



“I’m always entirely happy when I’m here!” Urban blue enhancing human health and well-being in Cologne and Düsseldorf, Germany

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ABSTRACT

Water is one of the most important landscape elements. In settled areas, planners rediscovered urban blue in the form of rivers as a soft location factor in post-industrial times. Although the recognition of the need for recreational or ‘healthy’ places like urban green or urban blue in cities is increasing, current urban planning is mostly conducted without taking beneficial health issues into account. In this paper an extended concept of therapeutic landscapes is used to analyse two promenades on the river Rhine in the centres of two German cities (Cologne and Düsseldorf). A complex of qualitative and quantitative methods from diverse disciplines is applied to obtain a multi-dimensional image of salutogenic health processes. The results show that the promenades are favourite places to spend leisure time and to engage in recreational activities, in addition to providing restoration from everyday stresses. Water is a strong predictor of preference and positive perceptive experiences in urban environments. Users of the promenades also report strong emotional attachments to the place. Urban blue space may be interpreted as a therapeutic landscape in various ways. The study forms a contribution to planning issues, particularly considering benefits for human health, and enhances current research concerning therapeutic landscapes.

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Introduction

Historically, cities are important for human development, creativity and growth. The [United Nations \(2010\)](#) stated that since 2009 the world population is proportionately more urban than rural. In developed regions, 75 per cent of the inhabitants live in urban areas and this will reach 86 per cent of the population according to the report’s projection for 2050. As a consequence, urban areas must provide adequate surroundings for people to live in. Urban areas are the places where people spend most of their time and therefore these places should form a healthy environment and support human well-being ([Dye, 2008](#)). In this paper we assess and discuss an environment in cities that supports health using a case study: urban blue spaces.

Therapeutic landscapes

The relationship between landscape and health issues has already been addressed in several studies ([Abraham, Sommerhalder, & Abel, 2010](#); [Frumkin, 2003](#); [Maller, Townsend,](#)

[Pryor, Brown, & St Leger, 2005](#)). [Gesler’s \(1992\)](#) concept of therapeutic landscapes and subsequent developments helped to systematically investigate the links between health and landscape. It has been recognised as a mixture of both non-pathogenic health concepts and health geography’s perception of the cultural turn ([Kearns & Joseph, 1993](#)). [Gesler and Kearns](#) defined different aspects of a therapeutic landscape including physical, social and spiritual environments, which are based on individual or community experiences ([Gesler & Kearns, 1998, 2002a, 2002b](#)). [Gesler’s](#) case studies primarily investigated places clearly dedicated to healing, like [Epidauros](#) in Greece, [Lourdes](#) in France or [Bath](#) in the UK and recognised especially the physical and spiritual environment regarding naturalistic and humanistic epistemology ([Gesler, 1993, 1996, 1998](#)). In the late 1990s, the focus on traditional healing landscapes was recognised to be just one aspect of therapeutic landscapes ([Williams, 2007](#)). Subsequent studies broadened the use of the concept and also addressed non-traditional healing landscapes, such as home environments ([Williams, 2002](#)) or summer camps for children ([Kearns & Collins, 2000](#); [Thurber & Malinowski, 1999](#)). To date, therapeutic landscape research focuses increasingly on supportive environments and everyday sites of varied therapeutic value ([Williams, 2009](#)) and therefore on urban environments ([Masuda & Crabtree, 2010](#); [Milligan, Gatrell, & Bingley, 2004](#); [Parr, 1999](#)). Landscapes have been identified as being

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both health-promoting and health-limiting at the same time (Collins & Kearns, 2007; Milligan, 2007).

Health in urban landscapes

Despite there being easier access to social and health services in developed urban areas compared to their rural counterparts (Riva, Curtis, Gauvin, & Fagg, 2009; WHO, 2010), urban living has long been negatively associated with health. The most striking health issues in urban areas are the results of unhealthy lifestyles, such as low physical activity levels or drug use (McGinnis & Foegen, 1993). The effects attached to urban areas are consequently stress and obesity, resulting in an increasing number of chronic diseases such as diabetes mellitus, depression and cardiovascular illnesses like hypertension (Dora & Phillips, 2000; Passchier-Vermeer & Passchier, 2000; WHO, 2009). These challenges are intensified by urban traffic and crime (Krieger & Higgins, 2002; Peden et al., 2004; WHO, 2008), a loss of space for recreational use due to urban sprawl and climatic and demographic change (Campbell-Lendrum & Corvalán, 2007; McMichael, Woodruff, & Hales, 2006).

In this paper the health definitions of the World Health Organisation (WHO) and the concept of salutogenesis are generally used. The WHO defined health in 1948 as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1948). In the Ottawa Charter for Health Promotion health was defined as “a resource for everyday life, not the objective of living. Health is a positive concept emphasising social and personal resources, as well as physical capacities” (WHO, 1986). This definition underlines Antonovsky’s concept of salutogenesis (1979), which, contrary to pathogenetics, takes account of the reasons and circumstances for the creation and preservation of health. Health is defined on a continuum, the edges of which form total health on one side and disease on the other. The location of a person on the continuum represents his/her personal health status. The salutogenic concept as the basis for health promotion considers individual and corporate resources for health, well-being and quality of life as central requirements to prevent health risks and potential illnesses (Antonovsky, 1987).

Urban blue and public space

The term urban blue (Kistemann, Völker, & Lengen, 2010; Völker & Kistemann, 2011) used in this study covers all visible surface waters in urban areas. The recent trend to consider water as an important element of landscape is also expressed in the embodiment of settlement areas in which great importance is attached to water (Fagnoni, 2009; Syme & Nancarrow, 1992). The intensification of the phenomenon of urban waterfronts in recent decades in Europe and its widespread importance for urban development has led to an increasing academic interest in this issue. Researchers have addressed the theme of “behaviour and environment” with regard to public spaces in geography (Carr, Francis, Rivlin, & Stone, 1992).

Public space is produced by citizens. They express their attitudes in these places, use them for their own purposes and make personal demands and recommendations. Therefore public space becomes a meaningful public resource (Goheen, 1998). In Greek and Roman times public spaces were defined in the form of streets, which provided movement and safety, as well as public places such as squares, as precious centres for public life. In the 19th century, the construction of boulevards and landscape parks focussed on the creation of a more beautiful and healthy urban environment for the wealthier people and the growing working class in cities. Later, urban public spaces were created emphasising the growing recreational needs of the middle class due to an increase in leisure time (Carr et al., 1992). Waterfronts have become part of the historical

tradition of public spaces in cities, following the decline of harbour sites in urban areas (Hall, 1991; Hoyle & Pinder, 1992) since the 1970s in North America (e.g. Boston, Baltimore, Toronto) and the 1980s in Europe (e.g. London, Edinburgh). From this time onwards there has been a clear trend in (urban) planning for waterfront redevelopment and towards water and sites containing water (Breen & Rigby, 1996; Marshall, 2001). Cities reclaimed these places for public access and use and have accomplished major transformations. These efforts contained at first waterfront fairs and festivals, to attract citizens to experience such places (Carr et al., 1992). The improvement of public spaces has subsequently been primarily focussed on public welfare, but definite health issues have not been explicitly addressed.

