in the mean selection of "offender", F (2,98) = 4.260, $p < .05$, $\eta_p^2 = .080$. Pairwise comparisons revealed that group HP (M = 30.62, SD = 9.88) chose "offender" significantly more often than group C (M = 23.88, SD = 9.83). Further, the ANOVA indicated significant differences in the mean selection of "person neither victim nor offender", F (2,96) = 3.248, $p < .05$, $\eta_p^2 = .063$. Descriptively, group C chose this category more often than both other groups, but none of the pairwise comparisons was significant. There were no differences in the mean selection of the categories, "victims", F (2,98) = 1.680, p = .192, $\eta_p^2 = .033$, "building", F (2,98) = .016, p = .984, $\eta_p^2 = .000$, "room", F (2,98) = .277, p = .277, $\eta_p^2 = .006$, and "other", F (2,36) = 2.148, p = .131, $\eta_p^2 = .107$.

To compare the ratings of the focus of all three groups, we computed the overall mean rating of all 80 photos and conducted ANOVAs with the factor condition (C vs. H vs. HP). The ANOVA indicated no differences in perception of focus between the groups, F (2,98) = 2.506, p = .087, $\eta_p^2 = .049$.

Evaluation of the Room

Due to a technical problem, one participant could not rate the room. The sample included in the following analyses contained 100 participants (group C = 33, group H = 33, group HP = 34). Descriptive data of the room ratings are shown in Table 7.

Table 7

Participants' Ratings of the Room by Condition.

	valence		arousal	
	M	*SD*	*M*	*SD*
C	3.36	1.03	4.67	1.85
H	3.85	1.03	4.24	1.90
HP	3.06	1.20	5.91	1.64

Note. M = Means, *SD* = Standard Deviations, C = Control group, H = History awareness group, HP = History and place awareness group; lower numbers indicate negative valence / low arousal.

To test our hypotheses of perceived valence and arousal evoked by the room, we conducted ANOVAs with the factor condition (C vs. H vs. HP). Regarding the valence ratings of the room, the ANOVA indicated significant differences due to condition, F (2,97) = 4.441, $p < .05$, $\eta_p^2 = .084$. Pairwise comparisons revealed that group HP (M = 3.06, SD = 1.20) rated the room more negatively than group H (M = 3.85, SD = 1.03). Regarding the arousal ratings evoked by the room, the ANOVA again indicated significant differences due to condition, F (2,97) = 7.816, $p < .01$, $\eta_p^2 = 1.39$. Pairwise comparisons revealed that group HP (M = 5.91, SD = 1.64) rated the room with a higher arousal than group H (M = 4.24, SD = 1.90) and group C (M = 4.67, SD = 1.85).

Discussion

The aim of Study 1 was to investigate the impact of becoming aware of the NS history of a site on personal affect, the evaluation of NS related photos, and the evaluation of the experimental room itself. A general effect of time, but not of condition, on mood and arousal

was found, with mood becoming more negative and arousal becoming higher after participants were confronted with NS related photos. Regarding the evaluation of the room, significant differences in the valence and arousal ratings due to condition were found. Group HP perceived the room more negative than group H, and group HP perceived a higher arousal evoked by the room compared to both groups H and C. Furthermore, group HP rated the NS related photos more negatively and interpreted the persons in the photos more often as offenders compared to group C.

As Study 1 revealed only partial evidence of the impact of history awareness on personal affect, Study 2 aimed to replicate and extend these findings. While the methodical approach in Study 1 was the evaluation of a large number of photos on quantitative scales based on a rather short viewing time for each photo, the methodical approach in Study 2 should be a more detailed description of individual photos in a qualitative way. Even though the analyses of the data solely with the female participants did not show any differences regarding the results, we decided to only invite female participants to Study 2. This decision was based on the aim to homogenize the sample and further eliminate potential gender biases, which could be substantiated within the study implications (victims at the site were women, while offenders were both men and women).

Study 2

Methods

Participants

A total of n = 99 participants took part in Study 2. Due to technical problems, participants actual ages could not be collected. However, we did collect participants year of birth (M = 1994, SD = 3.07), which ranged from 1983 to 1999. Eleven participants needed to be excluded, eight failed the manipulation check and three due to lack of language skills. The final sample included 88 participants (C = 30, H = 28, HP = 30); 87 indicated female, one indicated “other”.

Study Setting

The study setting was the same as in Study 1.

Design

We used a single factorial between-subjects design with three conditions differing in their received prior information. The same manipulation check and exclusion criteria as in Study 1 were used.

Materials

The independent variable was the type of prior information offered via three *audio texts*. The audio texts of groups H and HP were the same as in Study 1. The audio text presented to group C offered general information about the structural features of the building (total number of floors and rooms) and several facts about the research institute. All three audio texts fulfilled the same formal criteria as in Study 1.

Each participant was asked to verbally describe three *historical target photographs* (Photo 1, 2 and 3). One of the photos is exemplarily shown in the following Figure 5.

Figure 5

Photo 2.

Note. The photo's caption was "Hospital ward of a sanatorium, approx. 1935". Source reference: DÖW, Foto-Signatur 7908.

The photos were presented in the same formal way as in Study 1, all of them in the fixed horizontal format. Photo 1 showed a nurse and two male patients lying in clinical beds. Its caption was “Nurse in a military hospital, approx. 1943”. Photo 2 showed a nurse and several beds arranged in a row with patients. One of the beds is surrounded by a cage. Its caption was “Hospital ward of a sanatorium, approx. 1935”. Photo 3 showed three men, two wearing jackets and one with a white doctor’s coat, positioned at a table with documents. Its caption was “Deputy Reich Health Leader and Doctors, approx. 1938”. One of the photos is exemplarily shown in the following Figure 5.

We wanted to compare the ratings of personal affect with computer-based analyses of voice qualities, so we added a neutral Photo 0 and the default text “Northwind and Sun” (N&S). Photo 0 was chosen to serve as baseline for the nature of photo descriptions and showed a scene at a scientific exhibition without and reference to the time of NS dictatorship. N&S is a fable attributed to Aesop, considered as emotional neutral. Participants had to read N&S aloud before and after the audio text. As the analyses of the computer-based voice characteristics turned out to be technically too difficult, we will not report these results here.

Measures

The same measurements as in Study 1 were used for the rating of mood and arousal and the evaluation of the room. Furthermore, participants had to read N&S aloud at 2 points in time (Figure 6). Participants were asked to describe each photo in their own words within a minimum of 40 sec and no upper time limit. Descriptions were given verbally and recorded by a headset microphone. Later, each audio file was transcribed by a student assistant and its total word count was calculated via *Linguistic Inquiry and Word Count* (LIWC; Pennebaker et al., 2015). To systematically gather the number of named photo elements, we developed a coding system. The total possible number of named photo elements was 11 in photo 1, 16 in photo 2, and 10 in photo 3. Two student assistants blind to condition coded the photo elements via MAXQDA

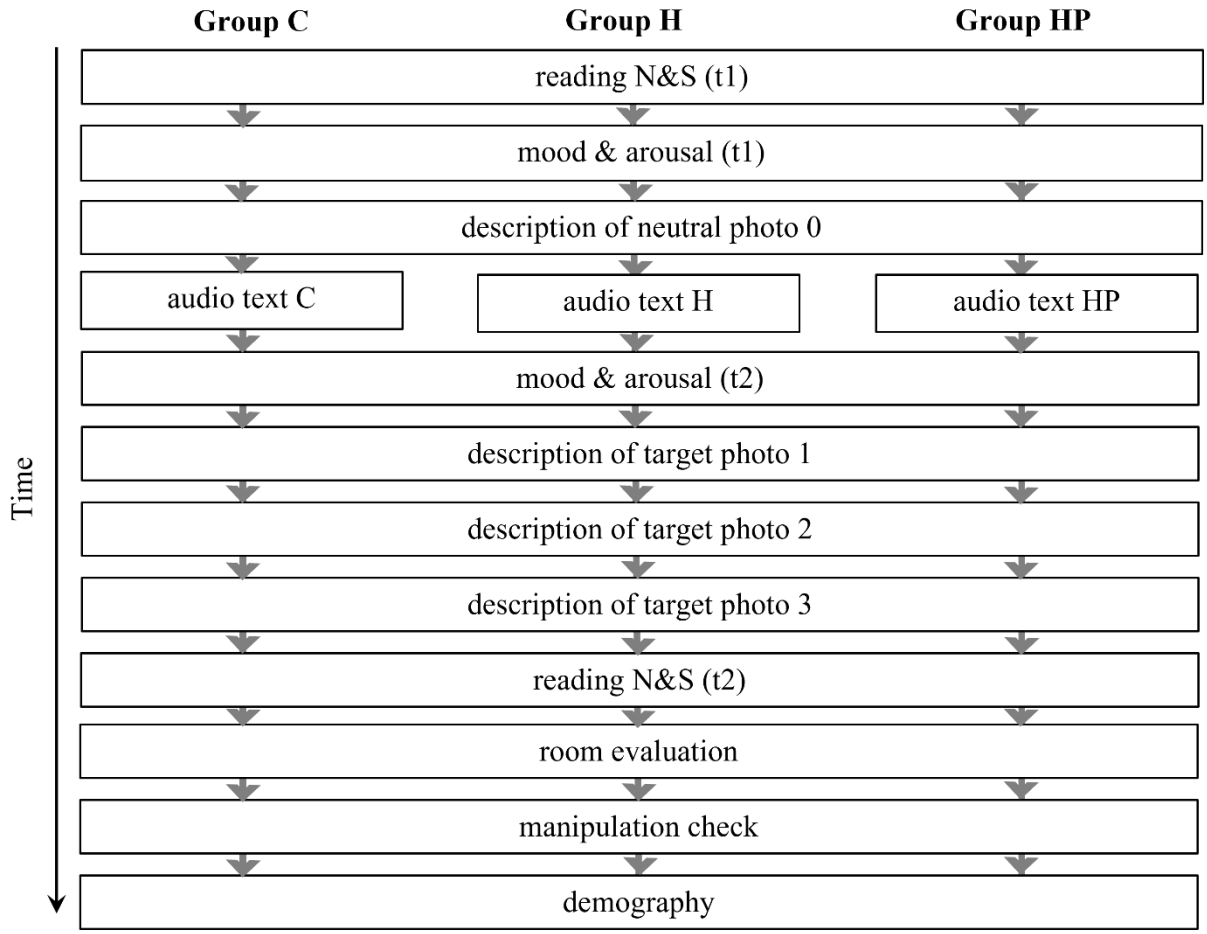
Plus 2018 (Release 18.0.3). The interrater reliabilities of the coders on each photo were estimated via SPSS Macro KALPHA by Hayes (2007), Krippendorfs α_{Photo1} = .97 and Krippendorfs α_{Photo2} = .98. A third independent rater subsequently decided on the ratings that did not match.

Procedure

The beginning and end procedure of Study 2 were similar to Study 1 (see Figure 6).

Figure 6

Procedure of Study 2.



Note. C = Control group, H = History awareness group, HP = History and place awareness group.

The same equipment as in Study 1 was used; except that the computer screen was positioned horizontally, and the headphone included a microphone. Participants were

instructed to adjust their headset and read N&S aloud (t1). They then rated their mood and arousal (t1) and afterwards described Photo 0. The audio text was presented, and participants had to rate their mood and arousal again (t2). Afterwards, participants consecutively described photo 1, photo 2 and photo 3, and again read aloud N&S (t2).

Results

Mood

To compare the mood of all three groups, we conducted a 3x2 Mixed Model ANOVA with the between-subjects factor condition (C vs. H vs. HP) and the within-subjects factor time (t1 vs. t2). Descriptive data of mood and arousal is shown in Table 8.

