*Corresponding Author's Email: Janine.Bittner@rub.de
Proceedings of the International Conference on New Findings in Humanities and Social Sciences
Vol. 2, Issue. 1, 2025, pp. 20-55
DOI: https://doi.org/10.33422/hsconf.v2i1.1142

ISSN: 3030-0681 online

Visitor Characteristics, Activities and Satisfaction at Two Industrial Tourism Sites in the Ruhr Area: A Quantitative Descriptive Study

Janine Bittner[1*] and Bianca Momo Skowron[2]
[1] Ruhr University Bochum, Institute of Geography, Germany
[2] City of Essen, Green Capital Agency, Germany

Abstract

The touristic valorisation of the industrial history is part of the lasting economic transformation in the Ruhr area. This quantitative descriptive study aimed to identify the main visitor characteristics, activities and satisfaction with the touristic offer at two important industrial tourism sites, the German Mining Museum in Bochum and the Duisburg-Nord Landscape Park. In addition, our goal was to determine the awareness of the Route of Industrial Culture as a touristic theme route. We conducted a visitor survey with a convenience sample (n=211) in 2015 using a self-developed bilingual partially standardised questionnaire. The results show that both tourist destinations attract visitors from outside the Ruhr area and even beyond the borders of North Rhine-Westphalia. The majority of the visitors are day-trippers. Nevertheless, a considerable proportion of visitors said their visit was part of a short vacation (< 4 days) or a longer stay in the region. Important reasons for the visit are a keen interest in the mining and industrial history and the architecture of the buildings. The overall satisfaction with the two tourist attractions is high. The Route of Industrial Culture is well known, even among around 39 % of the visitors surveyed from other German federal states. Other anchor points visited include the Zollverein colliery and the Gasometer in Oberhausen. The majority of the visitors are interested in visiting other industrial heritage sites. Based on our findings, we recommend a strong strategic marketing of the Route of Industrial Culture in major tourism source areas outside of North Rhine-Westfalia.

Keywords: industrial culture, Ruhr region, industrial heritage trail, Bochum, Duisburg

1. Introduction

The origins of industrial tourism in the form of industrial heritage tourism, which we are examining in our study, date back to the 1950s and 1960s, when, in the context of incipient deindustrialisation, people in England and the United States began to address the issue of preserving and reusing industrial sites, buildings, and monuments that had lost their original purpose (cf. Carvajal & González, 2005 as cited in Castillo et al., 2010; Goodall, 1993; Hospers, 2002; Rodriguez-Zulaica, 2017). Later, similar developments and a growing interest in industrial heritage also emerged in other countries (Hospers, 2002; Rodriguez-Zulaica, 2017). What exactly is meant by industrial tourism, and what different forms can be distinguished? Otgaar (2010) clearly points out that there is no generally accepted definition and proposes a very broad one: "Industrial tourism involves visits to sites that enable visitors to learn about economic activities in the past, the present and the future" (p. 24). With our understanding of industrial

tourism, we would like to refer to the presentation and consolidation of concepts in the review by Montenegro et al. (2022), given the multitude of definitions and understandings found in the literature. Based on Rodriguez-Zulaica (2017), different concepts are distinguished here. On the one hand, there is the umbrella term 'industrial tourism', which refers to "any tourist activity that links tourists to different local industries, whether they are in operation or not, according to their industrial activity" (Montenegro et al., 2022, p. 274). This corresponds to the definition of Soyez (1986), most commonly used in German-speaking countries, which talks about forms of travel and leisure behaviour "that can be attributed to the appeal of former and still operational industrial systems" [translated by the author] (p.72). However, he does not include journeys of persons who work here and ensure the functioning of the system (Soyez, 1987). Industrial tourism includes the subcategories of active industrial tourism and industrial heritage tourism, which were mentioned earlier. Industrial heritage tourism "refers to visits to disused industrial buildings and facilities, with the main objective of learning about the 'know-how' of past industry" (Montenegro et al., 2022, p. 274). According to Goodall (1993), industrial heritage includes physical constructions, buildings or as Hospers (2002) call it "industrial relicts in the field of production and processing" (p. 399) such as factories and mines and transport facilities, as well as physical objects that played an important role in the production process or in the transport of raw materials and goods in the early industrial age (Goodall, 1993). According to Hospers (2002), 'socio-cultural attractions' should also be added here, which he defines as workers' housing estates and the homes of industrialists and manufacturers from the industrial age. The so-called 'active industrial tourism' involves visits to companies in operation for tourist purposes (Montenegro et al., 2022). According to Steinecke (2022), these include factory tours and plant tours, often in conjunction with a company museum or the opportunity to purchase products at a discount in the factory outlet, as well as so-called brand worlds. Examples of providers of 'active industrial tourism' in Germany include the Autostadt in Wolfsburg, BMW World in Munich, Villeroy & Boch World in Mettlach, and Halloren Chocolate World in Halle.

The development of industrial tourism in the form of industrial heritage tourism, which we will focus on in our article, is linked to certain prerequisites. One thing to mention here is a changed, broader, more open understanding of beauty and value in relation to heritage, the recognition of the appeal and aesthetics of relics from the industrial revolution, factories, and even workers' housing estates (cf. Harris, 1989 as cited in Edwards & Llurdes, 1996; Llurdes i Coit, 1994) and thus a changed perspective on the fundamental question of what is worth preserving as well as the recognition of the historical significance and era of the industrial age and its legacy (Ministerium für Wirtschaft und Arbeit des Landes Sachsen-Anhalt, 2003). Since the 1970s, photographers' documentation and visualisation of industrial heritage buildings for a broad audience has led to greater public interest in and appreciation of industrial culture in Europe in general. The role of other groups such as historians, architects, and monument preservationists should also be emphasised (Steinecke, 2022).

Numerous empirical studies from various countries, each examining specific issues, show that industrial tourism is now a worldwide phenomenon as a niche market in tourism.

We would like to briefly mention two effects of industrial tourism, as we believe it is important to view industrial tourism as a growing niche market within a larger context. Particularly noteworthy is the impact on local development whereby existing barriers, costs and the resulting benefits should always be weighed up in the long term [for more information on existing barriers, please refer to the detailed description in Soyez (1986) described for the Saar-Lor-Lux region]. In general, industrial tourism can contribute to new economic prospects for regions as well as to their economic diversification and has a positive impact on the local employment situation in old industrial regions affected by economic decline. Although several authors emphasise that the new jobs created in this segment cannot replace those lost in industry (Hospers, 2002; Edwards & Ilurdes, 1996; Steinecke, 2022; Xie, 2015). This also applies to the Ruhr region, considering the large number of jobs that have been lost in the coal and steel industry. According to Xie (2015) and in a detailed overview, Steinecke (2022), industrial tourism offerings, where they have been successfully established on the tourism market, generate significant direct and indirect economic effects. Nevertheless, the differences to other forms of tourism must be taken into account. With regard to industrial heritage tourism, it should be noted that the management of industrial cultural attractions and facilities is often taken over by the public sector or non-profit

organisations, with the aim of preserving cultural heritage rather than making a profit (Lane et al., 2013). Another important effect of industrial tourism is that the preservation of the region's identity is facilitated (cf. Andrade & Caamaño-Franco, 2018; Hospers, 2002). In addition, public confidence in the region is strengthened and regional self-awareness increases (Álvarez Areces, 2010).