With regard to current research on water in cities, the relationship between water and health is thoroughly discussed in the fields of environmental ecology, toxicology and microbiology (Brebba & Laituri, 2011; WHO, 2011), but not explicitly in the research field of urban blue and human well-being. Only a few studies in environmental psychology deal with the psychological benefits of water in the city (Karmanov & Hamel, 2008; White et al., 2010).

Although there is an increasing need for healthy places like urban blue in cities, these spaces are often not recognised as a beneficial health factor by planners and regarded at best as a by-product of green spaces. Our study is therefore the first to comprehensively explore the beneficial health outcomes and well-being created by urban blue, using an innovative application of the concept of therapeutic landscapes. Our aim is to gain a better understanding of the health impacts of healthy environments in the urban context. The questions addressed by the study are:

- Which health-related components can be identified in urban blue space?
- What is the impact of urban blue on human health and well-being?
- Which implications are there for future planning of blue space?

The subsequent sections are ordered as follows. In the **Methods** section Pred’s theory of the contingency of space is explained. Thereafter, a two-dimensional matrix resulting from an enhancement of the therapeutic landscapes concept is thoroughly illustrated. The grounded theory approach used in this study is described and then followed by a description of the geographical, ethnographical and socio-psychological methods used in the case study.

The **Results and Discussion** section presents the results of pedestrian counting and the findings of health-enhancing and health-limiting aspects for each of the four dimensions of appropriation. The findings are then merged in a synoptic approach. Finally, study limitations are identified and we conclude by summarising the health relevant aspects and present future research needs.

Methods

In this study we follow Pred’s theory that space is contingently conceptualised, incorporating theories of structuration processes and time geography as well as human geography (Pred, 1984). The theory explains that power, practice and social structure are expressed locally. The reproduction of social and cultural forms and the transformation of nature are process-related and become continuously one another as well as time-space specific practices and power relationships (Pred, 1984). According to this background, our study consequently isolates the specific truths of place, knowing that place-specific social and cultural reproduction,

historical circumstances and the physical environment are merged and process-related.

Our paper uses a two-dimensional matrix enhancing Gesler's concept of therapeutic landscapes (Gesler, 1992; Völker & Kistemann, 2011). The model includes Pred's theory of place as a historically contingent process and specifically recognises that "the participating individuals, without whom there is no place as process, [...] are regarded as integrated human beings who are objects and subjects at once" (Pred, 1984: 280), thus the production of space is based on "appropriation and transformation of space and nature" (Pred, 1984: 279). To analyse salutogenic health processes in urban blue spaces we use the four dimensions of appropriation defined by Völker and Kistemann (2011) – experienced space, activity space, social space and symbolic space – and four ontological dimensions of distinct substantialities – naturalistic, built, humanistic, and structuralist – in a two-dimensional matrix (Völker & Kistemann, 2011).

The social and symbolic space dimensions are adopted from the therapeutic landscape concept. Gesler (1992) describes key themes such as relative equality, social relations or social activities as part of the social space dimension. The symbolic space dimension focuses not only on the spiritual, as used in the following case studies of therapeutic landscapes (e.g. Gesler, 1993, 1996), but on a broader view as postulated by Williams (1998) and initially formulated by Gesler: "Both concrete and abstract symbols, signs, icons, and tokens (e.g. the flag, patriotism, a physician's white coat, the Hippocratic Oath) are used by humans to express meaning [...]. The cultural landscape can be viewed as a product of symbolic action; it reveals, structures, or represents cultural images" (Gesler, 1992: 739). In this dimension for example emotions, identities or sense of place are included. The physical environment "entails materials such as medicinal plants, the fresh air and pure water of the countryside, or magnificent scenery" (Gesler, 1992: 736). The experienced space dimension implies a content-based enhancement, particularly concerning human sensory perception, of Gesler's physical environment. Williams (2002) realised that health geographers stop just regarding space as physical landscape and start to focus on a more relational view of space as affecting human activity and vice versa. Additionally, the activity space dimension was isolated as also being an important aspect of a therapeutic/healthy landscape (Völker & Kistemann, 2011). Due to the fact that one aspect can cover several appropriative dimensions simultaneously, the four appropriative dimensions are not distinctly limited to each other, so that one dimension can in some parts coincide with other dimensions.

Blue spaces can be analysed in at least four different dimensions of substantiality, which can be considered to be different levels of abstraction. The humanistic dimension regards the possibilities of individuals to create and decide the formation of their environment. In the structuralist dimension the individual health status is determined by hidden mechanisms such as political, social and economic systems, which effect differences and inequalities within a society (Gesler & Kearns, 2002a, 2002b). Gesler (1992: 736) describes implicative research concepts such as "Territoriality, control of space; Historical contingency; Role of ideology, mystification." In the course of our research project we analysed every dimension of appropriation on any ontological dimension of distinct substantialities.

The methodology in our paper makes use of Corbin and Strauss' (1990) grounded theory and is generally an explorative research design. We used theoretical sampling and conducted data collection, coding and analysis as an interrelated process (Denzin & Lincoln, 2000). The qualitative data were analysed on an individual and comparative level (Glaser & Strauss, 1967), searching for emergent patterns such as attitudes, opinions and other personal

expressions that referred to urban blue, to formulate first interpretations following symbolic interactionist theory (Joas, 1987). We repeatedly read the transcripts, coding, organising and reducing the codes to a number of key themes (Strauss & Corbin, 1998), in search of phenomena that satisfied the criteria of blue spaces defined by Völker and Kistemann (2011) referred to above, namely social interactions, activities, symbolic and environmental appreciation. Regular meetings were held between the authors to discuss the interpretation of the data and to explore new categories and themes as they emerged. The analytical process was aimed at the construction of a synoptic approach (Strauss, 1987).