Table 8

Participants' Mood and Arousal at Two Different Times (t1, t2) by Condition.

		mood		arousal	
		M	*SD*	*M*	*SD*
C	t1	6.03	1.77	5.20	1.75
	t2	5.63	1.50	4.60	1.87
H	t1	5.96	1.43	4.79	2.01
	t2	3.82	1.16	5.32	1.85
HP	t1	6.23	1.33	4.90	1.79
	t2	3.20	1.30	5.13	1.81

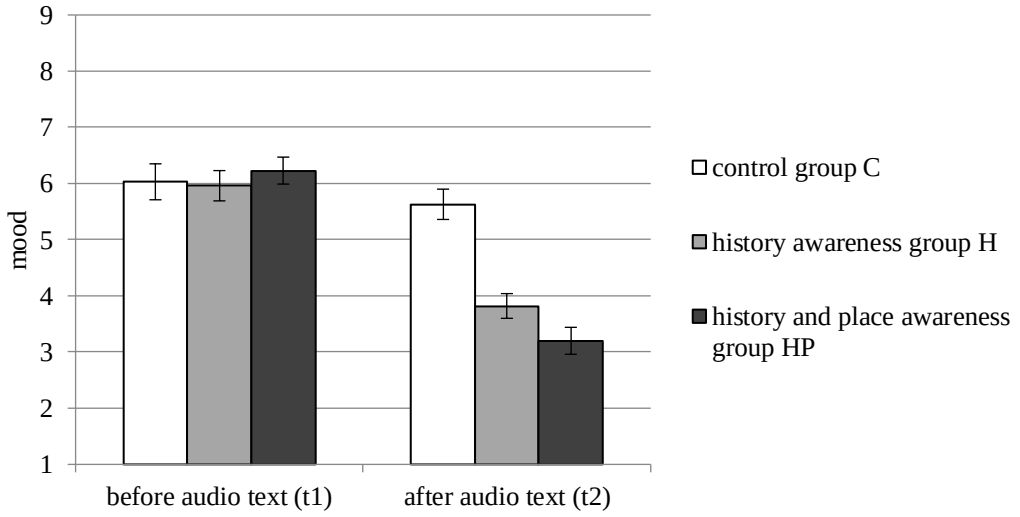
Note. M = Means, *SD* = Standard Deviations, C = Control group, H = History awareness group, HP = History and place awareness group; lower numbers indicate negative mood / low arousal.

The ANOVA indicated a main effect for condition, $F(2,85) = 7.664$, $p < .01$, $\eta_p^2 = .153$, with pairwise comparisons revealing that the mean mood over both times was significantly more negative in groups H and HP compared to group C. Also, the ANOVA indicated a main effect for time, $F(1,85) = 118.639$, $p < .001$, $\eta_p^2 = .583$, revealing that mood was significantly more negative at t2 than at t1. In addition, there was a significant interaction between condition and

time, $F(2,85) = 20.993$, $p < .001$, $\eta_p^2 = .331$, indicating that mood did not differ between conditions at t1 but was significant more negative for group HP and group H than for group C at t2. However, at t2 there was no significant difference of mood between the groups H and HP. Mood ratings at the different times are visualized in Figure 7.

Figure 7

Participants' Personal Mood and Arousal at Three Different Times (t1, t2, t3) by Condition.



Note. Lower scores indicate a more negative mood. Error bars represent standard error of mean.

Arousal

To compare the arousal of all three groups, we conducted a 3x2 Mixed Model ANOVA with the between-subjects factor condition (C vs. H vs. HP) and the within-subjects factor time (t1 vs. t2). The ANOVA indicated neither a main effect for condition, $F(2,85) = .074$, $p = .928$, $\eta_p^2 = .002$ nor a main effect for time, $F(1,85) = .089$, $p = .767$, $\eta_p^2 = .00$, but a significant interaction between condition and time, $F(2,85) = 3.223$, $p < .05$, $\eta_p^2 = .070$. Descriptively, arousal of group C decreased while the arousal of groups H and HP increased from t1 to t2, but none of the pairwise comparisons was significant.

Description of the Photos

Due to technical problems some audio recordings broke off before participants finished their photo description. The broken files were excluded from further analyses. Regarding photo 1 one file was excluded, resulting in the analyses of n=87 (C=30, H=28, HP=29) files. Regarding photo 2, 15 files were excluded resulting in the analyses of n=73 (C=27, H=21, HP=25) files. Regarding photo 3, thirty-seven files were excluded. By virtue of this huge data loss, we decided to leave photo 3 out of further analyses. To compare the word counts and numbers of named photo elements between the three groups, we conducted ANOVAs with the factor condition (C vs. H vs. HP).

Photo 1. The ANOVA indicated no differences in the mean word counts between group C (M = 132.70, SD = 63.75), group H (M = 161.71, SD = 87.82), and group HP (M = 138.62, SD = 69.05), F (2,84) = 1.230, p = .298, η_p^2 = .028. Also, there were no differences in the mean named photo elements between group C (M = 7.90, SD = 1.40), group H (M = 7.25, SD = 1.80), and group HP (M = 7.97, SD = 1.32), F (2,84) = 1.938, p = .150, η_p^2 = .044.

Photo 2. The ANOVA indicated no differences in the mean word counts between group C (M = 114.07, SD = 43.13), group H (M = 126.24, SD = 66.42), and group HP (M = 100.76, SD = 33.35), F (2,70) = 1.598, p = .209, η_p^2 = .044. Also, there were no differences in the mean named photo elements between group C (M = 8.52, SD = 2.86), group H (M = 7.48, SD = 2.38), and group HP (M = 7.16, SD = 1.72), F (2,70) = 2.310, p = .107, η_p^2 = .062.

Evaluation of the Room

To test our hypotheses of perceived valence and arousal evoked by the room, we conducted ANOVAs with the factor condition (C vs. H vs. HP). While descriptively, the pattern resembled Study 1, no significant differences in valence ratings of the room were found between the groups C (M = 3.90, SD = .84), H (M = 3.75, SD = 1.32), and HP (M = 3.47, SD = 1.43), F (2,85) = .968, p = .384, η_p^2 = .022. Also, while descriptively similar to Study 1, there

were no differences in perceived arousal evoked by the room between the groups C (M = 4.57, SD = 2.08), H (M = 5.07, SD = 1.90), and HP (M = 5.57, SD = 1.68), F (2,85) = 2.093, p = .130, η_p^2 = .047.

Discussion

The aim of Study 2 was to replicate and extend the findings of Study 1. An effect of condition and time on mood and, furthermore, an interaction of condition and time on mood and arousal were found. In the groups H and HP mood became more negative after the audio text compared to group C. Also, arousal of the groups H and HP became descriptively higher after the audio text compared to group C, but pairwise comparisons revealed no significant differences. Regarding the descriptions of photos 1 and 2, there were neither significant differences in the mean overall word count nor in the mean number of named photo elements due to condition. The evaluation of the room descriptively showed the same pattern as in Study 1, but differences between the groups were not significant.

General Discussion

The present studies aimed to investigate the effects of becoming aware of a place's NS history on visitors' personal affect, the evaluation (Study 1) and description (Study 2) of related pictorial documents, and on the evaluation of the site itself.

Several studies have investigated visitors' motives and emotions at KZ memorial sites, but fewer is known about these processes at everyday places holding non-salient historical dimensions. Our studies took up this issue by disentangling the effect of history awareness from the effect of a site's current readability.

In general, we found that being confronted with information and pictorial material related to the NS period led to a more negative mood in both studies. There was also a larger decrease in mood for those groups that received information about NS crimes prior to the presentation of the photos, compared to the control group in Study 2, while no such differences were found

in Study 1. One reason for this difference between the studies may be the number of photos presented. In Study 1, participants were shown 80 photos, which alone may have led to a substantial decrease in mood, whereas in Study 2, only three photos were shown, which may have led to a decrease in mood only in concert with additional information about the NS crimes. However, no evidence was found that the decrease in mood was particularly pronounced when participants became aware of being at a place where NS crimes happened. Similarly, arousal in all three groups increased after the evaluation of the 80 photos in Study 1, whereas Study 2 found an interaction between time and condition, but pairwise comparisons did not show significant differences between the groups. Descriptively the data showed that participants of groups H and HP reported higher arousal after receiving the prior information, whereas arousal in the control group decreased. Again, no evidence was found that the increase in arousal was particularly pronounced when participants became aware of being at a place where NS crimes happened.

These findings stand in contrast to previous studies conducted at KZ memorial sites which report intense negative feelings of visitors (Bilewicz & Wojcik, 2018; Biran et al., 2011; Brown, 2015; Nawijn & Fricke, 2015). The main difference between the present and the previous studies lies in the visible features of the places: KZ memorial sites show and tell the NS crimes and make them tangible through the site's atmosphere, their architectural features, and authentic material artefacts. In contrast, the present studies were conducted at a seemingly neutral place giving no hints for the crimes that happened within it. As a tentative conclusion from the present studies' findings, it seems that besides becoming aware of the historical dimension of a place additional contextual cues play an important role regarding affective effects on visitors.

Study 1 showed that the awareness of being at a site with NS history had a substantial effect on the evaluation of NS related photos. While there was no difference between the ratings of group H and HP, the latter rated the photos more negatively than participants of group C. This finding indicates that while there is no effect from prior information on the personal affective

level, there may be an effect on the subsequent evaluation of further information material. Knowing about the crimes that happened at this particular site may have led participants to interpret and therefore evaluate associated pictures more negatively compared to the control group who may have interpreted the pictures differently and therefore rated their valences more neutrally.

Regarding the qualitative description of NS related photos, Study 2 showed no differences in overall word count or the amount of named photo elements due to prior information. Our hypothesis was that the negative mood (induced by the awareness of being at a site holding a NS history) would foster a bottom-up processing style, resulting in more detailed descriptions of the photos. As we found no differences in mood due to prior information, there may have been no different processing styles induced. However, because of data loss due to technical problems, these null results need to be interpreted with care. Nevertheless, the differences in attributing meaning to the photos found in Study 1 indicate that depending on prior information participants tended to interpret NS related photos differently. This is in line with the finding that group HP categorized the contents of the 80 pictures more often as “offender” compared to group C.

Finally, we investigated the impact of becoming aware of being at a historical site on the evaluation of the site itself. Therefore, participants had to rate the valence and arousal evoked by the experimental room. Study 1 found that group HP rated the room more negatively than participants of group C and with a higher evoked arousal than both groups H and C. These results are in line with previous findings showing that the awareness of a places’ negative history influences the evaluation of the place (Savani et al., 2011) or a nearby place (Blaison & Hess, 2016) in a negative way. While descriptive data showed the same pattern in Study 2, differences between the groups did not show significance, indicating that the prior information as such was not enough to influence the evaluation of the room. However, prior information combined with further photographic material seems to affect the evaluation of the room but

evaluating a larger number of respective pictorial stimuli seems to have a greater effect than the closer examination of few individual photos.

To the best of our knowledge, these are the first studies which investigated the effects of becoming aware of the dark history of an everyday place in an experimental design, thereby achieving a balance between ecological validity and methodological rigor. Nevertheless, there are certainly some empirical limitations. While affective reactions were determined via the two dimensions of mood and arousal, research at KZ memorial sites has shown that visitors experience a broad range of different negative emotions (Brown, 2015). Therefore, future studies should try to investigate the spectrum of possible affective reactions in more detail. Also, the present studies took place in a neutral room with no indication of its history and presumably no atmospheric resemblance to former NS times. In order to gain more insights into the interplay of a place's atmosphere and the awareness of its historic dimension, both aspects should be systematically crossed in future experiments.

Taken together, the affective effects of becoming aware of the historicity of a place were found to be small, at least in the present studies. Given that the room itself was perceived to be significantly more negative and evoked more arousal, we may assume that participants did indeed notice its NS crime history. Therefore, one may speculate that in order to exert some influence on visitors' mood and arousal, becoming aware of the history of a place is not sufficient enough in itself but has to be embedded in a context that reflects to a certain degree the authentic atmosphere of the historic place. Accordingly, KZ memorials typically show clearly visible material traces of its history and at least partly reproduce the original atmosphere, whereas the present studies took place in a neutral room with no visible signs of its history. Further research on this interplay of historical awareness and authentic atmosphere is needed in order to investigate whether the presence of an authentic atmosphere is the primary source of visitors' history-related feelings or whether the awareness of being at a historic place contributes further to the intensity of these feelings.

Declaration according to § 5 Abs. 2 No. 8

of the PhD regulations of the Faculty of Science

-Collaborative Publications-

The following chapter (Chapter 3) consists of a manuscript that was co-authored by Stephan Schwan. The manuscript has currently been submitted. The proportional contributions to this manuscript are presented in the subsequent table.

Authors	Author position	Scientific ideas (%)	Data generation (%)	Analysis and Interpretation (%)	Paper writing (%)
Melissa Ries	First author	90	100	90	90
Stephan Schwan	Second author	10	0	10	10
Title of the paper	More Than Meets the Eye: The Historic Dimension of Places. Effects of History Awareness on Cognitive and Affective Outcomes				
Status in publication process	Submitted				

3. Study 3

More Than Meets the Eye: The Historic Dimension of Places. Effects of History Awareness on Cognitive and Affective Outcomes

The history of a place often tells us about the way people used it and can widen the awareness of how the place was involved in the greater socio-political picture of the time. In Germany, there is an ongoing debate about how to handle historic places which relate to the period of the reign of the National Socialist (NS) regime (Macdonald, 2006). Today, a great number of historic sites related to the NS period are utilized as memorial sites or as places for informal learning, such as museums or documentation centers. When one is dealing with history related information materials, the assumption is that being at a place that was part of the history motivates to elaborate on the content and facilitates learning and imagination. As far as we know today, there is only little empirical evidence supporting these hypotheses. While a number of studies have investigated the psychological impact of physical attributes of places (Nasar & Bokharaei, 2017; Peponis et al., 2004; Stamps, 2011), fewer have addressed the psychological impact of the historic dimension of places (Baron, 2012; Lewicka, 2005, 2008).