To estimate the significance of the industrial tourism market segment, it is useful to consider the volume of demand. However, no precise figures are available for this; for individual European countries and regions, estimates can only be used, as Steinecke (2022) indicates. With reference to expert opinions, he highlights the growth potential of industrial tourism and states that, according to current knowledge, industrial tourism accounts for less than 1% of overnight stays.

The estimated low share of industrial tourism in overnight stays can be attributed primarily to the fact that this is mostly classic day trip traffic and that visiting industrial tourist attractions is often not the primary destination of the tourists (Soyez, 1993, Ministerium für Wirtschaft und Arbeit des Landes Sachsen-Anhalt, 2003; see also the study by Castillo et al., 2010, in the northern part of the province of Córdoba in Spain). This also has implications for the analysis of the travel motives of visitors to industrial tourism attractions (cf. Ministerium für Wirtschaft und Arbeit des Landes Sachsen-Anhalt, 2003). With regard to the motives for visiting industrial tourism attractions, it can be summarised that the most significant motive for industrial heritage tourism is education, an interest in history and technology and a specific connection because the tourist attraction is part of the region's cultural heritage (Castillo et al, 2010; Steinecke, 2007, 2022)

As Köchling (2021) points out, the Ruhr region plays "a pioneering role in German industrial tourism" [translated by the author] (p. 42), which is also the geographical focus of the quantitative study presented here.

Ruhr Region

The following section briefly outlines the special features and history of the Ruhr region, or the Ruhr Metropolis, known as a long-industrialised and monostructural region with a strong focus on coal mining, iron and steel production, and related industries until the 1960s and 1970s, which served as a case study area for the 2015 study on industrial tourism. This is necessary in order to understand the conditions under which industrial tourism is developing in a special way there and, in connection with the valorisation of the existing industrial cultural heritage, can not only lead to regional economic stabilisation effects (cf. Soyez, 1986, 1987), but also offers the potential to strengthen the regional identity of the region (cf. e.g. Berger et al., 2018; Ebert, 2000; Soyez, 1986, Steinecke, 2022) and to an image change (cf. e.g. Soyez, 1986; Steinecke, 2022) of the old industrialised region.

The Ruhr region is part of North Rhine-Westphalia, a federal state in the west of Germany, and is part of the functional urban metropolitan region of Rhine-Ruhr (see, among others, Knapp et al. 2004; Blotevogel, 1998). Today, it covers an area of 4,439 km² and comprises 4 districts and 11 independent cities (Regionalverband Ruhr, 2021). In 2023, more than 5.16 million people lived in this densely populated metropolitan area, spread across a total of 53 cities (Regionalverband Ruhr, n.d). In 2015, when the data for the empirical study on industrial tourism was collected, the population was around 5.11 million. According to population projections, the population is expected to decline to just over 4.92 million by 2050, with the highest population level being reached in the 1960s [absolute population as of December 31, 1961, in the RVR area: 5.67 million] (Regionalverband Ruhr, 2005, n.d.). The Regional Association of the Ruhr (RVR), with its administrative headquarters in the city of Essen, which was founded in 1920 under a different name, plays a central role in supporting the spatial development of the region and also performs tasks related to economic and tourism promotion and public relations for the Ruhr area (Regionalverband Ruhr, 2021).

The region, which was originally agricultural (Regionalverband Ruhr, 2021), began its industrial and urban development as a mining region in the mid-19th century (Köddermann, 2000). This development is due to the fact that it is part of the northwest European coal belt (Keil & Wetterau, 2012). Wehling (2022) points out that different stages and zones of development can be distinguished. These can be attributed to the storage conditions of the coal and the mining of coal from south to north along the Ruhr River, from which the region gets its name (Fuchs, 1992; Wehling, 2022).

The advancing industrialisation and economic development of the region were linked to the development of an efficient transport system for the removal of manufactured goods and the transport of raw materials (Fuchs, 1992), technological developments (Fuchs, 1992), and the increasing demand for manufactured products. The economic boom and rapid growth in the mining industry could only be achieved with a large workforce in the relevant industries. Until the 1960s, there was a continuous population increase in the Ruhr region, interrupted only by the two world wars, from 859,000 in 1871 to 5.67 million in 1961 (Regionalverband Ruhr, 2016b), which was primarily due to waves of labour immigration (Keil & Wetterau, 2012). Hospers (2010) aptly summarises the economic significance of the Ruhr region during this period: "From the 1830s until the post-war period, the Ruhr played a crucial role in the economic development of Germany" (p. 248).

The economic decline of the mono-structural mining-based economy only began after a brief post-war boom during the reconstruction and reindustrialisation phase of war-torn Germany (Fuchs, 1992). The coal crisis that began in 1957/1958 was caused by declining demand (Fuchs, 1992; Wehling, 2022), the increasing importance of other energy sources, lower energy requirements due to technological progress (Fuchs, 1992; Keil & Wetterau, 2012) and cheaper mining abroad (Keil & Wetterau, 2012). According to Schumpeter's theory of long waves, it can be said that new leading technologies will replace existing ones in the next Kondratieff cycle (Schumpeter 1911, 1961 as cited in Bathelt & Glückler 2018). The closure of the first coal mines was followed by the crisis in the iron and steel industry in the 1970s, triggered by increasing competition on the world market (Fuchs, 1992; Keil & Wetterau, 2012; Wehling, 2022), the rise in oil prices (Keil & Wetterau, 2012) and lower demand due to substitution by other materials and material-saving manufacturing processes (Fuchs, 1992). The crisis in the coal and steel industry resulted in rationalisation measures, concentration of production sites (Fuchs, 1992), merging of steel companies into large trusts (Keil & Wetterau, 2012) a greater importance of steel processing (Fuchs, 1992), a large decline in the number of employees subject to social insurance contributions in the coal, iron, and steel industries (Fuchs, 1992; Hospers, 2010), and job losses in related industries. The end of mining in the Ruhr region finally came in 2018 with the closure of the last coal mine still in operation, Prosper Haniel in Bottrop (Franz, 2018).

As a result, the structurally monolithic Ruhr region had to contend with serious problems and the challenges that remain to this day. The difficult economic situation, combined with high job losses in mining and the coal and steel industry, led to a selective migration, in particular of the younger population, to other regions, accompanied by a significant population decline in many core cities and an ageing population (Butzin, 1987). Structural policy programs, the relocation of companies, particularly from the service sector, the reuse of brownfield sites and intelligent land management (cf. Butzin et al., 2006), the establishment of universities, such as the Ruhr University Bochum in 1962, colleges and other educational institutions to create a science and education landscape (cf. Kiese, 2019), the establishment of technology parks and start-up centers were intended to contribute to a reorientation and greater diversification of the economic structure, combat mass unemployment triggered by the crisis in the coal and steel industry, and at the same time qualify the population, strengthen the region's innovative capacity, and contribute to a change in image.