The study design followed the case study approach (Stake, 1995; Yin, 1984). Our study can be classified as an exploratory case study. The promenades in the cities of Düsseldorf and Cologne (Germany) were chosen as locations for the case study and were identified as prominent examples of waterside urban planning (Hölzer, Hundt, Lüke, & Hamm, 2008). The study was conducted in the summer months of 2010 and 2011, taking into consideration that the weather fulfilled specific conditions (daily maximum temperature >19 °C, precipitation <1 mm). To obtain a multi-dimensional image, we used a complex of methods from diverse disciplines.

A spatial analysis (geographical approach) was conducted, comprising field mapping, aerial photo analysis, and pedestrian-counting. The data from the first two methods were converted into vector data and merged with geo-referenced vector data of the two promenades using ESRI ArcMap 10.0™. The latter method was carried out on both working days and weekends at 3 different times of day: morning, afternoon and evening ($n = 101,787$). The locations for pedestrian counting were chosen to include all visitors entering the promenade. At the most important entrances imaginary lines were defined, reaching from the direct waterfront to the facades of the adjacent buildings covering the whole width of the promenades. A pedestrian was recorded as soon as he or she crossed the imaginary line. The assessed data, such as count, gender and mode of movement, were entered into a database (MS-Excel®).

A systematic, non-standardised participant observation following Lamnek (2010) was initiated on 16 different dates at both promenades (ethnographic approach). Each observation campaign lasted at least 8 h, covering a time span from 6:00 a.m. to 12:00 p.m. for both working days and weekends and was conducted by the authors. This eight-stage-observation is known to implicitly develop an observation scheme within the field (see Table 1). Observed entities were recorded in a log book. The observations were supported by visual documentation and a research diary for all information not fitting into the observation scheme that had been developed. The last phase is intertwined with the results of the other empirical methods and summarises all results in a synopsis.

Finally, qualitative, written questionnaires with standardised questions and open answers (Bortz & Döring, 1995) were completed on 12 different dates, 6 at each promenade, on working days and weekends (socio-psychological approach). The participants were recruited directly in the research field by the authors and were asked to fill out the questionnaires themselves while walking along the promenade (see Table 2). A total number of $n = 42$ participants (female $n = 22$; male $n = 20$), provided analysable questionnaires in the two cities (Cologne $n = 22$; Düsseldorf $n = 20$). The age ranges spanned 16–80 years. Information was collected about the experienced space, activity space, social space and the symbolic space, in addition to demographic data, including age, sex, frequency of visits and the length of residency in each city. This was then entered into a MS Excel spreadsheet, giving every participant a specific code (first capital letter of the research city, then numbers in ascending order, e.g. D14 = Düsseldorf, participant no. 14) and analysed using theoretical coding. Case

Table 1
Eight-stage observation scheme for the systematic, non-standardised participant observation following Lamnek (2010).

Stage	Description	Short explanation
1	Foreignness	The research theme is not part of the researcher's awareness, but the research field is already present.
2	Being interested	Stage of first immersion. A stimulus causes the researcher to become interested in the object of investigation. He sharpens expectations, draws on previous knowledge and fixes the subject area.
3	External orientation	This stage is to study literature, documents etc. The purpose is to obtain a broader overview of the subject.
4	Internal orientation	Contact to social field. The role of an observer is adopted, to experience the different social dimensions, without selective observations.
5	From observer to sage (Role-taking)	Gradually the researcher becomes a sage, who associates himself unreflectingly and positively with a group. He is both participant and observer at the same time.
6	Reflection of the researcher's role (Role-making)	The researcher takes over a role dedicated to his special intentions, trying to reflect on his own role and being aware of specific situations.
7	Development of a contextual approach	In a contextual approach terms and definitions are clarified. This leads to a sensitisation of the utilisation of terms for theoretical categories.
8	Development of a synoptic approach	Finally, the researcher analyses the collected data and summarises all findings in a synoptic approach.

studies often use triangulation as a research strategy to enhance the validity of the research process. In our study we conducted data source triangulation using two types of urban blue settings (Yin, 1984) and methodological triangulation using three different approaches to help increase the confidence in our interpretations and support a robust knowledge of the entirety of the research questions (Stake, 1995). Out of the complex of methods in this paper we focus particularly on the findings from the qualitative data.

Results and discussion

Cologne is situated in the western part of Germany on the river Rhine and with a million inhabitants is the fourth largest city in Germany. The area made up by parks, green areas and sports grounds amounts to 10.4% of the whole city, woodland area totals

15.4% and water expanses 5.0% (Stadt Köln, 2010). The Rhine promenade is 550 m long and is situated directly adjacent to the older part of the city beside the city centre (see Fig. 1).

Düsseldorf, situated 34 km north of Cologne and also on the Rhine, has 600,000 inhabitants and is the seventh largest city in Germany. Green spaces in Düsseldorf amount to 9.7% of the total area; supply, waste disposal and water expanses 8.6%, and agriculture and forestry space 36.8% (Stadt Düsseldorf, 2010). The Rhine promenade is 1400 m long and is situated directly adjacent to the old town, near the city centre (see Fig. 2).

Pedestrian counting was conducted at three different locations in Cologne and at five different locations in Düsseldorf to cover the whole promenade (see Fig. 3). The three locations in Cologne were the "Hohenzollernbrücke" (LC1), the "Fischmarkt" (LC2), and the "Deutzer Brücke" (LC3). In Düsseldorf the five locations for pedestrian counting were the "Oberkasseler Brücke" (LD1), the "Burgplatz" (LD2), the "Old Harbour" (LD3), the "Mannesmannufer" (LD4), and the "Rheinkniebrücke" (LD5). The mean number of pedestrians per hour reached a maximum at LC2 in Cologne (2576) and at LD3 in Düsseldorf (2693). The minimum mean per hour was detected in Cologne at LC1 (2010) and in Düsseldorf at LD1 (909).

Table 2
Standardised research questions in the qualitative, written questionnaire with open answers (modified after Ehmayer, 2003).

A1.	What do I already know about this place?
A2.	I start to walk along the promenade and look around. What makes this place interesting to me?
B1.	What do I do to get to know this place?
C1.	How can the 'essence' of this place be characterised? What keeps this place, and its 'essence' together?
C2.	How does it differ from other places?
C3.	What are the attractive and non-attractive aspects?
C4.	What do I see, hear, smell, feel?
C5.	What flashes across my mind right now?
C6.	What does this place remind me of? What do I connect with it?
C7.	What does this place invite me to do?
C8.	Which people frequent this place?
C9.	How do people behave with each other?
C10.	Where are the landmarks?
C11.	From which directions do people come to this place? Where are the exits and the entrances?
C12.	Where is the centre of this place?
C13.	What do I wish to change in this place? What can remain?
C14.	How would the changes affect the place's 'essence'?
D1.	Comments
E1.	How often do you visit this place in the summer? - daily; - weekly; - 1–2 times per month; - less frequently; - never visited before
E2.	Since when/in which period is/has this city been your home town?
E3.	Age
E4.	Gender - female; - male



Fig. 1. Aerial view of the promenade in Cologne. On the right is the northern border of the research area, the "Hohenzollernbrücke" bridge, on the left the southern border, the "Deutzer Brücke" bridge. In the centre of the promenade is "Grob St. Martin" church with "Fischmarkt" square in front.