To understand the psychological impact of historic sites, we need to disentangle the effects of their physical attributes from the effects of their historic dimension on affective and cognitive outcomes. Memorial sites such as former concentration camps (KZ) typically hold both the particular physical attributes and the historic dimension itself. To empirically determine the impact of the historic dimension as such, one would need a place that holds a history of relevance which is hardly known to the public and, at the same time, offers no physical attributes resembling this history. This may be the case when a historic site is lacking any manmade physical attributes (e.g., a battlefield), when the building got mostly destroyed (e.g., the former Berghof in Berchtesgaden), or when the building has been renovated and presently holds a completely different function.

The present study was conducted in a building in which terrible crimes happened during the period of NS dictatorship, whereby this history is hardly known to the public and the building offers no physical cues about it. The participants' history awareness was systematically manipulated by presenting different kinds of prior information. The aim of the present study was to illuminate the psychological impact of the historic dimension of a building on cognitive and affective outcomes. Therefore, two forms of historic awareness (namely, receiving information about NS crimes in general or additionally being informed that some of these crimes actually happened in the building in which the study took place) and their impact on affective (evaluation of the place itself, and participants' personal affect) and cognitive outcomes (memory performance regarding historic photos) were investigated.

To begin with, in the following paragraphs, we will give an overview of the state of research regarding the impact of historic sites on the perception and evaluation of the site itself, on the personal affect, and on possible cognitive and affective effects on memory performance.

Perception and Evaluation of Historic Places

Several studies show that knowing about the historic dimension of a site influences the evaluation of the site itself (Ayton et al., 2022) and even the evaluation of the whole area surrounding the site (Blaison & Hess, 2016). In a recent study, Ayton and colleagues (2022) found that houses in London that were marked by a blue plaque, indicating that they were formerly inhabited by notable women or men, achieved substantially higher selling prices than similar houses without such a blue plaque. This indicated that the awareness of the historic dimension of a site may strongly influence its evaluation. But even in the absence of visible signs, the awareness of a location's history has been demonstrated to have an effect on its evaluation. Blaison and Hess (2016) investigated the impact of knowing about different kinds of threats at particular locations on the evaluation of places that varied systematically in their distance to the threatening place. They found that participants were willing to pay less for a flat

located near the threat, compared to a flat which was farther away. Furthermore, if the distance to the threat passed a critical distance, the effect inverted so that participants were willing to pay even more for the flat which was far away from the threat compared to a condition with no threat at all. Interestingly, these effects were stable regardless of whether they presented a current (landfill) or a bygone (and therefore historical) threat (a house, in which 20 years ago a murder took place). The results demonstrate that the awareness of negative historical events at a certain location has an impact on the evaluation of the whole area. In addition, Savani et al. (2011) reported a mechanism that they termed emotional residues, meaning that a large proportion of people believe that traces of previous emotions accumulate in physical spaces, thereby transferring affective states to subsequent visitors. Accordingly, in a series of studies, they found that participants tended to prefer to fill out a questionnaire in a room in which previous participants had experienced positive emotions rather than negative emotions. Moreover, Ries (forthcoming) found evidence that the awareness of a site's negative NS history may influence its evaluation even if the site is lacking the corresponding historic atmosphere; that is, participants tended to perceive the site to be more negative and with higher evoking arousal if they were aware of the site's history compared to those participants who were aware of the NS history in general or a control group. Taken together, these findings indicate that even in the absence of an authentic historic atmosphere, the awareness of a site's history may exert an influence on visitors' experience and evaluation of the site, particularly with regard to the affective dimension.

Impact of Historic Sites on Personal Mood

Several studies have investigated the affective impact of visiting dark heritage places (Bilewicz & Wojcik, 2018; Brown, 2015; Nawijn & Fricke, 2015; Oren et al., 2021), which have an inherent historic dimension and at the same time offer a corresponding historic atmosphere through visible physical attributes. These studies show that a visit to places such as memorials of the victims of Nazism (Brown, 2015), the KZ memorial Neuengamme (Nawijn

& Fricke, 2015), or the KZ memorial Auschwitz (Bilewicz & Wojcik, 2018) fosters the experience of negative emotions, such as feelings of sadness, shock, anger, despair, and incomprehension, and may even lead to the syndrome of secondary traumatic stress.

KZ memorial sites typically show a number of physical attributes that reinstate the site's historical atmosphere. In contrast, in many other cases, such physical attributes are lacking and possible effects on mood and cognition have to rely solely on the awareness of being at a historic site. In two experiments, Ries (forthcoming) investigated the impact of a historic site holding a dark NS history without offering physical traces of this history. The authors systematically manipulated participants' history awareness and found partial evidence that history awareness had a negative influence on personal mood. Furthermore, they found that photographic material related to the NS history was rated more negatively if participants were awareness of the site's NS history. These findings are partially in line with respective findings regarding historic sites holding both the historic dimension and the corresponding physical attributes, creating an overall historic atmosphere. However, the latter seem to foster a stronger negative affect than a historic place offering a historic dimension without the corresponding atmosphere.

Cognitive and Affective Effects on Memory

While several studies have empirically investigated the affective impact of a site's history, to the best of our knowledge, no research has addressed the impact of historic sites on memory performance to date. Yet, some conclusions about this issue can be drawn from the research regarding contextual effects on memory. In line with network models of memory, schema accounts of remembering, and educational theories of information elaboration, recent research has demonstrated that activating prior knowledge fosters memory for new information by connecting it to existing knowledge structures (van Kesteren et al., 2018, 2020). More importantly, the strength of this fostering effect depends on the congruence between prior association and the new information to be acquired. For example, in a study by van Kesteren

and colleagues (2020), participants first had to learn pairs of pseudowords and scenes (A-B), followed by pairs of the same pseudowords and objects (A-C). In subsequent memory tests on the objects, performance was higher if scenes and objects matched thematically (e.g., bathroom - rubber duck) than if they were thematically incongruent (e.g., airplane - rubber duck). Therefore, activation of prior knowledge in terms of a matching scene enhanced memory for the objects (although they had not been seen together). Similar results were reported in a study by Shin and colleagues (2021). Participants were immersed into two different virtual reality (VR) settings (on Mars and underwater) where they had to learn a number of objects by finding them in the 3D scene. Afterwards, they performed a memory test on the objects either in the same or the other VR-setting. Besides replicating the context-dependent memory effect of a higher retrieval if learning and testing take place in the same setting, the findings also revealed better memory for objects that semantically matched the scene in which they were learned.

Applied to historic sites, these findings suggest that activating prior knowledge of NS history should facilitate encoding and retention of stimuli associated with the NS period compared to stimuli not associated with the NS period. In addition, by becoming aware of a site's former NS history, perceived matching of the site and stimuli from the NS period should be enhanced, which should also foster an increased memory of stimuli associated with the NS period compared to stimuli not associated with the NS period.

In addition, there is evidence that the valence of stimuli may also influence the subject's memory performance (Christianson & Fällman, 1990). Christianson and Fällman (1990) found that very negative pictures were remembered better in a recognition task than neutral or positive ones, while on the other hand, they reduced memory for simultaneously presented associated words. As Ries (forthcoming) found that photographic material about the NS period was rated more negatively if awareness of the site's NS history was given, one might expect that under conditions of awareness of a site's NS history photographic material should be remembered better than under conditions of no awareness. Finally, according to Singer's and Salovey's

(1988) mood congruity hypotheses, negative mood induced by knowing about the negative history of a place could facilitate the learning of affective stimuli which are congruent to the current personal mood. As we expect persons to be affected in a negative mood when visiting sites with negative history, photos with negative valence should be better memorized compared to photos with a neutral valence.

Research Questions

In the present study, we investigated the effect of becoming aware of a building's NS history at a historic site lacking the corresponding historic atmosphere. We expected that the awareness of being at a site with NS history induces effects on the affective evaluation of the site itself, on participant's personal mood, and on the recognition performance of photographic material related or unrelated to the NS history.

More specifically, in line with previous research (Blaison & Hess, 2016; Ries, forthcoming) we expected an effect of prior information on the valence and arousal ratings regarding the evaluation of the site itself; that is, participants receiving information about NS crimes in general, complemented with the information that some of the crimes happened in the particular building, should perceive the experimental room more negatively and with a higher arousal compared to participants only receiving information about NS crimes in general or participants of the control group.

Further, it was hypothesized that personal mood becomes more negative if the participants had received information about NS crimes compared to participants of the control group.

We also expected both a cognitive and an affective impact of history awareness on the performance in a recognition task. Regarding cognitive influence, based on research on context-dependent memory (Shin et al., 2021; van Kesteren et al., 2020), we expected that prior information about the crimes conducted during the reign of the NS regime should activate prior

knowledge about the NS topic. Additionally, becoming aware of a site's former NS history should further enhance memory for stimuli associated with the NS period compared to stimuli not associated with the NS period. Therefore, the storing and the subsequent dependent performance in a recognition task should be better for NS-associated photos compared to non-NS-associated photos in the groups with prior information about the NS crimes compared to the control group.

Regarding affective influences, based on research revealing that the performance in a recognition task is better for pictures with a negative valence compared to pictures with a neutral valence (Christianson & Fällman, 1990), we expected that the memory performance for photos with a negative valence should be better than for photos with a neutral valence. In addition, referring to Singer's and Salovey's (1988) mood congruity principle, learning should be facilitated if affective stimuli are congruent to the current personal mood. The mood of participants receiving information about the NS crimes should be more negative than the mood of the control group. Therefore, we expected, that the memory performance for photos with a negative valence should be improved in conditions with prior information about the NS crimes compared to the control group.

Methods

The study was approved by the local institution's ethics committee. Participants were invited via email based on the institute's database; participants who took part in the pre-study did not participate in the main study. The participants gave their informed consent before taking part in the study and received eight euro for participation. At the end of each study a debriefing took place.

Participants

A total of n = 106 participants took part in the study. Sixteen participants needed to be excluded due to prior knowledge about the history of the building. The final sample included 90 participants (control condition, C = 31, history awareness condition, H = 29, history and place awareness condition, HP = 30) between the ages of 18 and 30 (M = 23.18, SD = 2.60), all female), and were mainly students (92,2%).

Study Setting

The study took place in a former gynecological clinic, built in 1890. During the time of NS dictatorship at least 655 so-called 'eugenic' sterilizations were conducted within the building (cf. Bayer, 2008). The building's function as a women's clinic ended in 2002. Extensive renovations lasted until the year 2011 when subsequently a department of the university and a research institute moved in. Today, as the building houses several laboratory rooms, appointed with modern equipment where psychological experiments take place on a regular basis, one can hardly imagine the history of the building. Thus, the circumstances allowed us to vary the participants' awareness about the buildings historic dimension by systematically providing them different prior information.

Design

We used a single factorial between-subjects design with three conditions differing in their received prior information. The control group (C) received general information about the building's present function as research institute. The history awareness group (H) received general information about the various crimes authorized by the NS regime. The history and place awareness group (HP) received the same information as group H, complemented with information about the NS history of the building. To check the participants' prior knowledge two questions were queried at the end of the study: "Did you know beforehand that the building in which you currently are is a former women's clinic?" and "Did you know beforehand that in

the former women's clinic forced sterilizations took place during the time of NS regime?". Exclusion criteria were adapted to the contents of the groups' prior information.

Materials

The independent variable was the type of prior information offered via three *audio texts*. All audio texts were read by the same female speaker, consisted of 221 words and had a total length of 2:42 minutes. Group C's audio text offered general information about the structural features of the building (total number of floors and rooms) and several facts about the research institute (foundation year of the institute, total number of employees). Group H`s audio text offered information about the duration of the NS dictatorship and the crimes that took place within this time period, namely, the Holocaust, the persecution of people with different political views, the murder of people who were physically or mentally challenged, as well as the forced sterilizations carried out on women who were classified as "racially inferior". Group HP's audio text offered the same information as group H's audio text and, furthermore, offered information about the NS history of the building, namely, that it used to be a women's clinic where in the time of NS dictatorship hundreds of forced sterilizations took place. To keep the duration of both audio texts similar, the audio text of group H began by briefly mentioning parts of the instruction that all participants had received before in written form.