Today, the majority of the population works in the service sector. In 2015, when the data for our study was collected, the proportion of people employed in the tertiary sector accounted for 75.1% of all employees subject to social insurance contributions in the Ruhr region, rising to 77.7% in 2022. In 1976, this figure was just 41.6%, while the proportion of employees subject to social insurance contributions working in the secondary sector was 57.9% (Regionalverband Ruhr, 2022).

Nevertheless, these figures should not obscure the fact that the shift in favour of the tertiary sector is primarily due to massive job losses in the secondary sector, i.e., industry (Keil & Wetterau, 2012). Only a portion of these jobs could be replaced by new jobs in the service sector. Butzin (1987) aptly states, "None of the territorial units in the KVR [Kommunalverband Ruhr, renamed RVR Regionalverband Ruhrgebiet in 2004] has even come close to replacing the industrial and mining jobs lost in the service sector" [translated by the author] (p. 308). The necessary transformation of the economic structure has been partially successful, with new industries such as energy, the environment, chemicals, IT, mechanical engineering, electrical engineering, logistics, social services, other business-related services, and education establishing themselves. Bogumil & Heinze (2021) also emphasise the

importance of health economics, but the Ruhr region still cannot compete with other economically more successful regions in Germany. They also show that the intensity of start-ups in the Ruhr region is still relatively low and that the regional economic impact of universities and colleges could be greater. Kiese (2019) highlights the fundamental importance of the existing landscape of universities, colleges, and non-university research institutions, but points in particular to infrastructural deficits and, in a comparative analysis of knowledge economy indicators in four university cities in the Ruhr region compared to other cities in North Rhine-Westphalia, the Munich region, and the national average, highlights the Ruhr region's continuing lag in this area.

The tourism, leisure, and culture sector also makes an important contribution to diversifying today's economic structure in the process of structural change in the Ruhr region (see Keil & Wetterau, 2021) and to improving the region's soft location factors, which are particularly important for attracting and retaining highly qualified workers. This will be discussed in more detail in the following sections.

Tourism in the State of North Rhine-Westphalia and in the Ruhr area

The tourism and leisure industry is an important economic factor worldwide, including in Germany. It is one of the growth sectors and is a particularly significant employer. The economic importance of the tourism industry in Germany can be illustrated by its direct share of gross value added, which stood at 4.1% of domestic output in the year the data for this study was collected (2015). This share is lower than in some other sectors of the economy, such as health and social services, construction, and real estate and housing. If the indirect gross value added by supplier industries is also taken into account, the share rises to 7.1% and €191 billion in total tourism-related gross value added for Germany in 2015. In the following years, there was a decline, particularly due to the COVID-19 pandemic (Statistisches Bundesamt, TSA-EE, 2019). However, the employment effect of the tourism and leisure industry is particularly noteworthy. In 2015, for example, almost 2.8 million people were directly employed in tourism in Germany, i.e. "directly employed in the production of goods and services in demand for tourism" [translated by the author] (Statistisches Bundesamt, TSA-EE, 2019, p. 18), which corresponds to 6.4% of total employment (Statistisches Bundesamt, TSA-EE, 2019).

In a nationwide comparison, North Rhine-Westphalia had the highest number of arrivals in accommodation establishments in the reference year 2015, with around 21.7 million, and ranked third behind Bavaria and Baden-Württemberg in terms of the number of overnight stays. The average length of stay in 2015 was 2.2 days. However, if the population is also taken into account and tourism intensity (overnight stays per 1,000 inhabitants) is considered, North Rhine-Westphalia ranks last among all federal states as a tourist destination for 2015 (Statistisches Bundesamt, 2016). Overall, the development of the tourism industry in the period 2009-2016 can be assessed as positive with a significant increase of 9.4 million overnight stays during this period, achieving the highest relative growth of all federal states, as well as a considerable increase in arrivals from abroad (up 45.2% in North Rhine-Westphalia between 2009 and 2015). Looking at the different regions in North Rhine-Westphalia, it can be seen that the growth in overnight stays between 2009 and 2016 was greatest in urban areas. In addition to the Cologne and Rhein-Erft district and Düsseldorf and Mettmann district, this also includes the Ruhr area with growth of 34.1% (Tourismus NRW e.V., 2017). Looking more closely at the group of vacation travellers, it can be highlighted that in terms of reasons for travel, attending an event or a performance ranks first with 27%, followed by city breaks with 17% and sports and activity vacations with around 11% (Tourismus NRW e.V., 2017).

The Ruhr Metropolis recorded 3.8 million tourist arrivals in 2015, of which around 2.7 million were in the independent cities (with Dortmund in first place, followed by Essen, Bochum, and Oberhausen) and slightly more than 1.1 million in the independent cities (with the Wesel district in first place). The number of overnight stays in the reference year 2015 was 7.4 million, with foreign guests accounting for 16.6% of all overnight stays. The average length of stay was 2.0 days, which was lower than the average length of stay for guests in the entire state of North Rhine-Westphalia. The travel intensity (overnight stays per 1,000 inhabitants) of 1,457 for the Ruhr metropolitan area was significantly lower than the travel intensity of 2,725 for North Rhine-Westphalia as a whole (Regionalverband Ruhr, 2016c). Figure 1 shows the development of the number of arrivals and overnight stays in the period 1990-2014.

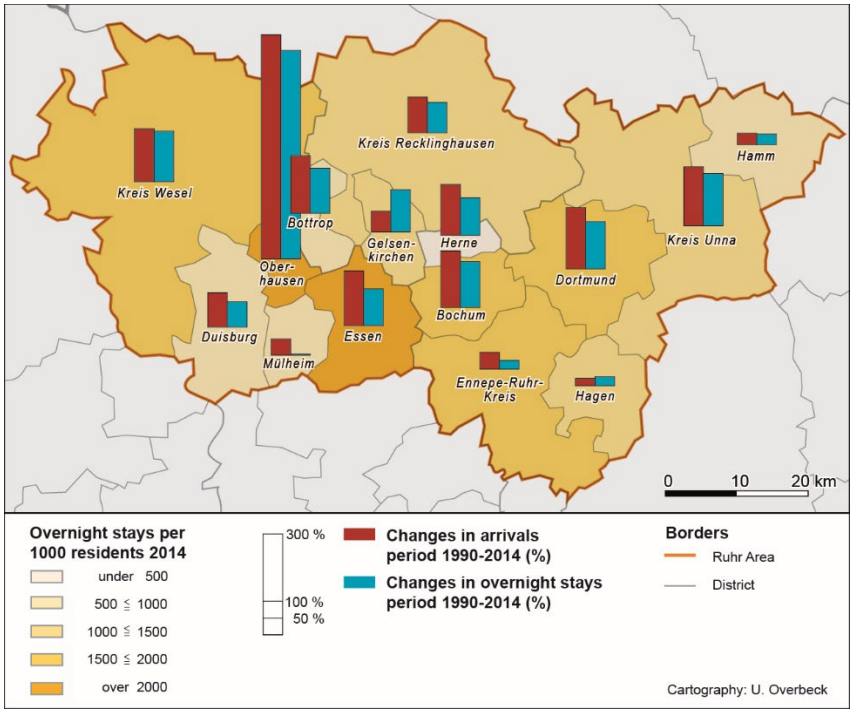

Figure 1: Changes in arrivals and overnight stays in the Ruhr area (1990-2014)
Source: map created by Ulrike Overbeck, University of Duisburg-Essen, Institute of Geography, cartography section