Fig. 2. View of the promenade in Düsseldorf from the lawn in front of the “Rhein-kniebrücke” bridge, the south boundary of the research area. To the north, at the end of the promenade, is the “Oberkassler Brücke” bridge and in the centre the “old palace tower” is visible, where the “Burgplatz” is situated.

The mean number of pedestrians differs greatly according to the time of day and working days/weekends (see Fig. 4). The highest mean number of pedestrians for the entire promenade is reached on weekend afternoons in Cologne (4865 pedestrians) whereas the lowest number can be detected on working days in the morning (420 pedestrians). In Düsseldorf, the maximum is on weekend evenings (3736 pedestrians), although LD3 reaches 5748 pedestrians per hour at this time. The minimum at the promenade in Düsseldorf can be observed on working days in the morning (447 pedestrians).

Experienced space

Health-enhancing aspects

People experiencing the promenades attach importance to water-related elements. As reported by the questionnaire participants the visual perception of their surroundings in both cities is quite similar. For visitors, the most interesting thing in these locations is the Rhine. People coming to this place try to get as close as possible to the river and like the “direct closeness to the Rhine” (C1). They may spend hours just sitting beside the river watching its movement, recognising the flowing water, the waves

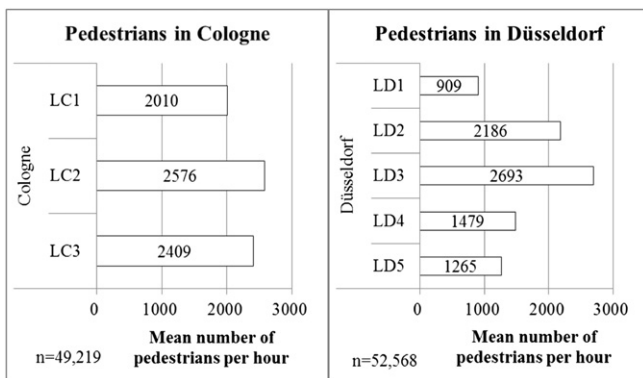


Fig. 3. Mean number of pedestrians per hour in Cologne and Düsseldorf at different locations. Locations in Cologne: “Hohenzollernbrücke” (LC1), “Fischmarkt” (LC2), and “Deutzer Brücke” (LC3). Locations in Düsseldorf: “Oberkasseler Brücke” (LD1), “Burgplatz” (LD2), “Old Harbour” (LD3), “Mannessemanufer” (LD4), “Rhein-kniebrücke” (LD5).

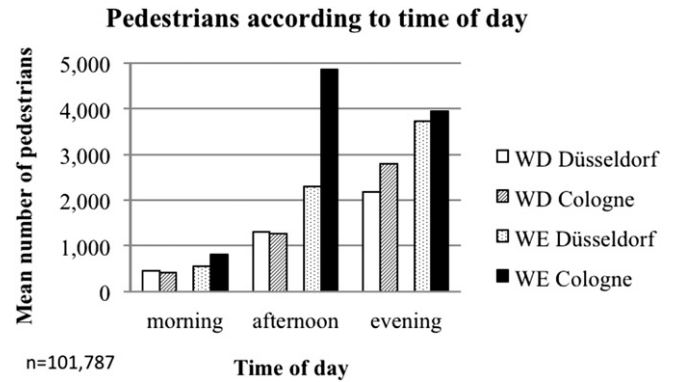


Fig. 4. Mean number of pedestrians according to time of day, working days (WD) and weekends (WE).

and the changing colours, but also the “bright light, [and] the glistening of the sun on the water” (D2). Other senses are addressed because people can also smell the water or hear its sounds. The contact with water remains indirect, in that not all human senses are addressed by the water, but people feel a “light breeze” (C14) and the wind and the fresh air, respectively, “in the leaves of the trees”(D14).

The fascination and attraction of waterscapes has been stated extensively, above all by environmental psychologists (Herzog, 1985; Moser, 1984; Völker & Kistemann, 2011; White et al., 2010). With regard to the health-enhancing aspects of the space experienced, the promenades possess one important naturalistic aspect: the admiration of water, sometimes becoming highly emotional, making the “promenade [...] unique with the Rhine” (D8). The sound of the water at both promenades can be heard when water is pushed by passing ships, in the form of the sound of the waves coming to the shore. Therefore ships are used as ‘anthropogenic agents’ for the natural experience of water in this place. It is also likely that people use connected items, like the sound of a ship’s horn, that they clearly associate with the river. For example Dramstad, Tveit, Fjellstad, and Fry (2006) report that people prefer a place where it is possible to sense water. This is the case for the reported smell of water, although it is quite difficult to evaluate what represents the connectedness to the water. The connection is even closer regarding the feeling of the wind. Rivers, especially in cities, are air lanes, supplying the city centres with fresh air (Katayama et al., 1991; Murakawa, Sekine, Narita, & Nishina, 1991). People can feel this air lane above all in the summer, and associate the fresh air with the river/water. The sound of the wind in trees and “birdsong” (C1) are known to have calming effects, which are beneficial for well-being (WHO, 1997; Yamada, 2006).

In addition, the view of water produces a sense of freshness and coolness on hot summer days (Burmil, Daniel, & Hetherington, 1999; Herzog, 1985; Yamashita, 2002). This experience is supported by the fluid condition and the clearly visible or individually perceived blue colour of the water (Burmil et al., 1999; Herzog, 1985; Pflüger, Rackham, & Larned, 2010). These experiences, “the combination of water and earth, of fluid and constant” (D15), attract people to go as close to the river as possible. However, in fact the visitor has the role of an observer. The immersion into water can be based on the individually different anticipations of water to be positive or negative (Strang, 2004), so that the role of an observer seems to be the right position for many visitors. The value of water for a therapeutic landscape has already been stated (Gesler, 1992; Völker & Kistemann, 2011; Williams, 1999). This is clearly related to symbolic space (see below).