Further, there were *80 historical photographs* used in the study. The photos showed either content associated with the time of the Berlin Wall (1961-1989, BW photo set) or clinic related content dated to the time of NS regime (1933-1945, NS photo set). Photos of the BW set showed different conditions of the former border area, different phases of building the BW, soldiers who guarded the border aera, persons who died within an attempt to escape, persons separated by the BW, border crossing stations, escape tunnels, and related contend. Photos of the NS set showed persons associated with the NS health system, doctors, nurses, medical stuff, patients, women suspected to have been forced sterilized, disabled persons suspected to have

been murdered, medical equipment, clinic facades, infirmaries, and related content. One of the NS photos is exemplarily shown in the following Figure 8.

Figure 8

Exemplary Photo Showing Clinic Related Content Dated to the Time of NS Regime.

Note. The photo's caption was "Hospital ward of a sanatorium, approx. 1935". Source reference: DÖW, Foto-Signatur 7908.

There was a total of 80 photos. One half of them were target pictures; the other half were distractor pictures. Half of the target pictures belonged to the NS photo set, the other half to the BW photo set. Half of the target NS photos and half of the target BW photos were classified with a mean negative valence, the others with a mean neutral valence. Same was true for the distractor pictures. The photos were presented achromatic and either in a fixed horizontal (560 x 450 px) or vertical format (450 x 560 px). Each photo was accompanied by a short caption describing its content and the approximate year it was taken. The selection of the photo sets was based on a pre-study. Within the pre-study, the participants (n=20, all female) were presented a total of 160 historical photos. Half of them showed content associated with the BW; the other half showed content associated with NS. The photos were gathered from the local university's archives as well as from research on the internet. They were presented randomly,

with the caption first, then the corresponding photo. The participants had to rate the valence of each of the 40 target photos along with the two possible rating choices “neutral” or “negative”. After each rating of the valence of 10 photos, the participants were asked to answer a question about the pictures content to ensure that they kept their attention towards the pictures high. Based on the ratings, we selected 20 photos with a mean valence ranging from 0 to .15, with 0 indicating an absolute negative valence, and 20 photos with a mean valence ranging from .55 to 1 (with 1 indicating neutral valence), both for the NS photo set and the BW photo set.

A *card game* was used as a filler task, as it loads on the participants’ working memory in visuospatial and phonological ways. The game consists of 15 cards showing written words and 15 cards showing pictures. By swapping its letters, each word could be transformed into a new word. The task was to build as many new words as possible and find the appropriate picture cards.

Measures

The study included the following tasks: rating of personal mood and arousal (at 2 points in time), valence rating of each of the 40 target pictures (a cover task for the learning phase, intending that the participants take a close look at each picture while not knowing that a memory task on the pictures will take place), recognition memory of the 40 target pictures out of a set of 80 pictures, rating of the personal interest and knowledge about the topics NS and the BW, and the evaluation of the site.

To rate their current personal mood, the participants were asked to indicate “In what kind of mood are you in right now?” on a nine-point Likert-scale reaching from “very negative” to “very positive”. Accordingly, to rate their personal arousal, they were asked to indicate “How aroused/activated are you right now?” on a nine-point Likert-scale reaching from “not aroused at all” to “very aroused”. In order to prevent a sexual connotation, it was pointed out in the questions on arousal that arousal is to be understood in the sense of activation.

Within the presentation phase, the participants' cover task was to rate the valence of each of the 40 target photos. The two possible choices were "negative" or "neutral".

In the recognition task, the participants were presented 40 target and 40 distractor pictures in randomized order. The task was to decide whether the photo had been presented to them within the study before or not. Participants were instructed to press a green button with the inscription "yes" located at the right side of the keyboard, if they thought that they had already seen the photo within the study; otherwise they had to press a red button with the inscription "no" located at the left side.

To rate their personal interest in the topics NS and the BW, the participants were asked to indicate "How would you rate your interest in the history of National Socialism (the Berlin Wall)?" on a five-point Likert-scale reaching from "very low" to "very high". To rate their personal knowledge about the topics NS and the BW, they were asked to indicate "How would you rate your knowledge of the history of National Socialism (the Berlin Wall)?" on a five-point Likert-scale reaching from "very low" to "very pronounced".

To evaluate the site, the participants were asked "What kind of emotions does the room that you are currently in evoke in you?" along with a nine-point Likert-scale reaching from "very negative" to "very positive" and "What amount of arousal does the room that you are currently in evoke in you?" along with a nine-point Likert-scale reaching from "not arousing at all" to "very arousing".

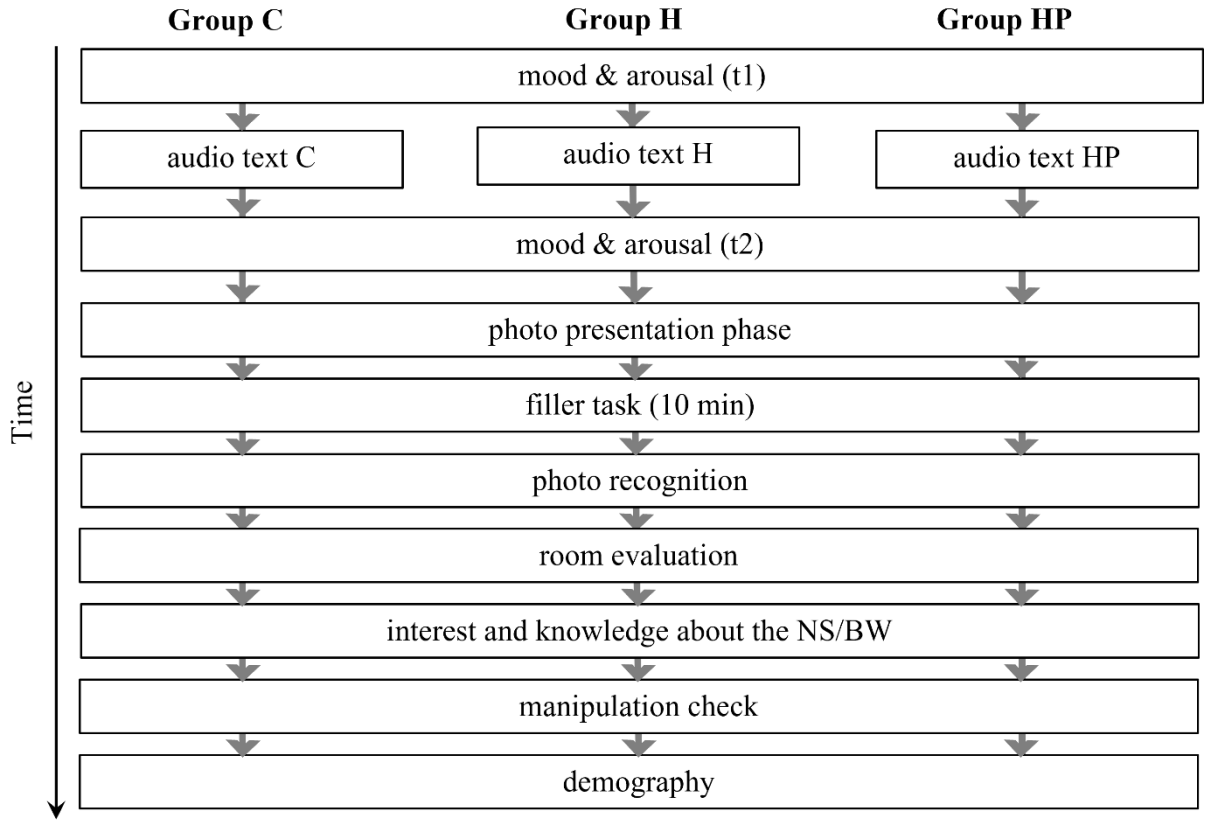
Procedure

Participants were randomly assigned to one of the three conditions. After being welcomed, they were guided into a room located in the basement of the building which was equipped with two chairs and tables. The hardware, that is, a horizontally positioned computer screen (Iiyama ProLite, 27", 16:9, 1920 x 1080 px), a keyboard, a mouse, and two speakers,

was positioned on the table in the middle of the room. The study procedure is visualized in Figure 9.

Figure 9

Procedure of the Study.



Note. C = Control group, H = History awareness group, HP = History and place awareness group.

The card game (filler task) was arranged at the other table positioned at the left wall. At the beginning of the study, the participants were instructed to sit down at the table in the middle of the room where they received information about the procedure and the instructions of the study tasks. The first task was to rate their current mood and arousal (t1). After hearing the corresponding audio text, the participants had to subsequently rate their current mood and arousal again (t2). The subsequent photo presentation phase was covered as a photo characterization task. The participants were randomly presented the 40 target photos with the caption first, then the corresponding photo, and afterwards the task to rate its valence. After the presentation phase, they were instructed to move to the other table and play a card game for 10

minutes (filler task) until they would hear a gong, indicating that they should end the card game and return to the first table. The study continued with the recognition memory task. The participants were presented the 40 target photos and 40 distractor photos in random order and had to decide for each of the photos whether it had been presented to them within the study before or not. Again, for each photo the participants were shown the caption first, followed by the corresponding photo. Next, the participants were asked to evaluate the room and subsequently had to rate their personal interest in and knowledge about the history of NS and the BW. Afterwards, they answered the questions of the manipulation check, and finally the query of some demographic variables took place.

Results

There were no differences in subjective rated personal interest, $F(2,87) = .852$, $p = .430$, $\eta_p^2 = .019$, (NS history: $M = 3.90$, $SD = .97$; BW history $M = 3.38$, $SD = 1.05$) or knowledge, $F(2,87) = .278$, $p = .758$, $\eta_p^2 = .006$, (NS history: $M = 3.18$, $SD = .84$; BW history $M = 2.44$, $SD = .94$) about the topics NS history or BW history between the different groups. However, the interest, $F(1,87) = 23.74$, $p < .001$, $\eta_p^2 = .214$, and knowledge, $F(1,87) = 80.826$, $p < .001$, $\eta_p^2 = .482$, about the NS history was higher in all groups compared to the interest and knowledge in the history of the BW.

Evaluation of the Room

To test our hypotheses of perceived valence and arousal evoked by the room, we conducted ANOVAs with the factor condition (C vs. H vs. HP). Regarding the valence ratings of the room, the ANOVA indicated significant differences due to condition, $F(2,87) = 5.489$, $p = .006$, $\eta_p^2 = .112$. Pairwise comparisons revealed that group HP rated the room more negatively than group C. Regarding the arousal ratings evoked by the room, the ANOVA again indicated significant differences due to condition, $F(2,87) = 3.660$, $p = .03$, $\eta_p^2 = .078$. Descriptively, group HP rated the room with higher arousal compared to both groups H and C, but none of the

pairwise comparisons was significant. Descriptive data of the participants' ratings of the room's valence and evoking arousal is shown in Table 9.

Table 9

Participants' Ratings of the Room by Condition.

	Valence		Arousal	
	M	*SD*	*M*	*SD*
C	4.39	1.17	4.35	1.82
H	4.03	1.21	4.38	1.99
HP	3.37	1.27	5..50	1.81

Note. M = Means, *SD* = Standard Deviations, C = Control group, H = History awareness group, HP = History and place awareness group.

Personal Mood

To compare the personal mood of all three groups, we conducted a 3x2 Mixed Model ANOVA with the between-subjects factor condition (C vs. H vs. HP) and the within-subjects factor time (t1 vs. t2). Descriptive data of mood and arousal is shown in Table 10.

Table 10

Participants' Mood and Arousal at Two Different Times (t1, t2) by Condition.

		Mood		Arousal	
		M	*SD*	*M*	*SD*
C	t1	6.48	1.61	5.74	1.57
	t2	6.03	1.11	4.87	1.54
H	t1	6.41	1.30	5.31	1.56
	t2	4.00	1.16	5.48	1.66
HP	t1	6.53	1.25	5.03	1.56
	t2	3.70	1.34	5.47	1.43

Note. M = Means, *SD* = Standard Deviations, C = Control group, H = History awareness group, HP = History and place awareness group; lower numbers indicate negative mood / low arousal.

The ANOVA revealed a main effect of condition, $F(2,87) = 10.530$, $p < .001$, $\eta_p^2 = .195$, indicating that the mood of groups H and HP was significantly more negative than that of group

C. Further, there was a main effect of time, $F(1,87) = 149.476$, $p < .001$, $\eta_p^2 = .632$, indicating that mood was significantly more negative at t2 than at t1. The ANOVA indicated an interaction between condition and time, $F(2,87) = 22.749$, $p < .001$, $\eta_p^2 = .343$, indicating that while there was no difference between the mood of different groups at t1, the mood of groups H and HP was more negative compared to group C at t2.