Figure 2 provides an impression of the spatial differences in terms of the number of arrivals and the average length of stay for 2014. As Copic et al. (2014) also notes, the significant increase in arrivals and overnight stays here from 1990 onwards, i.e. one year after the start of the IBA Emscher Park (see Chapter 1.1), shows the positive influence of measures to develop an (industrial) tourism infrastructure and market it for the districts and, in particular, for some large cities such as Oberhausen, Bochum, Essen, and Bottrop.

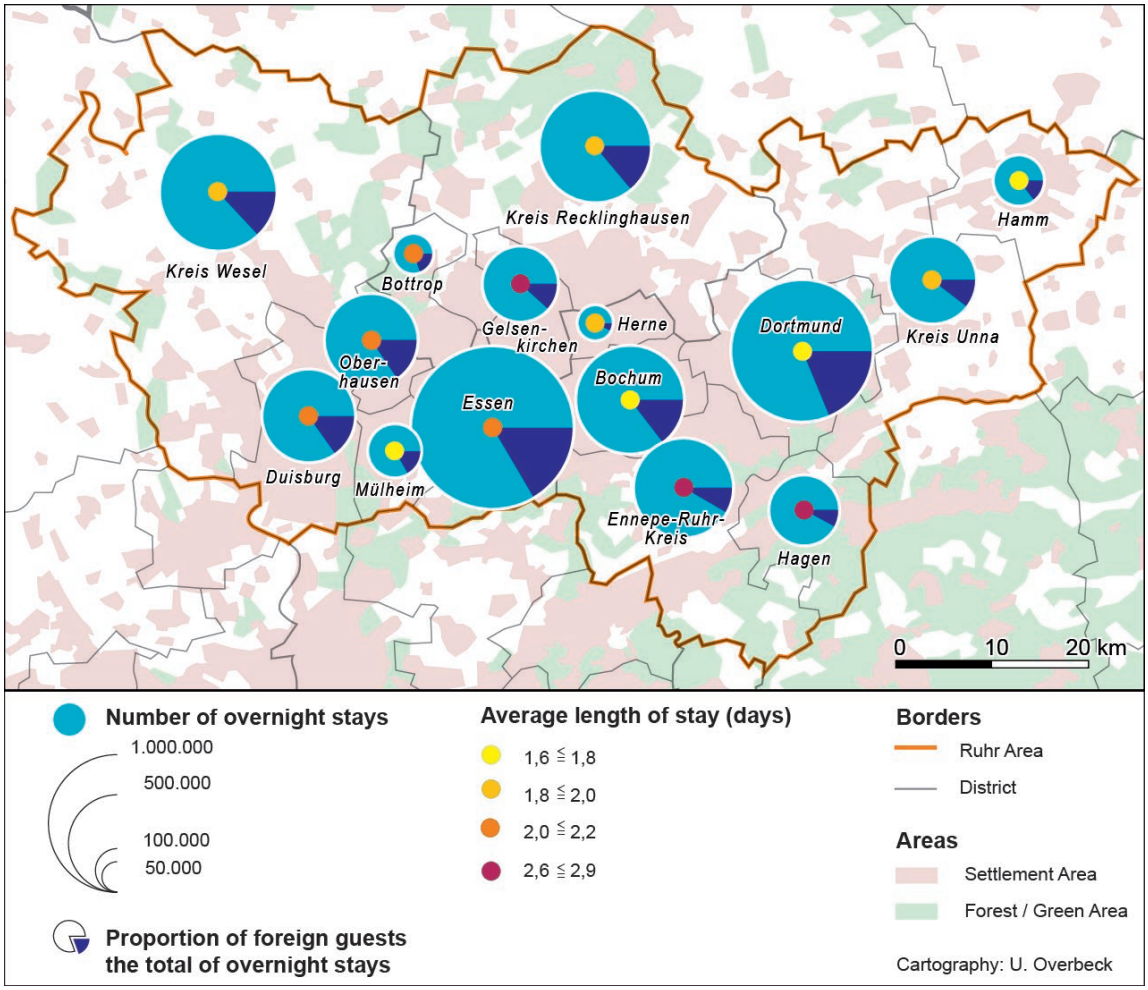

Figure 2: Guest overnight stays and average length of stay in the Ruhr area (2014)
Source: map created by Ulrike Overbeck, University of Duisburg-Essen, Institute of Geography, cartography section

As described above, tourism has developed into one of the most important economic sectors in the Ruhr region, and the region has been able to establish itself on the market with its tourist products. This is despite the rather difficult starting position of a region shaped by old industry, with an infrastructure geared toward the secondary sector, which at first glance was not very attractive to tourists, and with a rather poor image (cf. Ahlers, 2000; Gronau & Kagermeier, 2007; Köddermann, 2000) and a cumbersome decentralised administrative structure (Köddermann, 2000).

Keil & Wetterau (2012) emphasise that the development of the Ruhr region into a tourist destination has its origins in the 'leisure & culture' competence field established by Project Ruhr Gmbh in the 1990s. However, as early as the 1970s, the first bus trips to scenic areas were organised, and work began on converting unused land for recreational use (see Naßmacher, 2014). The first district parks were created in the Ruhr region during this period (Juchelka, 2011).

The Emscher Park International Building Exhibition in 1989–1999 provided further important impetus for tourism development in the Ruhr region. This will be discussed in more detail in connection with the Route of Industrial Culture (see 1.1) and RUHR.2010 – the Ruhr region as European Capital of Culture. In 2010, the year in which the city was designated European Capital of Culture, a colourful program of high-profile events was organised to draw attention to the Ruhr region and its cultural features and attractions (Hospers, 2010). At the same time, according to Neumann et al. (2012), the Capital of Culture year led to the need to provide "the tourism industry approaches and activities developed up to that point with a coherent framework in terms of content and infrastructure that had to go far beyond the focus on industrial heritage sites that had been the main focus up to that point" [translated by the author] (p. 39).

Another important prerequisite on the way to becoming a tourist destination was the increasing image change that the Ruhr region underwent during its ongoing structural transformation, as well as its strengthened self-confidence (Gronau & Kagermeier, 2007).