Visitors do not only perceive the water and water-related features. They see a “coexistence of city and nature” (C4). When arriving at the promenades people look around and also pay attention to other things in their surroundings. This is supported by the fact that visitors mostly take their time, having the possibility to perceive the whole entity as compared to people with a higher degree of movement, such as cyclists. Visitors like the view of the riparian (waterfront) buildings, the historic old part of town, and their architecture. Similarly to these statements others report that the panorama and the skyline are beautiful. Some people summarise by saying that the “whole promenade is interesting” (C10).

A beautiful environment enhances people’s well-being as a part of a therapeutic landscape (Gesler, 1998; Korpela & Ylén, 2007; Palka, 1999). Beside the waterscape, the built environment of the research areas is described with aspects concerning its beauty, mostly admiring the historic buildings and the view of the skyline. The skyline and the panorama involve the opening up of space. Coming from the dense and narrow streets, particularly in the old town, to the sudden openness and vastness of the promenade, people experience a feeling of “expansion” (C22, D3, D6, D19) and “freedom” (C22, D15, D19) – a sense of transition. The openness and vastness help people to feel more at ease and attach more to that specific place (Herzog, Herbert, Kaplan, & Crooks, 2000; Ryan, 1998).

The riparian buildings can relate to human well-being (De Botton, 2006). Some visitors to the promenade admire the contemporary buildings as well as those that are more historic. Some of them function as orientation points, like the dome in Cologne or the old palace tower and the television tower in Düsseldorf (see Fig. 5). The bridges and the Rhine are also identified as orientation points in both cities. Generally people report that the place is “comprehensible, not too big” (D9), “well-arranged” (D14) and “orientation” (D3) is easy for visitors. The orientation points are visible from anywhere on the promenade. Generally, orientation is a factor for a liveable place (Pacione, 2003), extending people’s well-being. The feeling of a specific territory helps to perceive these places as independent, individual places in the context of the whole city with a clear separation from other urban places (Gesler, 1992, 1993; Laws, 2009).

Health-limiting aspects

Health-limiting aspects in the experienced space mostly concern the environment of the promenades. People report a high



Fig. 5. View from the “Burgplatz” on the promenade in Düsseldorf. To the south the “Rheinkniebrücke” bridge and the television tower are visible.

degree of noise. Other experiential complaints seem to be highly individual like the design of the pavement or specific facades of adjacent buildings. The spatial analysis showed that there were no benches directly on the waterfront in Düsseldorf, so that the experience of closeness to the river is reduced for people such as older visitors needing these places for a short respite (see also Activity space).

The noise on the promenades can clearly be verified by the noise maps provided by the Ministry for Environment and Nature Protection, Agriculture and Consumer Protection of North Rhine-Westphalia for the two cities (2011). In Cologne the whole promenade is affected by noise exposure caused by traffic (cars, trains and trams) from both bridges. Over a time span of 24 h, people in the very north and very south of the promenade, beside the two bridges, are in subareas affected by a noise exposure of a maximum of 70 dB. In Düsseldorf the promenade is not affected by traffic noise or the noise of trams in the central part, but the lawns in the northern and southern parts are affected by traffic noise and the noise of trams (both at a maximum of 70 dB), from the adjacent bridges.

The potential damage to health caused by noise is related to the general exposure to the source of the noise and the disposition of the affected person. The WHO (2000) advises not exceeding a permanent noise level of 65 dB to avoid stress. The exceedance of this level causes interruptions of communications and/or reactive coping strategies, such as speaking loudly or more concentrated listening. Some areas close to the bridges exceed this limit, but “the perception of sound is strongly dependent on the context of the exposure” (Passchier-Vermeer & Passchier, 2000: 123), so that some sounds can be perceived as comforting by one person and disruptive with somatic and psychosomatic effects by others at the same time, e.g. music from the open air restaurants at the promenades. So stress not only occurs due to sound waves, but is also due to the individual affective evaluation. Additionally, noise can be perceived as disturbing only when people are conscious and sensitive to that noise. Some reports also state that stillness can even be perceived as disturbing when people are used to a specific degree of noise (WHO, 1988; WHO, 2000). One visitor relativises her complaints about the noise exposure by stating that “the trams are very noisy, but good for the place’s infrastructure as well” (D10). Possibly people who are sensitive to the noise and not used to it accept it, knowing that the benefits of the noise sources prevail over the negative aspects, e.g. the access to that place by public transport, which also causes noise exposure.

Symbolic space

Health-enhancing aspects

People are fascinated by the duality of the river: the smooth, comfortable, quiet Rhine, and its power and the power of nature. This feeling is underlined by the symbol of Father Rhine (see Fig. 6). The Rhine is personified and regarded as having supernatural powers. Father Rhine is, on the one hand, the caregiving father, providing water for nutrition and hygiene, functioning as a transport lane and providing power and resources for industry and making people feel at ease. On the other hand, he is a capricious power, with unsteady stream currents and shallows, having to be controlled in parts by channels or walls and sending floods that threaten riparian dwellers. This dualism is also stated for water in general (Strang, 2004). In the highest circulation newspapers in each city, headlines such as “A bulkwark against Father Rhine” (KSTA, 2011), “Cooperation with Father Rhine” (KSTA, 2008) or “Father Rhine lithe and lissom in the New Year” (RP, 2007) can be found. The symbolism and fascination shows the current nature of “Father Rhine” in people’s minds, showing the sense of supernatural powers of the river/water.



Fig. 6. Allegory of "Father Rhine" in Düsseldorf.

Some visitors have "big, wide world thoughts" (C4), giving a kind of spiritual nature to the river. Dyson, Cobb & Forman (1997) isolated three key elements within spirituality: the self, others and 'God'. An inclusive approach considers contextual elements of spirituality such as connectedness, searching for meaning and purpose, relational aspects and creativity. The presence of such elements effects, amongst others, a heightened sense of physical and emotional well-being (Tanyi, 2002). Some people sense the promenade to be part of Christianity and religion, enhancing their spirituality by this belief. But the personal search for meaning and purpose in life can also be dedicated to other self-chosen beliefs or values, not only to the belief in a religion. One visitor states that "at waterways you are automatically connected to every place in the world that has water" (C22), connecting the self with a larger reality. Some people report that they can "let [their] minds wander" (D20), "let [their] imaginations run wild" (D8) or "feel inspiration" (D12, D17), as examples for creativity. A sense of spirituality brings hope, faith ("the world is alright" – D17), and empowerment to the people, partly resulting in a feeling of transcendence ("[I can] completely relax mind and body" – C14, "I'm feeling entirely well" – D18, "I'm always thoroughly happy when I'm here" – D20, "I'm feeling total and complete satisfaction" – D10). The belief in supernatural powers and a sense of spiritual renewal is known to contribute to a therapeutic landscape (Gesler, 1993; Nelson, 1986; Williams, 2010).