Personal Arousal

To compare the arousal of all three groups, we conducted a 3x2 Mixed Model ANOVA with the between-subjects factor condition (C vs. H vs. HP) and the within-subjects factor time (t1 vs. t2). The ANOFVA revealed neither a main effect of condition, $F(2,87) = .083$, $p = .921$, $\eta_p^2 = .002$, nor a main effect of time, $F(1,87) = .371$, $p = .544$, $\eta_p^2 = .004$. The ANOVA revealed an interaction between condition and time, $F(2.87) = 7.675$, $p = .001$, $\eta_p^2 = .150$. Descriptively, arousal of group C decreased while the arousal of groups H and HP increased from t1 to t2, but none of the pairwise comparisons was significant.

Recognition of the Photos

First, we computed the number of hits and false alarms of participants in each condition (see Table 11). We then calculated participants' sensitivity measure d' = z (hit rate) – z (false alarm rate) as indicator for participants' recognition performance. As d' did not pass normal contribution, we transformed it in two steps. First, we determined its maximum to be 1 and its minimum to be -1, afterwards we arcsin transformed d'.

Table 11

Percentage of Hits and False Alarms by Condition and Photo Set.

	% Hits		% False alarms	
	NS	BW	NS	BW
C	95.65	91.75	7.75	5.8
H	93.95	90	5.15	5
HP	95.15	89.85	7.15	5.15

Note. C = Control group, H = History awareness group, HP = History and place awareness group, NS = Photo Set National Socialism, BW = Photo Set Berlin Wall.

Cognitive Effects on Memory. To compare participants' sensitivity in the recognition task, we conducted a 3x2 Mixed Model ANOVA with the between-subjects factor condition (C vs. H vs. HP) and the within-subjects factor photo set (NS vs. BW). The ANOVA revealed no main effect of condition, $F(2,87) = .132$, $p = .877$, $\eta_p^2 = .003$, indicating there were no differences in d' between the groups C($M = .58$, $SD = .42$), H($M = .59$, $SD = .37$), and HP($M = .55$, $SD = .55$). Further, the ANOVA revealed a main effect of photo set, $F(1,87) = 21.405$, $p < .001$, $\eta_p^2 = .197$, indicating that sensitivity for the NS photos ($M = .88$, $SD = .48$) was significantly higher compared to the BW photos ($M = .61$, $SD = .48$) over all groups. The ANOVA revealed no interaction between condition and photo set, $F(2,87) = .113$, $p = .893$, $\eta_p^2 = .003$.

Affective Effects on Memory. To analyze if the valence of the photos affected the performance in the recognition task, we conducted a 3x2 Mixed Model ANOVA with the between-subjects factor condition (C vs. H vs. HP) and the within-subjects factor valence (neutral vs. negative). As the dependent variable, we compared d' for the photos categorized with a negative valence to d' of the photos categorized with a neutral valence due to the pre-study. The ANOVA revealed neither a main effect of condition, $F(2,87) = .116$, $p = .890$, $\eta_p^2 = .003$, nor a main effect of photo valence, $F(1,87) = .167$, $p = .684$, $\eta_p^2 = .002$. The ANONA

also revealed no interaction between condition and valence, $F(2,87) = 1.649$, $p = .198$, $\eta_p^2 = .037$. Descriptive data is shown in Table 12.

Table 12

Participants' d' by Photos' Valence Due to the Pre-study and Condition.

	Neutral photos		Negative photos	
	M	*SD*	*M*	*SD*
C	.57	.51	.75	.44
H	.72	.66	.71	.38
HP	.75	.58	.66	.62

Note. M = Means, *SD* = Standard Deviations, C = Control group, H = History awareness group, HP = History and place awareness group.

To make sure that the current treatment did not influence the rating of the photos' valence, we conducted a 3x2 Mixed Model ANOVA with the between-subjects factor condition (C vs. H vs. HP) and the within-subjects factor photo set (NS vs. BW). As the dependent variable we used the mean rating of the photo's valence collected within the main study's presentation phase, noting the restriction that ratings were only available for the target pictures.

The ANOVA revealed no main effect of condition, $F(2,87) = .117$, $p = .889$, $\eta_p^2 = .003$, indicating that there were no differences in the photo ratings between the groups. The ANOVA did reveal a main effect of photo set, $F(1,87) = 14.253$, $p < .001$, $\eta_p^2 = .141$, with pairwise comparisons revealing that pictures of the NS photo set were rated significantly more negatively than pictures of the BW photo set. The ANOVA revealed no interaction between condition and photo set, $F(2.87) = .149$, $p = .862$, $\eta_p^2 = .003$. Descriptive data is shown in the following Table 13.

Table 13

Participants' Ratings of the Target Photos' Valence due to the Presentation Phase of the Main Study by Photo Set and Condition.

	NS		BW	
	M	*SD*	*M*	*SD*
C	.39	.12	.45	.13
H	.40	.12	.47	.18
HP	.38	.17	.46	.23

Note. M = Means, *SD* = Standard Deviations, C = Control group, H = History awareness group, HP = History and place awareness group, NS = Photo Set National Socialism, BW = Photo Set Berlin Wall; lower numbers indicate a negative valence.

Discussion

The aim of the present study was to investigate the impact of becoming aware of a site's historic dimension on both affective and cognitive outcomes. Previous research has focused on visitors´ experiences at historic sites utilized as informal learning settings, such as memorial sites or documentation centers. However, as these historic sites usually hold both a historic dimension and physical attributes resembling the site's history, it is an open question whether it is either the historic dimension, the physical attributes, or the interplay of both that fosters the effects on visitors.

The present study took up this issue by disentangling the effect of the historic dimension (operationalized as history awareness) from the effect of a site's current historic atmosphere generated by physical attributes resembling the building's history. In addition, two forms of historical awareness were investigated, namely, receiving information about NS crimes in general with or without additionally being informed that some of the crimes happened in the building in which the study took place.

Firstly, we investigated the impact of becoming aware of being at a historic site on the evaluation of the experimental room. The results revealed that the room was perceived less positively and descriptively evoked more arousal when participants were aware of its NS history. These findings are in line with previous findings reporting partial evidence that the participants knowing about the NS history of a building rated the site more negatively and with a higher evoked arousal compared to a control group (Ries, forthcoming).

Secondly, the results showed that both types of historical awareness had a negative effect on personal mood; that is, the mood of the participants who received information about the NS crimes became significantly more negative than that of the control group. Regarding personal arousal, results showed a significant interaction between time and condition, but pairwise comparisons showed no significant differences. Descriptively, the arousal of the participants who received information about the NS crimes increased, while the arousal of participants in the control group decreased. These results are in line with previous findings reporting that participants' mood became more negative, and arousal descriptively increased after receiving information about the NS history compared to a control group (Ries, forthcoming). Also, similar to the present study, Ries (forthcoming) found no evidence that the decrease in mood and increase in arousal was particularly pronounced when participants became aware of being at a place where NS crimes had happened.

Thirdly, the impact of history awareness on recognition performance of historic photos was investigated. The photos showed either content associated with clinics in the NS period or content associated with the period of the building of the Berlin Wall and were either negative or neutral in valence. We expected that recognition performance of the groups that received information about the NS crimes should be better for photos of the NS photo set compared to photos of the BW photo set because the learning of photos congruent to the already activated cognitive nodes (nodes of clinics and the NS period) should be facilitated, which in a next step could enhance the recognition performance. The results showed no differences in recognition

performance due to prior information. Instead, we found that recognition performance in all groups was better for photos of the NS photo set compared to the BW photo set. A possible explanation for this finding may be that the rated interest and knowledge was higher for NS history compared to the BW history. Therefore, attention towards the NS photos during the photo presentation phase may have been high in all groups, regardless of the prior information that was given at the beginning of the study. In turn, this may have facilitated encoding and retention for photos of the NS photo set.

It was also hypothesized that memory for photos with a negative valence should be better than for photos with a neutral valence, and furthermore, the memory performance for photos with a negative valence should be improved in the groups that received information about the NS crimes, compared to the control group. The results showed neither an effect of photo valence nor an effect of prior information on the performance in the recognition task. Exploratively, we analyzed the participants' ratings of the photos' valences collected in the main study's photo presentation phase and found that irrespective of the different prior information, the participants rated the target photos of the NS photo set more negatively than the target photos of the BW photo set.

These results are neither in line with previous findings reporting that performance in a recognition task was better for pictures with a negative valence compared to pictures with a neutral valence (Christianson & Fällman, 1990) nor with Singer's and Salovey's (1988) mood congruity principle, which assumes that learning should be facilitated if affective stimuli are congruent to the current personal mood. An explanation for this discrepancy might be that the recognition task was too easy. Percentual hit rates of the different groups reached from 89.85% up to 95.65%, indicating a ceiling effect.

Taken together, the study revealed that becoming aware of a site's history fosters the effect that the room itself is perceived significantly more negatively and evokes more arousal. The results also revealed a negative effect of history awareness on personal mood. But

consistent with previous findings, it made no difference whether the participants were only aware of the NS history in general or if they additionally were aware of the particular NS history of the building. Given that the affective effects were much larger for studies conducted at KZ memorial sites, we speculate that becoming aware of the history of a place is not sufficient in itself but has to be embedded in a context that reflects to a certain degree the authentic atmosphere of the historic place. Finally. no evidence of history awareness on memory was found; that is, there were no differences found due to the different prior information regarding the performance in a recognition task with congruent versus incongruent historic photos. But these results should be interpreted with caution, given the overall high recognition scores. Also, the participants had a priori a greater interest and knowledge of NS history compared to the BW history, which may be another bias towards the study's results in memory performance.

Several limitations of the study should also be kept in mind. Affective reactions were determined via the two dimensions of mood and arousal, while research at KZ memorial sites has shown that visitors experience a broad range of different, mostly negative, emotions (Brown, 2015; Oren et al., 2021). Therefore, future studies should try to investigate the spectrum of possible affective reactions in more detail, or enhance data of self-reported affects by the supplementary collection of physiological data (Hoare, 2020). Also, the present studies took place in a room with no indication of its history and presumably no atmospheric resemblance to its former history. To gain more insight into the interplay of a place's atmosphere and its historic dimension, in future studies both aspects should be systematically crossed. Given the high recognition rates of the recognition tests that limit the interpretability of the memory results, future studies should explore the relation of historical awareness and memory with alternative methodical approaches. This could include tests of recognition performance solely for pictorial stimuli (e.g., historic photos) without verbal captions or for photos of other thematic groups (e.g., the international affective picture system; Lang & Bradley, 2007). Also, future studies could apply a longer delay between the presentation and the recognition task.

Despite these limitations, the present study has also some strengths to offer. By conducting an experimental study in an authentic historical setting, a balance between ecological validity and methodological rigor was achieved. The pattern of results suggests that even in the absence of physical cues, becoming aware of the historical dimension of a place may exert some affective influence on the visitors. While the impact of historic awareness is still mainly unexplored, it has great relevance for a broad range of disciplines, including psychology, history education, and museology, touching issues of remembrance, informal learning, as well as questions of architectural reconstructions. Within this context, the present study may serve as a starting point for further empirical investigations of this topic.

4. General Discussion

4.1 Summary and Discussion of Findings

The present section summarizes and discusses the results of the three studies that form the empirical basis of this thesis with regard to the affective and cognitive outcomes. The following Table 14 offers an overview of the results.

Table 14

Overview of the Results of the Studies 1, 2, and 3.

		Study 1	Study 2	Study 3
Affective Outcomes	Personal Mood	main effect time t1 > t2 > t3 main effect condition C > HP	main effect time t1 > t2 main effect condition C > H, C > HP time x condition t2: C > H, C > HP	main effect time t1 > t2 main effect condition C > H, C > HP time x condition t2: C > H, C > HP
	Personal Arousal	main effect time t1 < t3; t2 < t3	time x condition post-hoc: no sig.	time x condition post-hoc: no sig.
	Room Valence	H > HP	descriptively similar to Study 1, but no sig.	C > HP
	Room Arousal	C < HP; H < HP	descriptively similar to Study 1, but no sig.	main effect condition post-hoc: no sig. descriptively similar to Study 1
	Photo Evaluation	valence: C > HP	-	-
Cognitive Outcomes	Photo Categorization	offender: C < HP person n. v. n. o.: descriptively C > H; C > HP		
	Photo Description	-	word count - amount of photo elements -	-
	Photo Recognition	-	-	main effect photoset rec. NS > rec. BW condition and photo-valence had no effect

Note. C = Control group, H = History awareness group, HP = History and place awareness group, NS = Photo Set National Socialism, BW = Photo Set Berlin Wall, Person n. v. n. o. = person neither victim nor offender; lower 'numbers' indicate negative mood / low arousal.

It shows that all three studies found significant effects from the prior information about the NS history in general (with and without the additional information about the NS history of the place) on the personal affect. In addition, there was partial evidence, that prior information influences the evaluation of the room and the evaluation and interpretation of related photo documents. However, no effects of prior information on photo description and recognition performance were found.