In 1997, the 'Master Plan for Travel to the Region' was launched with the aim of "promoting tourism in the Ruhr region by means of a coordinated regional strategy based on a clearly identifiable profile and range of products" [translated by the author] (Köddermann, 2000, p. 74). The aim was therefore to identify the unique selling point of the Ruhr Metropolis, develop it by creating suitable offers, market it externally in order to position it successfully on the tourism market, and differentiate it from its competitors. According to Köddermann (2000), the main aim was to capitalise on the growing "trend toward short breaks" in Germany [defined by Köddermann, 2000 (p. 74) as "trips lasting 2-4 days" [translated by the author] and to base tourism in the Ruhr region on three pillars in the future: the region's industrial and cultural heritage, entertainment, and extraordinary cultural events (Köddermann, 2000).

Neumann et al. (2012) also mention business and conference tourism, as well as shopping tourism in the major cities, as additional pillars of tourism in the Ruhr region. Of particular significance here is CentrO, an urban entertainment mall with an original sales area of 70,000 km^2, which has since been expanded to around 120,000 km^2. It was developed on the site of a former smelting and rolling mill and, together with other leisure facilities such as the Gasometer and the Sea Life aquarium in the Neue Mitte Oberhausen, attracts many visitors (mfi Immobilien Marketing Gmbh, n.d.; Oberhausen Tourismus, n.d.; Stadt Oberhausen, n.d.; for further information on the planning processes of the redevelopment project, see Basten, 1997). However, shopping tourism now plays a much less important role, given the decline in floor space in department stores and clothing stores and increasing vacancy rates in city centres in the Ruhr region (see Niederrheinische Industrie- und Handelskammer, 2024), even though CentrO in Oberhausen's new town centre continues to be a major visitor attraction.

Since the 1990s, the Ruhr region has generally attempted to follow the fundamental trends in tourism and to use them to develop its own region-specific profile. In summary, the following general trends in the tourism and leisure industry can be identified: a shift toward more frequent but shorter vacation trips spread out over the year (see Gronau & Kagermeier, 2007; Köddermann, 2000), a trend toward large, multifunctional leisure and entertainment facilities such as urban entertainment centers (see Gronau & Kagermeier, 2007), the frequently cited increasing importance of leisure time and its organisation in parts of affluent society compared to previous generations, although a more nuanced view is warranted here, as Clark (2007) points out, and especially in times of rapid economic change, changing family structures, and increased work pressure, a reverse trend is now also evident in some cases. In addition, the increased interest in cultural activities among broader sections of the population (Opaschowski, 1997 as cited in Schmude, 2003) should also be mentioned in this context.

The typical visitor to the Ruhr region takes a city break, is interested in (industrial) culture, and attends music, sports, and cultural events or visits amusement parks (Ruhr Tourismus GmbH, 2017). The cycling tourism segment is becoming increasingly important, particularly in connection with visits to industrial cultural attractions (Ruhr Tourismus GmbH, 2017) and recreational boating (Steiner, 2003). Classic recreational vacations, on the other hand, which are commonly associated with travel, are of only minor importance in the Ruhr region (Ruhr Tourismus GmbH, 2017). The most important unique selling point of the Ruhr Metropolis is and remains its industrial cultural heritage and its exploitation for cultural tourism (Ruhr Tourismus GmbH, 2017).

Ruhr Tourismus GmbH which was founded in 1998 as a "regional tourism management and innovation agency" [translated by the author] (Steiner, 2002, p. 215-216) plays today an important role in marketing and promoting tourist attractions, networking stakeholders along the tourist service chain, and developing and expanding the Ruhr region as a tourist destination (see Gronau & Kagermeier, 2007). An important instrument on the way to becoming a tourist destination was and is the industrial heritage trail in the Ruhr Metropolis (Gronau & Kagermeier, 2007), which will be presented in more detail in the following chapter. This ultimately serves as an important overarching marketing tool to establish the Ruhr region, the tourist destination Ruhr region, as a brand among the local population (internally) and existing and future target groups (externally) [for the concept of destination branding,

see Almeyda-Ibáñez & George, 2017; Kasapi & Cela, 2017; Pereira et al., 2012]. Other meaningful instruments geared towards marketing industrial cultural attractions of interest to industrial tourists and towards other leisure facilities in the Ruhr region – both internally and externally – include the "Extraschicht – die Nacht der Industriekultur" ["Extra Schicht – Night of Industrial Culture", translated by the author]] event, which has been held since 2001, the "Route der Industriekultur per Rad" ["Route of Industrial Culture by Bike", translated by the author] adventure guide, and the Ruhr POTT Card (Steiner, 2003) [now: RUHR.TOPCARD (RTC)], which offers free or reduced admission to many attractions (Ruhr Tourismus GmbH, n.d.e).

According to Ruhr Tourismus GmbH (2017), the target groups for tourism in the Ruhr region are well-educated best agers aged 40–74, young people under 35, singles and couples without children, and new families. An important foreign market are the Netherlands in particular, followed by Germany's other neighbouring countries, Austria, Switzerland, France, and Belgium, as well as the United Kingdom (Ruhr Tourismus GmbH, 2017).

The expansion of the tourism and leisure industry in the Ruhr region contributes to structural change in the region primarily as an economic and employment factor (Steiner, 2003), even if the jobs lost as a result of the coal and steel crisis cannot be replaced to the same extent by an increase in jobs in the service sector. The economic effects of industrial tourism primarily result from admission fees for visiting industrial tourist attractions, supplemented by revenue from visitors' spending on food and beverages, accommodation, and travel (Lane et al., 2013). In addition, the expansion of infrastructure in the tourism and leisure industry is helping to improve the overall quality of life in the Ruhr metropolitan area (Naßmacher, 2014). In terms of the general increase in the importance of soft location factors in regional competition, the improvement in the quality of life and leisure time, as well as the positive image change that the region has undergone, also have a positive impact on regional competitiveness (see, for example, Haas & Neumair, 2015, chapter 2).

Purpose of the Study

The main purpose of this quantitative descriptive research study was to identify the main visitor characteristics, activities and satisfaction with the touristic offer at two important industrial tourism sites in the Ruhr area, the German Mining Museum in Bochum and the Duisburg-Nord Landscape Park. In addition, our goal was to determine the awareness of the Route of Industrial Culture as a touristic theme route. Finally, based on the results of our empirical data collection, we would like to make recommendations for action for the tourism stakeholders in the region for the design of a future-oriented destination and visitor management. The study also attempts to expand and fundamentally deepen the limited existing empirical knowledge about the market segment of industrial tourism as a specific form or subtype of cultural (Givental et al., 2019 as cited in Montenegro et al., 2022; Soyez, 1993; Steinecke, 2006, 2007) and educational tourism (cf. Tandzegolskiene, 2021) or at least often associated with it, with a regional focus on the Ruhr area in Germany, where as emphasised by Berger et al. (2018) "industrial heritage has become the main vehicle of the region's identity (…)" (p. 76).

We proposed the following main research questions:

- *Research Question 1:* What are the characteristics of the visitors to industrial tourism attractions?
- *Research Question 2:* Which offers are taken up by the visitors to the industrial tourist attractions?
- *Research Question 3:* How satisfied are the visitors with the visit to the industrial tourist attraction?
- *Research Question 4:* How well known is the Route of Industrial Culture as an industrial heritage trail and tourist attraction among the visitors?