Both cities use the Rhine for their marketing, being part of the cities' images. Cologne describes itself as a "City of Waters" (KölnTourismus, 2011), Düsseldorf as a "Metropolis on the River Rhine" (Düsseldorf Marketing & Tourismus, 2009). Düsseldorf promotes the "Rhine promenade – Rhenish and Mediterranean" as one of the top highlights of the city (Düsseldorf Marketing & Tourismus, 2012).

Visitors to the promenades state that the "Rhine is the central point" (C1) and the centre of the Rhineland. The Rhineland is not a homogenous space, neither a topographical bordered territory, nor historically established by a tribe (Guenich, 2001). Efforts to develop a Rhenish identity began only in the 19th century when they were mainly supported during the Prussian era and, despite the statement of researchers that the alternating 2000 years of history with different and contradictory characteristics could not create a basis for a community identity (Hansen, 1925), the promenades are loaded with specific beliefs and characteristics by their visitors reflecting a sense of community/Rhenish identity. Some people state that there is a specific mentality in the Rhineland. They use

terms like "companionability" (C8), "cheerfulness" (C7), "ease" (C1), and "carnival" (C12). The Rhenish people are described as "relaxed" (C13), "open-minded" (D4, D8, D9), "tolerant" (C8), "gemuetlich [and] enjoyable" (C12) and they have a special dialect. Others refer to history, modernity and are proud of their city without precise reasons: "Düsseldorf is just something special" (D18); "The interesting thing about this place is that it is in Cologne" (C13). They concentrate more on the specific place itself. One visitor reports a "Mediterranean atmosphere" (D6). It remains unclear whether the visitors dedicate the terms used especially to the promenade, think of the city or have the Rhineland as a whole in their minds.

The promenade evokes one's roots, relating to the place of childhood, the birthplace or social relationships that a person had in that place. The feeling that overwhelms all others is the feeling of home. In addition, people remembered other cities or countries by water or the sea. All these aspects describe a strong place attachment and emotional bonding.

Compared to other places, visitors isolate specific qualities. The promenade is described as lively, vital and versatile, as reflected by the pedestrian counting. Visitors experience a sense of freedom in this place. Others find the promenades to be the "heart" of the city (C3, D11). Visitors to the promenade laugh a lot, talk to their companions and seem generally to be in a good mood. They value the "relaxed, positive atmosphere" (C4). They sense a specific ambience at the promenades, using terms like "harmony", "flair", a special "feeling", "peace", "slowness" and "openness".

The removal from everyday stress is becoming more important in our cities today (DiCorcia & Tronick, 2011; Grahn & Stigsdotter, 2003). This special atmosphere, described at the promenades, helps people to forget everyday concerns. They become extraordinary places, loaded with beliefs, identity, remembrance and thoughts beyond everyday problems. The whole place, the whole situation is loaded with a positive attitude. The feeling of harmony and connectedness produces a feeling of being part of this place, not just a visitor. The question of identity is highly intertwined with the experienced space. This time of relaxing and enjoying oneself for a moment is like a reward, in contrast to everyday stress, a source of well-being (Gesler, 1993; Korpela, Hartig, Kaiser, & Fuhrer, 2001; Korpela, Ylén, Tyrväinen, & Silvennoinen, 2010; Williams, 2002).

Environmental psychologists have identified the beneficial, restorative effects of places for human well-being in aspects of community such as attachment to a place and place identity (Eyles & Litva, 1998; Korpela & Hartig, 1996; Lengen & Kistemann, 2012). Eyles (1985) understands sense of place as an interrelation between place, identity, and material life. Pretty, Chipuer, and Bramston (2003) formulated variables enabling researchers to assess sense of place: sense of community, affiliation and belonging, place attachment, emotional bonding, place dependence, the availability of activities, the quality of activities and the comparison with other communities. All these variables could be found at the promenades, so the visitor experiences a strong sense of place, supported by the findings of the activity space (see below). In therapeutic landscape research sense of place forms an important aspect in the capacity for healing and well-being in a place (Burges Watson, Murtagh, Lally, Thomson, & McPhail, 2007; Gesler, 1993; Williams, 1998).

Health-limiting aspects

The participants did not mention any health-limiting symbolic aspects of the river, although one could observe a specific respect for water. The ever-present historic water gauges and the thought of destructive Father Rhine are symbolic of the floods that have affected the cities several times. In Düsseldorf the last flood event was in 1995 with a water level of 10.32 m. The highest water level ever recorded was the flood of 1926 with 11.10 m. The last flood event in Cologne was in 2003, with a water level of 9.71 m and the highest water level

was 13.55 m in 1784 (ELWIS, 2012). Flood risk prevention is a priority in both cities. Floods can have negative mental health effects for the people affected (Curtis, 2010; Tapsell & Tunstall, 2008). Post-traumatic mental stress disorders and general symptoms such as increases in violence, depression, and psychological distress have been assessed after floods (Fewtrell, Kay, & Ashley, 2008).

Social space

Health-enhancing aspects

The basis for any social relationships in public space is the accessibility and/or centrality for the designated users. The promenades are situated right beside the old part of town in the centre of both cities. Both cities are accessible by car, public transport, bike and foot. In Cologne, the main station is situated within 400 m of the promenade. In Düsseldorf there are three stations nearby for public transport. Both promenades are connected to bicycle networks. These circumstances lead people to consider the promenades as central in the city, as a “place everybody knows” (D16).

“Obviously, this place is a favoured meeting point. As an inhabitant of Cologne, I’m surprised how many people come here” (C22). “This place invites one to talk to nice people” (C13, D3, D19) and “to meet people or friends” (C20, D2, D15). It is a meeting point “where you come without being forced” (D19). As objectives, people stated that they “like to meet a lot of people” (D16), want “to be part of the city” (D11) or “take part” in community life (D19). These are supported by the people who are “relaxed” (C13), “open-minded” (D4, D8, D9), “cheerful” (C7), “[at] ease” (C1), “gemuetlich [and] enjoyable” (C12). “In this place people come together and talk with each other” (C1). “It is attractive in this place that you have a sense of belonging, [and] talking to foreigners is possible” (D19). “Compared to other places, as a foreigner you don’t feel bad, you feel accepted” (C20).

The most important aspect concerning the promenade is the communication between people, also mentioned by many visitors. Everyone mentions the voices and talking as an important part of social relationships. These contribute to the symbolic valence of “atmosphere”, described, amongst others, as lively and vital. Actually, the promenades are places for many and diverse social contacts, a public space where people are brought together (see Fig. 7). The consequent emerging social networks, friendships and relationships contribute to a general sense of well-being (Cattell, Dines, Gesler, & Curtis, 2008; Gesler, 1992; Oster, Adelson, Wilkinson, & Turnbull, 2011).