4.1.1 Affective Outcomes

The affective outcomes investigated within this thesis were the personal mood and arousal (gathered at three times in Study 1 and two times in the Studies 2, and 3), the perceived valence and arousal evoked by the room, in which the study took place, and the affective evaluation of 80 historic photos associated with the NS history (Study 1).

The effect of history awareness on the personal affect (namely mood and arousal) was investigated in all three studies. Regarding the personal mood, the results' descriptive pattern was similar in all of the studies. That is, all studies found a main effect of time, indicating that personal mood got more negative over time. Further, all studies found a main effect of condition, indicating that participants being aware of the NS history in general and the particular NS history of the building reported a more negative mood compared to participants of the control condition. Additionally, Studies 2 and 3 found that participants being aware of the NS history in general reported a more negative mood compared to participants of the control group, and an interaction of time and condition, indicating that the participants of both groups, H and HP, reported a more negative mood after getting the prior information compared to participants of the control condition. Regarding the personal arousal, two of the three studies (2 and 3) found an interaction of time and condition, descriptively indicating that participants who were aware of the NS history (groups H and HP) reported a higher arousal after receiving the prior information. Further, Study 1 showed a main effect of time, indicating that participants reported a higher arousal after the evaluation of the 80 historic photos (t3) compared to the beginning of

the study (t1) and compared to the time after getting the prior information (t2). While Study 2 and Study 3 showed an interaction of time and condition regarding the personal mood and arousal, Study 1 only showed main effects for time (mood and arousal) and condition (mood). One reason for this difference between the studies may be the number of photos presented. In Study 1, participants were shown 80 NS related photos, which alone may have led to a substantial decrease in mood and an increase in arousal, whereas in Study 2 and Study 3, only half or even fewer NS related photos were shown.

However, no evidence was found that the decrease in mood was particularly pronounced when participants became aware of being at a place where NS crimes happened. These findings stand in contrast to previous studies conducted at KZ memorial sites, which report intense negative feelings of visitors (Bilewicz & Wojcik, 2018; Biran et al., 2011; Brown, 2015; Nawijn & Fricke, 2015). The main difference between the present and the previous studies may be the visible features of the places: KZ memorial sites show and tell the NS crimes that happened there, and make them tangible through the site's atmosphere, architectural features, and authentic material artefacts. In contrast, the present studies were conducted at a seemingly neutral place offering no hints about the NS crimes that happened within it. As a tentative conclusion from the present studies' findings, one could assume that besides becoming aware of the historical dimension of a place additional contextual cues play an important role regarding affective effects on visitors.

The effect of history awareness on the affective evaluation of the room, in which the study took place, was investigated in all three studies. Again, the results of all three studies descriptively showed the same pattern. That is, participants of the history and place awareness group tended to rate the rooms' valence more negative compared to the control group (Study 3) and compared to the history awareness group (Study 1). Regarding the arousal evoked by the room participants of the history and place awareness group tended to report higher arousal evoked by the room compared to both other conditions, namely the history awareness group

and the control group. However, while the pattern of participants' rating of arousal evoked by the room was similar across all three studies, these differences only showed significance in Study 1. The result pattern of the present studies is in line with findings of previous studies, showing that the awareness of a places' negative history influences the evaluation of the place itself (Blaison & Hess, 2016; Savani et al., 2011) in a negative way.

Finally, the effect of history awareness on the affective evaluation of related historic photos was investigated in Study 1. Each participant was sequentially presented 80 historic photos related to the NS history, each preceded with a short caption of the photo. The task was to rate each photo's valence and the arousal it evoked. While there were no effects from history awareness on the arousal evoked by the photos, it was found that participants of the history and place awareness group perceived the photos more negative compared to the control group. One could speculate that knowing about the crimes that happened in the building may have led participants to interpret and therefore evaluate associated photos more negatively compared to the control group who may have interpreted the pictures differently and therefore rated their valences more neutrally.

4.1.2 Cognitive Outcomes

The cognitive outcomes investigated within this thesis were the categorization of each single one of the 80 NS related photos (exploratively, Study 1), the verbal descriptions of historic photos associated with the NS history (Study 2), and the recognition of 40 target pictures, all of them historic photos, half associated with the NS history, the other half associated with the Berlin Wall (Study 3).

To categorize the photos in Study 1, participants had to interpret each photo's content by choosing one or more of the following multiple-choice answers: "victim", "offender", "person neither victim nor offender", "building", "room", and "other". It was found that participants of the history and place awareness group categorized the contents of the 80 photos more often as "offender" compared to participants of the control group. Moreover, there was a

main effect of condition regarding the mean selection “person neither victim nor offender”. Descriptively, the control group chose this category more often than both other groups, but none of the pairwise comparisons was significant. The mean selection of the other categories showed no differences due to history awareness.

In Study 2 participants were sequentially presented three historic photos along with their corresponding capture. All three photos showed content associated with the NS history. The results showed no effect of history awareness on the description of historic photos. That is, there were no differences in overall word count nor in the amount of named photo elements between the different groups. My hypothesis was that the negative mood (induced by the prior information of being at a site holding a dark NS history) would foster a bottom-up processing style, resulting in more detailed descriptions of the photos (reflected in a higher overall word count and more named photo elements). As no differences in the overall word count and the amount of named photo elements were found, there may have been no different processing styles induced. Nevertheless, the differences regarding the photo evaluation and interpretation found in Study 1 indicate that depending on prior information participants tended to perceive and interpret NS related photos differently. However, due to the substantial amount of data loss concerning the photo description files, these results have to be interpreted with caution.

In Study 3 participants were sequentially presented 40 historic photos, half of them showing content related to the NS history (NS photo set) the other half showing content related to the construction of the Berlin Wall (BW photo set). In a pre-study half of the pictures from the NS photo set were rated with a neutral, the other half with a negative valence. After a delay (filler task), participants were presented the 40 target photos randomly mixed up with 40 distractor photos and had to decide for each photo, if the photo has been previously presented to them within the study or not. Consistent with the findings of Study 2, there were no effects of history awareness on the recognition performance of historic photos. In addition, there was no effect of photos’ valence on the recognition performance. However, a main effect of photo

set was found, indicating that the recognition performance for pictures of the NS photo set was better compared to pictures of the BW photo set. It was hypothesized that memory performance for photos with a negative valence should be better compared to photos with a neutral valence. Moreover, the memory performance for photos with a negative valence should be improved in the groups that received information about the NS crimes compared to the control group. Exploratively, the participants' ratings of the photo valences collected in the main study's photo presentation phase was analyzed. It was found, that the participants rated the target photos of the NS photo set more negatively than the target photos of the BW photo set irrespectively of the prior information they received. These results are neither in line with previous findings reporting that performance in a recognition task was better for pictures with a negative valence compared to pictures with a neutral valence (Christianson & Fällman 1990) nor with Singer's and Salovey's (1988) mood congruity principle, which assumes that learning should be facilitated if affective stimuli are congruent to the current personal mood. An explanation for this discrepancy might be that the recognition task was too easy. Percentual hit rates of the different groups reached from 89.85% up to 95.65%, indicating a ceiling effect.

4.2 Theoretical Implications

Even though the studies of the present thesis present mixed results regarding the affective and cognitive outcomes, certain implications can be drawn regarding the theoretical implications of historic places.

The empirical studies of the present thesis investigated the effect of history awareness at an everyday place holding a NS history while lacking physical, didactic or social cues resembling this history on affective and cognitive outcomes. All studies showed an effect of history awareness on affective outcomes, that is the personal mood of participants became more negative after getting information about the NS history in general (combined with the NS

history of the building in which the study took place) compared to participants getting neutral or no information at all.

What one could derive from these findings is, that there is evidence that awareness about the NS history influences the personal affective level but becoming aware of being at a place where NS crimes happened does not particularly pronounce these effects. As studies conducted at memorial places showed far more intense emotional reactions of its visitors, one could speculate that the historicity of a place may intensify its affective effects when its physical atmosphere resembles this history to a certain extent. Accordingly, it seems reasonable to preserve historic places and to take care of them in sense of restorations; may it be to provide the visitors with a look and feel experience of the former times, or to enlarge the possibility to gain intense feelings at the historic place.

Also, regarding historic places lacking material remains, the opportunities offered by digital media should receive more attention. Audio guides may be considered as early attempt to offer location-specific information. By inputting a unique code number into a device at different points during a tour, location-specific information can be retrieved. Another visual attempt to offer location-specific information are videos offered at specific points during a tour showing reconstructions of former historic buildings, either presented on a portable tablet device or on fixed screen installations. Today, virtual (VR) and augmented reality (AR) technologies offer new promising opportunities for presenting location-specific information on site. While VR allows to enter and access a digital reconstructed historic building in the virtual world, the key feature of AR is that is allows to enter and access a digital reconstruction presented in a specific context and relevant location in the real world. An interesting approach creating physical impressions using AR technology at a historic place lacking physical attributes comes from Amakawa and Westin (2017). They describe a project, carried out at Philadelphia National Historic Landmark, an area associated with important parts of African American history, resulting in the creation of a mobile application, allowing people to look at

a real-world landscape with their mobile device and see reconstructed virtual 3D buildings placed in their original locations, as well as artefacts and people positioned within that same landscape. The AR recreations of the buildings were based on archaeological evidence, sketches created by a past resident, and representations of similar nineteenth century American buildings. Using a series of target image signs placed at certain locations along the visitor's walking path, which can be recognized by the application, for each sign it displays the pertaining AR content. The authors discuss that the contemporary heritage practice "has shifted from a strong focus on material artefacts, a Western conservation theory, to a more inclusive Contemporary conservation theory with a focus on subjects, narratives, and socio-cultural contexts" (p. 316), and further point out the opportunity to give meaning to sites lacking material remains via AR, resulting in strengthening of both, place and story. However, the authors also discuss the challenges of virtually recreating a physical environment, arising gaps in knowledge and information about the landmark. Therefore, a virtual model needs to be seen as an interpretation with varying degrees of certainty, representing the running dialogue between historians, archaeologists, and other involved disciplines.

Another assumption resulting from the present studies may be, that the awareness of the NS history in general, may have a great impact on its own. Therefore, one can suggest that plaques offering only brief descriptions of the former history (Ayton et al., 2022) as well as *Stolpersteine* may have quite a notable effect on their own, without going into greater detail.

The present studies found evidence that history and place awareness influence the evaluation and interpretation of related historic documents and partial evidence that history and place awareness influence the evaluation of the place itself. That is, participants who were aware of the NS history of the place, interpreted the persons shown on historic photos more often as offenders, and further tended to rate these related documents as well as the place itself more negatively compared to participants who did not get any prior information about the (building's) NS history. These findings indicate that being at a historic place and knowing about

its historic dimension really does make a difference, as it may influence the perception and interpretation of historic documents and the perception of the place itself. Therefore, the attachment of information plaques may be a sufficient tool, to guide awareness towards a places history and may have an important impact on how an otherwise everyday setting is experienced. However, these information plaques probably work especially when visitors a priori possess a certain amount of historical knowledge, which then gets activated and actualized. This scenario would correspond to the history and place awareness condition of the present studies. A place only awareness scenario would also be thinkable, that is, when visitors read the information plaques without having prior historical knowledge. In this case further historical information presented on the plaques would be needed to possibly generate history awareness.

Results of the present studies did not show effects of history awareness on the description and recognition performance of NS related photos. However, as there was a substantial loss of data due to technical problems in the photo descriptions and the recognition task seemed to be too easy, these finding need to be interpreted with caution. It may be, that history awareness influences the processing and memory of related historic documents, but the present studies do not support these hypotheses.