In the context of the presentation of the offers perceived by the surveyed visitors of the two industrial tourism attractions we examined, we also addressed the significance of the visit as an educational experience in the second part of our research study. Furthermore, we asked ourselves what significance individual aspects of the visit to the industrial heritage attraction have for the overall visitor satisfaction.

We also examined whether there is a relationship between knowledge of the industrial heritage trail and previous visits to other industrial heritage sites and facilities.

1.1.The Route of Industrial Culture as a Tourist Theme Route

The networking of industrial tourism attractions and facilities into themed routes creates a special offering for visitors interested in a region's industrial heritage. In terms of marketing the entire range of industrial tourism offerings in a region, they offer the advantage that individual industrial relics or facilities relevant to industrial tourism can also be integrated into the network of attractions formed by the industrial tourism route. On their own, these may not have enough appeal to survive as individual attractions on the travel market and be marketable (Steinecke, 2006, 2007).

The Route of Industrial Culture in the Ruhr region is one such themed tourist route. It was developed to market a wide variety of attractions under a common umbrella brand, also in line with and as part of an overarching destination management strategy (Gronau & Kagermeier, 2007) and to position the Ruhr region in the competition between city tourist destinations (Neumann et al., 2012). The industrial heritage trail was created as part of the Emscher Park International Building Exhibition (IBA) (cf. Neumann et al. 2012; Ahlers, 2000), a programme launched in 1989 by the state government of North Rhine-Westphalia and the cities of the Emscher zone (Faust, 1999) and designed to run for a period of 10 years (Ahlers, 2000) with the aim of "ecological and socio-economic reconstruction of the Emscher area in the centre of the Ruhr" (Hospers, 2010, p. 249), which was of great importance for the preservation of the industrial cultural heritage of the Ruhr area and its tourist exploitation, as will be briefly outlined below. The Emscher zone covers an area of 784 km^2 (Faust, 1999). Planner Professor Paul Ganser was commissioned to implement the IBA (see, among others, Hospers, 2010; Neill, 1992).

Seven key themes were pursued during the IBA Emscher Park. These included the creation of the Emscher Landscape Park and the ecological restructuring of the Emscher system, the design of canals as recreational areas, the guiding principle of 'working in the park', which focused in particular on converting disused industrial sites into locations for commercial, technology, and science parks, new housing construction and modernisation, and the creation of new social and cultural offerings (Schnitzmeier, 1991). Added to this is the key theme of 'new uses for old industrial buildings' (Seltmann, 2007) which was based on the premise that the industrial facilities and buildings no longer needed in the Ruhr region due to the decline of the coal and steel industry, industrial relics, have a special value as part of the history of the Ruhr region (Schnitzmeier, 1991; Seltmann, 2007) and should be made accessible to interested visitors (Schnitzmeier, 1991). On the one hand, because they contribute to regional identity (Seltmann, 2007) and the region's self-image/self-awareness (Berger et al., 2018; Hospers, 2010), and on the other hand, because they open up a wide range of possibilities for new and subsequent use (Seltmann, 2007). The creation of the Duisburg-Nord Landscape Park on the site of a disused ironworks was part of the aforementioned Emscher Park flagship project, which had the overarching goal of connecting the forests, green spaces, and open spaces in the Emscher region of the Ruhr area (Schnitzmeier, 1991). It is an example of landscape reconstruction on a disused brownfield site (Forßmann, 1991). Other examples that fall under this flagship project include the Mechtenberg Landscape Park, the Bladenhorst Landscape Park, and the Nordstern Park in Gelsenkirchen, to name but a few (Faust, 1999).

As explained above, the industrial heritage trail began at the Emscher Park International Building Exhibition, which "changed the view of industrial history and the extensive industrial landscape" [translated by the author] (Steinecke, 2022, p. 84) by "not only preserving striking historical buildings and relics, but also initiating new artistically designed landmarks that were built on former spoil heaps and slag heaps" [translated by the author] (Steinecke, 2022, p. 84). In doing so, it also laid the foundations for the development of a tourism and leisure industry in the Ruhr region based on the existing and valued industrial cultural heritage (Trettin et al., 2010).

The industrial heritage trail in the Ruhr region consists of a main route 400 km long, which passes through 15 cities (cf. Lange, 2004 as cited in Chmielewska, 2015). At the time of data collection in 2015, the Route of Industrial Culture in the Ruhr region comprised 25 anchor points, which are shown in Figure 3. These are "historic sites of particular historical significance" [translated by the author]

(Ruhr Tourismus GmbH, n.d.c) for the Ruhr region, including the two sites under investigation, the German Mining Museum in Bochum and the Duisburg-Nord Landscape Park. Other anchor points worth mentioning are the Zollverein Colliery in Essen (UNESCO World Heritage site), the Villa Hügel, also in Essen, the Centennial Hall in Bochum, the Railway Museum in Bochum, the LWL Museum Zollern Colliery, the DASA World of Work Exhibition in Dortmund, the Hansa Coking Plant in Dortmund, the Recklinghausen Transformer Station, the Ewald Colliery in Herten, the LWL Open-Air Museum in Hagen, the Hohenhof in Hagen with museum, Duisburg's Inner Harbour, the Museum of German Inland Navigation in Duisburg, the LVR Industrial Museum in Oberhausen, the Gasometer Oberhausen, the Chemical Park Marl, the Old Ship Lift Henrichenburg in Waltrop, the Maximilians Park Hamm, the Linden Brewery Unna, the Nachtigall Colliery in Witten, the LWL Museum Henrichshütte in Hattingen, the Aquarius Water Museum in Mühlheim, the Nordsternpark in Gelsenkirchen (cf. Ruhr Tourismus GmbH, n.d.d).

According to visitor numbers, the main tourist attractions include the UNESCO World Heritage Site Zollverein Coal Mine Industrial Complex in Essen, with around 1.5 million visitors in the reference year 2015. Looking at the development of visitor numbers for the anchor points of the industrial heritage trail as a whole, there was an increase from 2.38 million to 5.75 million visitors between 1998 and 2015, corresponding to an increase of 58% (Regionalverband Ruhr, 2016a). Today, the route has grown to 27 anchor points and also includes a variety of different themed routes, viewpoints, and significant workers' settlements and mining colonies (Ruhr Tourismus GmbH, n.d.c). Neumann et al. (2012) once again emphasise the importance of the Route of Industrial Culture for the tourist development and marketing of the entire region, the Ruhr Metropolis: "Industrial heritage has been identified as the most important unique selling point in the competition between Germany's tourist destinations. The conceptual framework provided by the industrial heritage trail allows this locational advantage to be exploited effectively" [translated by the author] (p. 87). The Route of Industrial Culture, a product of the Regional Association of the Ruhr (RVR) marketed by Rour Tourismus GmbH, enables joint regional, national, and international marketing and promotion of the Ruhr region's industrial heritage, offers visitors easy orientation and a wide range of interconnected and easily accessible attractions and leisure activities, and is thus an important instrument for raising the profile of the Ruhr region in the tourist travel market. Copic et al. (2014) add to the significance of the transformation process in the Ruhr region through the valorisation and preservation of industrial cultural heritage, initiated in particular by the International Building Exhibition Emscher Park, that this process also had positive repercussions at the European level in the form of the project European Route of Industrial Heritage.