Fig. 7. The promenade in Cologne as a place for social contact.

There is a feeling that at the promenade there are all kinds of people, which creates a special quality for some visitors. Some people mention the presence of different age groups, social groups and origins. Others mention precisely the domination of specific groups, such as tourists or local inhabitants. The promenade is experienced socially as being multicultural, which is expressed in the different languages overheard.

With regard to the observations there are different social groups present at the promenade in Düsseldorf, but the majority are “cultivated” or “wealthier” people, as stated by the visitors. The social mix changes, especially on Friday and Saturday evenings, when fewer children, families and older people are at the promenades than young adults and adults. This leads to a relative equality in this place, making people feel that they are amongst others socially comparable to themselves. Relative equality influences physical, spiritual and mental well-being (Gesler, 1993).

Health-limiting aspects

The numbers of pedestrians in both cities are extremely high (see Fig. 3). A comparison with mean rates of pedestrians per hour for main shopping streets in German cities can be achieved with reference to statistics (Engel and Völkers, 2011). The numbers found at the promenades (4865 and 3736, respectively) on sunny summer weekends cannot reach the numbers of the largest shopping streets in Cologne and Düsseldorf (9071 and 8976 pedestrians, respectively), but they reach the numbers of the third largest shopping streets (2431 and 3987, respectively) representing the significance of the promenades. There are on average as many or more people at the promenades in the city centres than on some of the important shopping streets. In Düsseldorf, the maximum number of pedestrians per hour is reached in the evenings; in Cologne the number of pedestrians decreases in the course of the afternoon until the evenings at the weekend. One important reason for this difference is the orientation of the two promenades with regard to the sun. The promenade in Düsseldorf is directly exposed to the setting sun in the west, whereas the promenade in Cologne is exposed to the east, so that the sun’s rays disappear behind the buildings in the late afternoon.

The promenades are crowded during peak periods. Some visitors find there are too many people and “too much hustle and bustle” (C22) and this can produce a feeling of malaise. During these periods, crowd-averse people do not feel at ease (Arnberger & Haider, 2005) at the promenades. In general, an interpersonal relationship is not necessary. People pass each other anonymously and are described as being “distant” (D13) or “reckless” (D15). Some people were noticeably excluded in advance from the social community and equity of the promenade, namely homeless people.

One important point concerning health-limiting social aspects is incivilities and victimisation at the promenade endangering the visitor’s personal safety. One visitor complained about pickpockets, hawkers and men. People complain about drunks, whose behaviour sometimes exceeds the tolerance limit of some visitors. Some visitors mention bachelor parties or “under-dressed men drinking” (C15). Although one person stated that there is no “harassment” (D6) at the promenade, others experienced victimisation and some such incidents could be observed.

Victimisation and incivilities such as vandalism were mainly observed in the evening or at night. Other incivilities identified are litter or dog excrement. Researchers have already identified a connection between incivilities/victimisation and well-being. People tend to interpret “incivilities including litter, graffiti, damaged property, loitering vagrants or youth, and so on [...] as evidence of criminality. These [...] may heighten their sense of fear” (Smith, 1989 cited by Herbert, 1993).

Activity space

Health-enhancing aspects

The promenade is a place to “just sit and watch the flowing movement of the Rhine” (C1), “to just enjoy nature, just to pass time” (D16), and to relax and to enjoy, although the city is close by. To watch the world go by is described as passive recreation (Wooley, 2003). This can also contain people watching at the promenade, being interested in “what [and] how they are doing” (C4). Many people even come here just to watch others resulting in a form of ‘seeing and being seen’. Although one visitor states that “people show off” (D3), for others “it’s interesting that something’s going on and people are in a good mood. You still notice what makes the people tick, [...] you are still close to life [...] [and you] can see all different kinds of people” (D19).

Active recreation contains dynamic activities with situation-based experiences with a low degree of motion and kinetic experiences with a higher degree of motion (Völker & Kistemann, 2011). The need for adequate physical activity has clearly been identified as reducing the risk of diseases linked to living in cities, e.g. diabetes mellitus, and cardiovascular illnesses such as coronary artery disease or hypertension (Manson et al., 1999; Sundquist, Qvist, Johansson, & Sundquist, 2005; Warburton, Nicol, & Bredin, 2006). Physical, emotional and mental health benefits have been reported as achievable by conducting a total of at least 30 min a day of moderately intense physical activity, such as walking, on five or more days per week (Harrison, McElduff, & Edwards, 2006; Le Masurier, Sidman, & Corbin, 2003; Lee et al., 2001).

Generally, many different activities can be observed along the promenades: a higher degree of motion comprises activities like rowing, canoeing, kayaking, sailing, and riding stand-up personal watercraft. The promenades provide a “nice, long jogging route in the inner city” (D2). Route-oriented activities are walking, jogging/nordic walking, cycling and scootering. Regarding the categorical mean number of pedestrians per hour and their activity type, there are considerably more walkers ($n = 1838$) and cyclists ($n = 339$) followed by joggers/nordic walkers ($n = 32$) and skaters ($n = 8$) at each promenade. Taking cyclists, joggers/nordic walkers and skaters as people exercising at a higher level than walkers, there are more low level exercisers at both promenades. In-line skating and skateboarding are mostly conducted as space-oriented activities. Other space-oriented activities include slacklining, football, playing boules and game playing by children.

Activities with a low degree of motion on water itself include river cruises, yachting, and ferryboat riding, all of which belong to passive recreation, but may also be a special event for people: “I’ve the feeling, I’m experiencing something” (C6). There are different things to see and do than elsewhere. People like to sit in cafes, taverns in the old part of town, bars or ice cream parlours, drinking coffee or beer or eating something at the Rhine. Others value that they can bring their own food and drinks and go picnicking at the promenades.

Another important aspect is the participation in and the experience of events. These include breakdancers, clowns and musicians busking or experiences of the city’s attractions and “cultural offerings” (C19) such as the dome or museums. At the promenades there are several major events during the year including the “France Festival” (D2), the “Book Festival” (D6) and fairs. The diverse use of the promenade as a venue shows that something is going on in this place. It is treated as an “entertaining” (C15) venue.

In addition, there is a feeling of recreation and being on holiday. Activities like strolling, camping out together, perceiving the environment, talking, using the promenade as a venue for holidays or sitting together in bars and restaurants at the river make people

share activities. Some people also seem to ritually undertake the same progression of activities when coming to the promenade. One user (C8) explains that if he comes to the promenade, he always eats pig’s knuckles and drinks a beer at the “Heumarkt” after taking a short stroll. Sharing activities and rituals helps create a sense of community and are part of therapeutic landscapes (Gesler, 1993; Hale et al., 2011; Kearns & Collins, 2000).