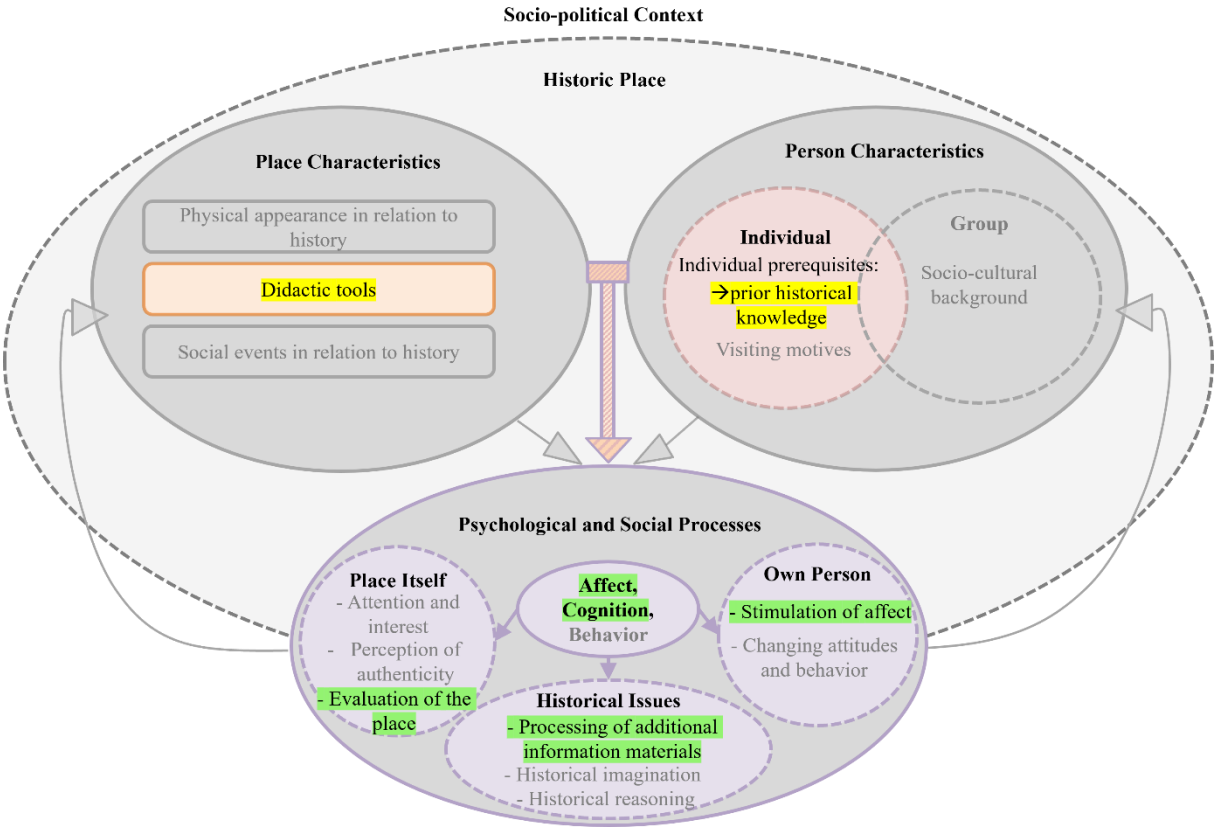
Regarding the theoretical implications, the results of the present studies will be located in the theoretical framework about the impact of historic places in the next section.

4.2.1 Localization of the Results in the Theoretical Framework

The findings of the present studies offer an important empirical contribution to the theoretical framework about the impact of historic places, as they provide answers for at least some of the open research questions concerning effects and relations within the framework. The following Figure 10 shows the localization of the operational variables investigated in the three empirical studies within the theoretical framework.

Figure 10

Operational Variables Investigated Within the Three Experimental Studies of This Thesis Located in the Framework.



Note. Yellow indicating the independent variable, Green indicating the dependent variables.

The aim of the empirical studies within this thesis was to investigate the effects of an everyday place holding a historic dimension without offering the resembling physical characteristics, didactic tools or social events related to its' history. I found my own research institute to fulfill these criteria. Therefore, the setting of all three studies was the Leibniz-Institut für Wissensmedien, a former women's clinic, where in the period of NS regime several hundred of forced sterilizations on women were conducted. The buildings' history can not be *read* on site, as there are no information plaques in or outside the building, the institute's homepage does not offer information about its history, and the building got completely renovated over the years. Further, the NS history of the building is hardly known by public. Today, the building houses several offices and experimental rooms featured with modern equipment. Moreover,

there are no social events in relation to the buildings NS history, instead psychological experiments are conducted at a daily basis, and it functions as a place for work and research.

To make the participants aware of the historic dimension of the building, didactic tools were given in form of audio texts. The audio texts provided either information about the NS history in general combined with the particular information about the NS history of the building (history and place awareness group; Study 1, 2, and 3), information about the NS history in general without the additional information about the particular NS history of the building (history awareness group; Study 1, 2, and 3), neutral information about the research institute which is located in the building today (control group; Study 2, and 3) or no information at all (control group, Study 1). In addition, questions to gather participants a priori knowledge about the buildings NS history were included in all three studies, indicating that only a few knew about the buildings function as a former women's clinic, and even fewer about the crimes which happened in it during the period of NS regime. The results are based on the participants without the a priori knowledge about the buildings history, as due to the condition systematic exclusion of participants took place. The independent variable was the systematic variation of presented didactic tools on site and therefore, the systematic manipulation of participants' individual prerequisites, namely the prior knowledge about the place's history.

Subsequently, the effect of participants' history awareness (here generated through the interplay of didactic tools and person characteristics) on different affective and cognitive outcomes, located in the psychological and social processes section, was investigated.

The dependent outcome variables are located in the own person (the stimulation of affect), in the place itself (evaluation of the place) and in the historical issues (processing of additional information material). The results of the present studies support the arrow arising from a combination of didactic tools (place characteristics) and a person's prior knowledge (person characteristics), pointing to affective and cognitive psychological processes. Importantly, the present studies indicate further, that the content of the didactic tools (which

concrete information is given?) is of great importance regarding the fostered effects. That is, on the one hand it was found that history awareness at an everyday place fosters the stimulation of affect in a negative way, while the additional awareness about the particular history of the place did not sufficiently pronounce this effect, on the other hand, partial evidence indicates that history and place awareness influence the affective evaluation of the place in a negative way, while solely history awareness did not cause this effect. Regarding the cognitive outcomes, the present studies do not indicate that history awareness at an everyday place fosters effects in description and recognition performance regarding additional information materials. Although, these results need to be interpreted with care, due to the large amount of data loss in the photo descriptions and a ceiling effect in the recognition task. Support for the arrow arising from a combination of didactic tools (place characteristics) and a person's prior knowledge (person characteristics), pointing to cognitive psychological processes, comes from the exploratively gathering of photo categorization, as there are differences between all three groups (history and place awareness, history awareness, control group/no history awareness) regarding the interpretation of the photos.

To sum up, the present studies offer an important empirical contribution to the theoretical framework, as they are the first to investigate the effects of an everyday place holding a NS history. Even though the results of the present studies show mixed effects, they support the link between the place and person characteristics and the resulting affective (and cognitive) psychological processes. However, to get a reliable picture of the relations and effect sizes of the variables of the present studies, more research is needed (as discussed in the chapter *Outlook and Future Directions*). Also, within the framework remain some open research, which will be discussed in the next section.

4.2.2 Remaining Open Research Questions in the Framework

In addition to locating the findings of the present studies, the framework provides a structure for ordering the body of previous (and future) empirical studies and further allows the identification of open research questions. In the following, I discuss several identified open research questions, arranged according to the three main components of the framework.

Place characteristics. The present studies are the first ones to investigate the effects of an everyday place holding a NS history without offering the resembling physical or social cues on a broad range of outcome variables. Besides this first empirical evidence gained through the present studies, the possibility of further effects of such everyday places on psychological processes remains unknown. Also, one could ask, if the effects would be similar at different kinds of such everyday places (e.g., former women's clinics, orphanage, administration building) and if the actual functionality of the place (e.g., research institute, police station, bookstore) influences these effects.

To gain greater insight in the effects of a place's physical appearance in relation to its history, a study systematically varying the number of physical attributes offered at the place could be revealing. Further, the systematic combination of physical attributes and didactic tools and / or social events related to the place's history should be investigated in greater detail.

Regarding the didactic tools, systematic research to investigate the effects of various alternatives of presenting on-site information (e.g., texts, videos, personal guides, augmented reality) would be needed. Also, systematic empirical research comparing the processing of historic information material at the historic site versus a 'neutral' site is missing. Would there be a difference if the same information material is processed on site, at a 'neutral' place after the visit, or even without the related visit to the belonging historic site?

Person characteristics. A number of studies investigated persons' motives to visit historic places (Biran et al., 2011; Kang et al., 2012; Yankholmes & McKercher, 2015). While there is evidence, that the prior knowledge of visitors may influence the quality of historic

reasoning on site (Baron, 2012; Price et al., 2016) and the interpretation of additional information materials (Study 3), the role of persons' other individual prerequisites (e.g., personality traits, interest in history) in context of visiting historic places is relatively unknown. Analogously, while there are studies investigating the influence of persons' nationality on the visiting experience of a historic place (Bull & De Angeli, 2020; Trinh & Ryan, 2017), not much is known about the effects of persons' other socio-cultural background variables. As it is hardly possible to manipulate the socio-cultural background of a person, one could either stimulate visitors' perspective taking for other group characteristics or compare the processes resulting from the visit to a historic place between visitors belonging to different groups, to gather evidence of its' influence.

Psychological and social processes. A number of studies investigated persons' affective reactions when visiting a historic place (Bilewicz & Wojcik, 2018; Biran et al., 2011; Brown, 2015; Nawijn & Fricke, 2015). However, these studies were conducted at historic places offering both, a historic dimension and physical attributes resembling this history. The present studies, conducted at an everyday place holding a historic dimension without offering the resembling physical or social cues, indicate mixed effects of history and place awareness on personal affect, the evaluation of the place itself and the processing of further information materials. Still unknown are the effects of the awareness of being at an everyday place holding a NS history without offering further 'readable' cues about its history on other psychological and social processes: Does this awareness enhance attention and interest in the place? Does it influence the visitors' perception of authenticity? Does it foster historical imagination? And could it even be possible that history and place awareness influences the visitors' attitudes and behavior?

Another open research question concerns the long-term effects, represented by the arrows pointing from the psychological and social processes to the person and place characteristics. While studies indicate that the visit to a historic place may initiate visitors'

behavior in terms of pilgrimages, social support and place restoration (Scannell & Gifford, 2010), it remains unclear how sustainable these behavioral changes are.

Finally, stepping outside of the present model, one could ask, to what extend the effects of visiting historic places differ from engagements with other historic sources such as elaborating historical documents, listening to eyewitnesses, watching historic documentations, or visiting historic places in virtual or augmented reality.

4.3 Strengths

The strengths of this thesis can be located within its topic, an issue of great practical importance and of interest within a range of different disciplines, on the postulation of a first theoretical framework about the impact of historic places based on a broad literature research across different disciplines, and on the clear conception of the three experimental studies conducted at a historic place, thereby achieving a balance between ecological validity and methodological rigor.

The question how to handle places holding a NS history is discussed over and again in Germany and other European countries. The assumption underlying the utilization of historic places as informal learning setting is, that learning about the particular history is in a certain way pronounced when dealing with historic materials at a place that was part of this history. However, to the best of my knowledge, up to today this assumption has not been empirically tested. The three experimental studies conducted as part of this thesis investigated to which extend history awareness about a place influences affective and cognitive outcomes of its visitors. Hereby, the first tentative assumptions can be drawn from these findings that offer insides on the impact of historic places. Further, besides the well-known historic NS related places, such as KZ memorial places and documentation centers, there are also numerous everyday places holding NS history. While KZ memorials usually possess physical attributes resembling its historic dimension, the NS history at everyday places is usually non salient to its

visitors, as for example due to major renovations there may be no physical features giving cues about its history. I took up this issue, and to the best of my knowledge, the experimental studies presented in this thesis are the first that disentangled the effect of history awareness from the effect of a site's current readability through physical, social or historical attributes. The empirical studies of this thesis were conducted at a 'real' historic place and at the same time exhibit a clear experimental study design.

Regarding the theoretical dimension, this thesis again, to best of my knowledge, offers the first attempt to provide a theoretical framework about the impact of historic places from a psychological perspective based on a broad literature research within different disciplines, including environmental, social, and cognitive psychology, tourism research and heritage studies. The theoretical framework is meant to serve as a first theoretical basis for further research investigating the impact of historic places. This thesis may be interesting across different disciplines dealing scientifically or practically with the impact of historic places, including psychology, history, museology, didactics, education, tourism and other related fields.

4.4 Limitations

Besides the strengths of the overall work, there are certainly some limitations of this thesis, concerning the methods and results of the empirical studies.

Methodical limitations concern the operationalization of participants' affective reactions, the error-prone technical advice to gather the photo descriptions and the recognition task, which turned out to be too easy. Participants' affective reactions were determined via the two dimensions of mood and arousal within the present studies, while research at dark heritage sites has shown that visitors may experience a broad range of different negative and positive emotions (Brown, 2015; Oren, Poria, & Reichelt, 2021). The intention of solely using the two dimensions of mood and arousal in the present studies was to keep the query simple and short,

hereby avoiding to make participants salient of their own affective dimension's influence on further evaluations and tasks. Social desirability responding may be another limitation regarding the collected data of personal affect. That is, the gathering of personal affect via subjective rating scales may possibly be moralistically biased (Nederhof, 1985).

Also, the absent effect of history awareness on photo description and recognition performance in the present studies has to be interpreted with care, as due to technical problems there was a great amount of data loss regarding the photo descriptions and further the high percentage of correct answers in the recognition task indicates that the test itself, the way it was conducted, was too easy. Due to these methodological limitations, the interpretability of these results surely is limited.