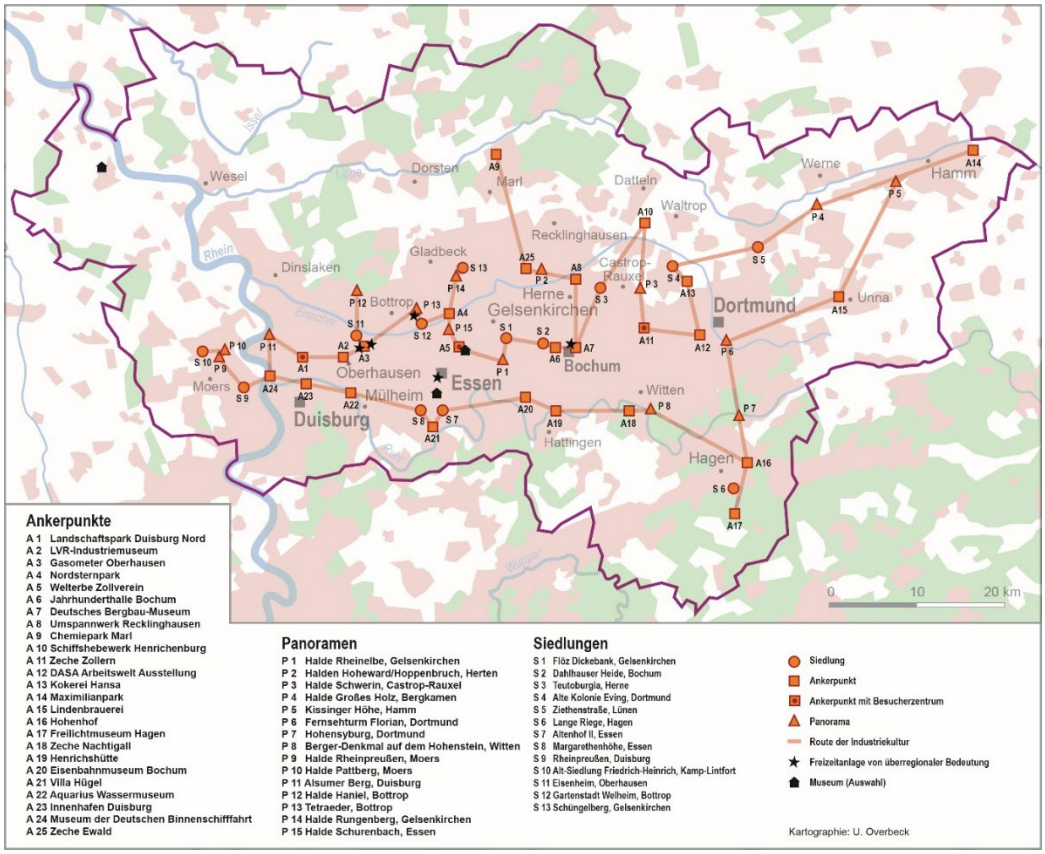

Figure 3: Route of Industrial Culture, a touristic theme route in the Ruhr region connecting sites of industrial heritage (as of 2015)

Source: map created by Ulrike Overbeck, University of Duisburg-Essen, Institute of Geography, cartography section. For clarification: Ankerpunkte = anchor points, Panoramen = panoramas, Siedlungen = settlements

The transformation process in the Ruhr region through the valorisation and preservation of industrial cultural heritage, initiated in particular by the IBA Emscher Park, has also had positive repercussions at the European level. The European Route of Industrial Heritage (ERIH) represents a further development of the industrial heritage trail in the Ruhr region. (Copic et al. 2014; Ebert, 2000, see also ERIH – European Route of Industrial Heritage e.V., n.d.).

1.2.The Study Sites: The German Mining Museum in Bochum and the Duisburg-Nord Landscape Park

The study was conducted at two well-known and popular tourist attractions on the industrial heritage trail: the German Mining Museum in Bochum and the Duisburg-Nord Landscape Park in Duisburg. These sites will be briefly described below, including their history.

The German Mining Museum in Bochum was opened in 1930 in the city's former cattle slaughterhouse and is now the largest museum dedicated to the history of mining worldwide, and also a Leibniz Research Centre for Georesources. Today, it covers an area of around 8,000 square meters and includes exhibition spaces on the history of mining various raw materials such as coal, salt, and even gold and silver, as well as a 2.5-kilometre-long exhibition mine (Deutsches Bergbau-Museum Bochum, n.d.a). The pithead frame on the roof of the museum (see Figure 4) has been an architectural landmark since 1973. It comes from a disused mine in Dortmund (Berger et al., 2018). It currently offers around 170,000 visitors per year four different tours as part of a permanent exhibition (Deutsches Bergbau-Museum Bochum, n.d. b), guided tours above and below ground on various topics and designed for different target groups, a museum shop, and the 'Kumpels' restaurant serving regional cuisine (Deutsches Bergbau-Museum Bochum, n.d.c). In addition, lecture series and workshops are offered (Deutsches Bergbau-Museum Bochum, 2018). In 2015, the number of visitors was 387,000 (Regionalverband Ruhr, 2016a). As no annual report is available for this year, according to the German

Mining Museum, the 2016 annual report is used to provide more detailed information on visitor numbers. In 2016, 338,000 visitors came to the German Mining Museum in Bochum, 90% of whom were from Germany and 10% were international guests. The proportion of individual visitors was 76.6%, while groups accounted for 23.4% (Deutsches Bergbau-Museum Bochum, 2018). The majority of the museum and research centre's income comes from public subsidies (see Steinecke, 2022).

Figure 4: German Mining Museum Bochum
Source: Image by Herbert Aust, provided via Pixabay

The Duisburg-Nord Landscape Park was created on the site of the Duisburg-Meiderich ironworks, which was closed down in 1985. The ironworks were founded in 1902 by August Thyssen and went into operation in 1903 (Ebert, 1991 as cited in Hasselberg, 2011). Where once the blast furnaces produced pig iron for the steel industry, a 180-hectare landscape park has been in operation since 1994, offering various sports and leisure facilities for the local population and visitors from all over the world (Duisburg Kontor Hallenmanagement GmbH, n.d.). The redevelopment of the site was one of the major projects of the Emscher Park International Building Exhibition, which, in addition to promoting the economically and ecologically devastated Emscher region in general, pursued the goal of "rebuilding the landscape, not only by preserving open spaces and improving their ecology, but also by reclaiming additional green spaces" [translated by the author] (Hasselberg, 2011, p. 73). The ideas competition for the conversion of the former steelworks site was won by landscape architect Peter Latz (Escudero, 2019). His basic idea for the design of the site was "to integrate, shape, develop, and interlink the existing patterns that were formed by its previous industrial use, and to find a new interpretation with a new syntax" (Latz & Partner, n.d.). The buildings were largely left in their original condition and, as Gronau & Kagemeier (2007) point out, serve as a backdrop for the park's current recreational use. In addition to using the extensive grounds of the landscape park for walks or bike tours (see Figure 5), visitors can enjoy a wide range of activities for climbing enthusiasts, a diving center in a converted gasometer, a bike rental station, restaurants, and playgrounds for children (Duisburg Kontor Hallenmanagement GmbH, n.d.). Visitors also have several opportunities to learn about the history of the landscape park and the production of pig iron. A varied program of different guided tours appeals to different target groups, the visitor centre offers information material, former information boards and now a digital information system gives opportunities for independent exploration, and the preserved blast furnace 8, which is accessible to visitors, provides an overview of the entire site. Events are held throughout the year in the halls and on the outdoor grounds. The impressive backdrop of the landscape park has been illuminated in the evenings since 1996 (see Figure 6) (Duisburg Kontor