Health-limiting aspects

Health-limiting aspects concerning the activity space are related to space to conduct activities and conflicting uses. In addition to the high number of pedestrians at peak-times, free open space is reduced due to open space catering. In Düsseldorf the open space between the “Burgplatz” and the “Old Harbour” is reduced by approximately 25%, making the area difficult to pass through for pedestrians. People pushing and the sense of constriction can cause subjective feelings of entrapment (Sime, 1995). Some people wish for less outdoor gastronomy in the open space areas.

From the observations and spatial analysis some barriers concerning resting possibilities were isolated. The number of benches in Cologne is smaller than in Düsseldorf, therefore visitors have to sit on small stone walls, stairs or lawns for passive activities. Older people seem especially to be more dependent on the possibility of sitting on a bench to rest (Day, 2008).

An example illustrates the problem of conflict uses as the promenade in Cologne is designated as a cycle route. When a group of breakdancers present a performance by the path right beside the Rhine, a group of spectators stands in a circle around the dancers, occupying the whole path, resulting in cyclists having difficulty passing. Generally, there is not enough space for all desired activities, such as swimming. Some activities, such as drinking or eating at the promenade, are expensive and not affordable “for people who don’t have much money” (C22). Stevens and Dovey (2004) stated that the development of urban waterfronts is linked to the consumption oriented middle-class. The limited availability of space and conflicting uses can produce social tensions and create a sense of powerlessness and anger (Gillespie, 2002). Impacts on mental health are conceivable.

Synopsis

Approaches for enhancing people’s health in cities have been developed in several disciplines (e.g. Flynn, 1996; Freudenberg et al., 2000; Galea, Freudenberg, & Vlahov, 2005; Vlahov & Galea, 2003). In literature the identification of health-supportive environments in cities tends to equate to green space. Today, there is a consensus that green space positively contributes to human health and well-being. Green space is a common term for natural areas, but if there is a further division of green space, one can recognise that many areas are in fact blue (Gledhill & James, 2008). In the past, many studies were carried out observing the relationship between green space in landscape and human well-being, containing water as an element of green space (e.g. Han, 2003; Laumann, Gärling, & Stormark, 2001; Ulrich et al., 1991). Frumkin explicitly describes the variety of urban parks “from urban pocket parks to waterfronts” (Frumkin, 2003: 1453) and summarises all water-related aspects within the term “park”. The central significance of waterscapes concerning the relationship between blue space and environmental health in settlement areas in history and today is still neglected (Völker & Kistemann, 2011; White et al., 2010). The recreative potential is partially underestimated (Gledhill & James, 2008; Kaplan & Kaplan, 1989).

Our study presents evidence for the therapeutic value of urban blue. A number of points about therapeutic landscapes emerge. Both health-enhancing and health-limiting aspects were recognised in

each dimension of appropriation and substantiality within the extended therapeutic landscape concept. Visitors to the promenades admire the views of water and the beautiful environment in a bordered territory. They show a clear relationship to the promenade, with a sense of community, in combination with a belief in a specific identity and a strong sense of place. People experience relative social equality and have manifold social relationships. Urban blue places are favourite places to spend leisure time and for recreational activities, restoring people from everyday stress and sharing activities, partly developed into rituals, which help to enhance physical and mental well-being. Substantial dimensions were discovered on naturalistic (e.g. water), built (e.g. riparian buildings), humanistic (e.g. sense of place) and structuralist (e.g. centrality) principles. Health-enhancing aspects distinctly prevail over health-limiting factors.

We have presented the findings of an exploratory case study aimed at examining health-enhancing and health-limiting aspects in the context of therapeutic landscapes. It must be acknowledged, however, that there are limitations to this research. In the course of the pedestrian counting exclusively dynamic activities could be assessed, namely any form of dynamic movement making a pedestrian pass the imaginary counting line. The numerous passive activities observed at the promenades were not integrated. We conducted observations and interviews within a period of two years, and did not therefore cover long-term effects. In this regard we also accept that there is a weather distortion, which is known to influence human perception (e.g. Steinwender, Gundacker, & Wittmann, 2008), indicating a temporality of therapeutic experiences (Conradson, 2007). We also accept that, as with any research method, we are limited in what we may examine. Despite these limitations, this work appears to contribute to theoretical and applicatory perspectives of therapeutic landscapes.

Conclusion

In considering two urban blue settings, several aspects of therapeutic landscapes can be identified. Although both health-enhancing and health-limiting aspects were recognised in the extended therapeutic landscape concept, health-enhancing aspects distinctly prevail over health-limiting aspects. Urban blue may be considered as a therapeutic landscape due to the specific mix of health-enhancing aspects.

However, more research needs to be done concerning the dimensions of substantiality and appropriation. In experiential research, the enhancement of the concept to urban green, separate from and in conjunction with urban blue, would help to better isolate components contributing to health and well-being for city dwellers. The issues addressed concerning symbolic space, such as the feeling of transition, a contested reality or the belief in a god, all formulated by Gesler (1996) as contributing to a therapeutic landscape, need careful consideration (see also Foley, 2010). Fundamental hints could be isolated, proving their presence in people's minds and thoughts, also addressed in the experienced and symbolic space section of our study. The use of post-structuralist methods (Foucault, 2007a; Laclau & Mouffe, 1985) such as the analysis of the discursive construction of space (Crampton & Elden, 2007; Foucault, 2007b), may help to further understand health relevant issues in every dimension of appropriation in a contextual approach of the concept used in this study. An example of this would be research based on concealed governance or mechanisms, whose merging encourages a specific social and activity-based contribution and contingency of places. Topics concerning the ambivalent festivalisation of open space, segregation and gentrification, and environmental justice can also be addressed, as shown in the Results and Discussion of social and

activity space in our study (examples are Castro & Lindbladh, 2004; Goss, 1996; Grove, 2009).

Urban environments, although the everyday environment for most of us and therefore important for any aim of health promotion, are underrepresented in current literature as regards their health-enhancing aspects. As shown in our case study, the extended therapeutic landscape concept is a useful tool to better understand the wide range of health components in an urban area, namely urban blue, with the help of its different approaches in the dimensions of substantiality and appropriation. Health benefits could clearly be identified, but there is still little respect for water and health in urban planning issues. Urban blue as a health factor turns out to have the potential to enhance health in cities. The healthy city of the future is blue!

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