Regarding the results of personal affect and the evaluation of the place itself, all three studies showed the same pattern, but significance did not show consistently though out the different experiments. To gain a reliable and more generalizable result pattern, more research, including replication of the studies, is needed.

4.5 Outlook and Future Directions

In this section, I would like to give an outlook on open research questions as well as ideas for further empiric studies derived from the results and the limitations of this thesis' empirical studies.

Limitations of the present studies were identified regarding the operationalization of participants' affective reactions solely through the tow dimensions of mood and arousal. Future studies may expand the investigation of history awareness on possible affective reactions in more detail, for example by using the Positive and Negative Affect Schedule (PANAS, Crawford & Henry, 2004; Janke & Glöckner-Rist, 2014). Moreover, to prevent social desirability responding data of self-reported affects could be enhanced by the supplementary

collection of physiological data (Hoare, 2020), or social desirability scales (van de Mortel, 2008).

To gain a clearer picture of the effects of history awareness on memory performance, future studies need to make sure that the used memory tasks achieve a certain level of difficulty. Therefore, a pre-study could be applied to check for the task's sufficient level of difficulty. Also, the investigation of memory performance in future studies could include recall and recognition performance, implemented through different methodical approaches. Regarding recognition performance, an interesting approach would be to apply a test for pictorial stimuli without verbal captions (e.g., historic photos), or a test for photos of other thematic groups (e.g., the international affective picture system; Lang & Bradley, 2007). Regarding recall performance, an interesting approach would be to let participants read written texts about particular historical aspects which' contents they later, after a certain delay, would have to retrieve. Would participants of the history and place awareness condition remember the contents related to the history of the building better, as they could link the new contents to the prior information they received? Also, it would be interesting to gather the query of the historical contents (recall or recognition) after a longer delay (e.g., several days later). Will possible differences vanish over time or even get more pronounced?

Regarding the investigation of history awareness on photo description, future studies need to make sure that the technical advises they are using are capable of the specific requirements of data collection. A possible approach, certainly less error-prone would be to make participants write their descriptions down, instead of giving them verbally.

The present studies showed partial evidence that the awareness of an everyday place's NS history influences the evaluation of the place itself in a negative way. Therefore, further research is needed to replicate these findings, in order to be able in making reliable judgements about the reliability and effect sizes. In addition, to tackle the effect in space, future studies

could include evaluations of the surrounding systematically varying in their distance to the historic place (Blaison & Hess, 2016).

In the investigated scenario of the present studies, participants were female (in Studies 2, and 3), the victims were female, while the offenders were both, female and male. Would the result pattern remain the same, if the investigated scenario would have been different: If participants were male, victims were male and offenders were both, female and male?

Another interesting approach for future research would be to investigate a historic place resembling to a historic episode, which in contrast to the present studies features a positively connotated event in history. Would the affective outcomes in this case show a reverse pattern?

Finally, the present studies took place in a neutral room with no indication of its history and presumably no atmospheric resemblance to former NS times. To gain more insights into the interplay of a place's atmosphere and the awareness of its historic dimension, in future experiments both aspects should be systematically crossed.

4.6 Conclusions

The aim of the present work was to shed light on the impact of historic places. In more concrete, I aimed to investigate the effects of an everyday place holding a NS history, without offering the resembling physical, didactical or social cues of this history. As to the best of my knowledge, there is no theoretical framework about the impact of historic places from a psychological perspective yet, the first effort of this thesis was to do a comprehensive literature research across a board range of different disciplines, including environmental, social, and cognitive psychology, tourism research and heritage studies. Hereafter, I derived a theoretical framework about the impact of historic places. Moreover, three experimental studies were conducted to investigate the influence of history awareness on affective and cognitive outcomes. Therefore, two different kinds of history awareness (history awareness = prior information about the NS history in general, history and place awareness = prior information

about the NS history in general supplemented with the particular NS history of the building in which the studies took place) and a control group were induced and compared regarding their effects on a variety of different affective and cognitive dependent variables. This work was guided by the hypothesis that becoming aware about a place's NS history would influence the personal affect, as well as the affective evaluation of related information materials and the place itself. Further, it was hypothesized that becoming aware about a places NS history would have an effect on cognitive outcomes, namely the description and recognition performance of related historic photos. The pattern of results found in this thesis' studies suggests that even in the absence of physical cues, becoming aware of the historical dimension of a place may exert some affective influence on its visitors. However, the personal affective reactions of participants in my studies did not differ much between participants being aware of the NS history in general and participants being aware of the NS history in general combined with the NS history of the building in which the studies took place. While the present studies did not provide evidence regarding an effect of history awareness on description and recognition performance of related historic photos, they indicate that the awareness of an everyday place's NS history may influence the evaluation of the place itself and further, the interpretation of related historic photos.

Although the results of the studies are mixed and further research is needed, this thesis contributes a first important step to shed light on the impact of the historic dimension of places.

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7. Appendix

Appendix A: Prior Information Given to the Participants of the Three Different Conditions in Study 1, 2, and 3.

Appendix B: Example of a Participants' Photo 2 Description in Study 2.

Appendix A: Prior Information Given to the Participants of the Three Different Conditions in Study 1, 2, and 3.

Audio text C (*Control group* in Study 2, and 3): neutral information about the research institute which is located in the building today

Sie befinden sich momentan in den Kellerräumen des Leibniz-Instituts für Wissensmedien. Sie sind heute im Leibniz-Institut für Wissensmedien, weil Sie an einer Studie teilnehmen, in welcher die Wahrnehmung von Bildmaterialien untersucht werden soll. Sie hören zunächst einen Audiotext mit geschichtlichem Inhalt, im Anschluss daran werden Ihnen verschiedene Bilder präsentiert.
Das Leibniz-Institut für Wissensmedien wurde am 01. Januar 2001 gegründet. Seit 2002 besteht eine Kooperationsvereinbarung mit der Universität Tübingen. In den Jahren 2001-2011 befand sich das Institut in einem Gebäude in der Konrad-Adenauerstraße in der Tübinger Südstadt. Im Jahr 2012 zog es gemeinsam mit dem Psychologischen Institut der Universität in das aktuelle Gebäude auf dem Campus in der Schleichstraße 6, in welchem Sie sich momentan befinden.
Dieses denkmalgeschützte Gebäude wurde 1890 als Dreiflügelanlage, die einem Schloss ähnelt, erbaut; 1911 wurde es um einen Anbau erweitert. Es zeichnet sich durch seine Klinker- und Sandsteinfassade in Neorenaissanceformen aus und wurde 2011 umfassend restauriert. Im Gebäude befinden sich 5 Stockwerke, in welchen verschiedene Räumlichkeiten angesiedelt sind; darunter befinden sich Arbeitsräume, Besprechungsräume, Versuchsräume, Teeküchen und Toiletten. Die Räumlichkeiten werden von den circa 250 Mitarbeitern des Leibniz-Institut für Wissensmedien genutzt. Die Mitarbeiter verteilen sich auf die Bereiche Wissenschaft, Verwaltung, Leitung, Presse- und Öffentlichkeitsarbeit sowie Koordination. Im Keller des Gebäudes ist ein Raum zum Abstellen der Fahrräder der Mitarbeiter untergebracht; in Mitten des Gebäudes befindet sich ein Innenhof.

Audio text H (*History awareness group* in Study 1, 2, and 3): general information about the NS history without the additional information about the NS history of the building

Sie befinden sich momentan in den Kellerräumen des Leibniz-Instituts für Wissensmedien. Sie sind heute im Leibniz-Institut für Wissensmedien, weil Sie an einer Studie teilnehmen, in welcher die Wahrnehmung von Bildmaterialien untersucht werden soll. Sie hören zunächst

einen Audiotext mit geschichtlichem Inhalt, im Anschluss daran werden Ihnen verschiedene Bilder präsentiert.
Die Zeit des Nationalsozialismus begann am 30. Januar 1933 als die Nationalsozialistische Deutsche Arbeiterpartei (kurz NSDAP) in Deutschland an die Macht kam und endete am 8. Mai 1945 mit der bedingungslosen Kapitulation der Wehrmacht. In der Zeit zwischen 1933 und 1945 verübten die Nationalsozialisten und ihre Anhänger zahlreiche Kriegsverbrechen und Massenmorde. Zu den Verbrechen der Nationalsozialisten zählen neben dem Holocaust, der Ermordung an etwa sechs Millionen europäischen Juden, die Verfolgung und Ermordung von politisch Andersdenkenden, die sogenannte Aktion T4, das heißt die systematische Ermordung von Menschen mit geistigen und körperlichen Behinderungen, sowie die Zwangssterilisierung von sogenannten rassisch minderwertigen Menschen.
Viele Kliniken haben eine NS-geschichtliche Vergangenheit. So wurden in Frauenkliniken in der Zeit zwischen 1933 und 1945 mehrere tausend medizinische Verbrechen im Sinne des Nationalsozialismus durchgeführt. Es ist belegt, dass in der Zeit des Nationalsozialismus mindestens 350.000 sogenannte eugenische Sterilisierungen durchgeführt wurden. Die Dunkelziffer ist vermutlich noch um einiges höher. So wurden Frauen gegen ihren Willen sterilisiert. Frauen, die beispielsweise an sogenanntem manisch-depressivem Irrsein litten ebenso wie gesunde Frauen aufgrund sogenannter rassischer Minderwertigkeiten.

Audio text HP (*History and place awareness group* in Study 1, 2, and 3): information about the NS history in general combined with the particular information about the NS history of the building

Sie befinden sich momentan in den Kellerräumen des Leibniz-Instituts für Wissensmedien. Hier in diesem Gebäude befand sich früher die Frauenklinik Tübingen, die heute Alte Frauenklinik genannt wird.

Die Zeit des Nationalsozialismus begann am 30. Januar 1933 als die Nationalsozialistische Deutsche Arbeiterpartei (kurz NSDAP) in Deutschland an die Macht kam und endete am 8. Mai 1945 mit der bedingungslosen Kapitulation der Wehrmacht. In der Zeit zwischen 1933 und 1945 verübten die Nationalsozialisten und ihre Anhänger zahlreiche Kriegsverbrechen und Massenmorde. Zu den Verbrechen der Nationalsozialisten zählen neben dem Holocaust, der Ermordung an etwa sechs Millionen europäischen Juden, die Verfolgung und Ermordung von politisch Andersdenkenden, die sogenannte Aktion T4, das heißt die systematische Ermordung

von Menschen mit geistigen und körperlichen Behinderungen, sowie die Zwangssterilisierung von sogenannten rassisch minderwertigen Menschen.

Wie viele andere Kliniken hat auch die Alte Frauenklinik eine NS-geschichtliche Vergangenheit. So wurden in der Zeit zwischen 1933 und 1945 hier, in der Alten Frauenklinik mehrere hundert medizinische Verbrechen im Sinne des Nationalsozialismus durchgeführt. Es ist belegt, dass hier in den Räumen dieses Gebäudes, in dem Sie sich momentan befinden, mindestens 650 der insgesamt etwa 350.000 sogenannten eugenischen Sterilisierungen durchgeführt wurden. Die Dunkelziffer ist vermutlich noch um einiges höher. Hier in diesen Räumen wurden Frauen gegen ihren Willen sterilisiert. Frauen, die an sogenanntem manisch-depressivem Irrsein litten, ebenso wie gesunde Frauen aufgrund sogenannter rassischer Minderwertigkeiten.

Appendix B: Example of a Participants' Photo 2 Description in Study 2.

"Hier sieht man eine Fotografie, ebenfalls schwarz-weiß aus einem Kranksaal in einer Heil- und Pflegeanstalt um das Jahr 1935. Man befindet sich in einem größeren Saal, in dem in einer Reihe mehrere Betten nebeneinanderstehen. Ein Bett, was ganz am Ende des Krankensaals steht, fällt besonders auf, und zwar ist es komplett vergittert, sozusagen von dem Bett bis nach oben zu einem Baldachin. Darin erkennt man eine Patientin, die sich aufgesetzt hat und in Richtung des Fotografen schaut. So wie das Bett vergittert ist, lässt sich darauf schließen, dass die Patientin gegen ihren Willen in diesem Bett gehalten wird und auch nicht einfach hinausspazieren kann. In dem Krankensaal sieht man zudem auch eine Krankenschwester oder eine Pflegehilfskraft, die den Rücken zu den Betten gewendet hat und auf ein Tisch guckt, vermutmaßlich in Unterlagen. Der Boden ist schwarz-weiß gekachelt. Man sieht in den anderen nicht vergitterten Betten Personen in den Betten liegen. Alle scheinen zu schlafen oder zumindest liegen sie regungslos in den Betten."