Hallenmanagement GmbH, n.d.). The special appeal of the Duisburg-Nord Landscape Park lies in its combination of (industrial) nature and history. Hemmings et al. (2010) summarise this as follows: "Industrial remnants invite sentimental recollection of a time irretrievably past, while the park as a whole highlights nature's – and history's – redemptive features" (p. 246). Today, the Duisburg-Nord Landscape Park is an industrial wasteland with a high degree of urban biodiversity and thus a high ecological value (Regionalverband Ruhr, 2020).

The number of visitors to the Duisburg-Nord Landscape Park in 2016 was 945,949 (Regionalverband Ruhr, 2016a).

Figure 5: Landscape Park Duisburg-Nord – Overview of the extensive grounds
Source: Image by Andreas Poznanski, provided via Pixabay

Figure 6: Landscape Park Duisburg-Nord – Illumination
Source: Image by an unknown photographer, provided via Pixabay

2. Method

We studied the presented research questions following a quantitative approach, using a quantitative descriptive survey design. The data was collected by a self-developed bilingual partially standardised questionnaire, at one point in time (cross-sectional study) and analysed using SPSS.

2.1 Research Design, Setting and Population

We decided to conduct the data collection at two selected case study sites, the German Mining Museum in Bochum and the Duisburg-Nord Landscape Park. The following considerations played a role in the selection of the case study locations. Firstly, both case study sides should be among the anchor points of the Route of Industrial Culture, a themed touristic route that plays an important role in the marketing, touristic development and linking of industrial-cultural sites in the Ruhr area, developed by the IBA Emscher Park and the Regional Association Ruhr (Gronau & Kagermeier, 2007; Ministerium für Wirtschaft und Arbeit des Landes Sachsen-Anhalt, 2003; Ruhr Tourismus GmbH, n.d.a). Secondly, it should be possible to assume high visitor numbers at both locations. Both selected case study sides fulfil the criteria specified. In addition, however, these should also symbolise different types of industrial tourism attractions so that a comparison could later be made regarding the visitor structure and the catchment area of the attraction. According to the Regional Association Ruhr (Regionalverband Ruhr, RVR), the number of visitors to the German Mining Museum in Bochum was 387,000 in the year of the research study we conducted, while the Duisburg-Nord Landscape Park had almost 946,000 visitors. Both industrial tourism attractions are thus among the anchor points of the Route of Industrial Culture with high visitor numbers. Even higher visitor numbers were recorded in the reference year 2015 by the World Heritage Site Zollverein Colliery in Essen, with around 1,500,000 visitors, and the Maximilianspark in Hamm, with around 420,000 visitors (Regionalverband Ruhr, 2016a).

2.2 Survey

The self-developed bilingual questionnaires for the two locations were basically structured in the same way and only differed in a few questions. Firstly, an initial version of a basic questionnaire was developed. This was then adapted and expanded regarding the local reference, the different offers for visitors at the two locations and the different histories of the tourist attractions. The questionnaire 'German Mining Museum Bochum' consisted of 36 items; the questionnaire 'Duisburg-Nord Landscape Park' consisted of 37 items. In addition to the German-language version, a translation into English was also provided. The two questionnaires for the two locations were each divided into different sections relating to the characteristics of the visitors, specific features of the visit, visitor motivation, visitor activities, satisfaction with the visit to the tourist attraction, awareness of the Route of Industrial Culture as a themed route, the question about visiting other industrial tourism attractions, and the learning experience gained during the visit. The used satisfaction scale consisted of 10 items to record satisfaction with individual aspects such as the presentation of exhibits (German Mining Museum Bochum) or hiking and biking trails (Duisburg-Nord Landscape Park) and used a six-point scale (verbalised scale points) with 1 being 'highly satisfied' and 6 being 'very dissatisfied'. The overall satisfaction with the visit to the tourist attraction was also surveyed employing a five-point scale (verbalised scale points) from 1 for 'very good' to 5 'very poor'. We asked no questions about the importance of certain offers of the touristic attractions or specific aspects of the tourist offer.

2.3 Data Collection

The data collection took place simultaneously at both industrial tourism sites, the Duisburg-Nord Landscape Park and the German Mining Museum in Bochum on a weekday in the summer of 2015 (Wednesday, August 12, 2015). A group of mostly bachelor and also some master students of various degree programmes (geography, geography and urban sustainability, cultural studies, business administration, urban systems) from the University of Duisburg-Essen, Essen, Germany and the United Arab Emirates University, Al Ain, United Arab Emirates was involved in the data collection as part of an internationally oriented summer school programme financed by the German Academic Exchange Service. In addition, several professors from the United Arab Emirates, one professor and his wife from the American University of Ras Al Khaimah (AURAK) as well as research assistants and student assistants from the German university. All those involved in the data collection received a thorough introduction to the history of the two case study locations, a short general introduction to survey research and precise instructions on how to proceed with the survey. Furthermore, all of them had a corresponding background knowledge of the history of the Ruhr area, the structural change process and the tertiarisation of the economy as a result of participating in the summer school programme and the

intensive study of literature associated with it. We divided the student group into tandems so that we could ensure that each tandem could manage to conduct the survey in both languages German and English as needed. Each location was supervised by a person responsible for the data collection, so that a contact person was available to answer any questions or clarify any problems that arose. In addition to the questionnaire, the interviewers also had a laminated list of the anchor points of the industrial heritage trail in A4 format to help the respondents answer the questions about the Route of Industrial Culture. We used a nonprobability sampling technique to recruit the visitors for conducting the survey. The interviewers were encouraged to spread out widely throughout the German Mining Museum and the grounds of the Duisburg-Nord Landscape Park and then approach every third visitor if possible and persuade them to take part in the survey. Participation in the survey was voluntary. The respondents were informed in advance about the handling of the information they provided and about the further processing and backup of the data. We guaranteed the survey respondents' anonymity. In accordance with the provisions of the guideline for interviewing minors, the interviewers were instructed, which was particularly relevant in the Duisburg-Nord Landscape Park, not to address any children under the age of 14 who were not accompanied by a parent or legal guardian and to focus the survey on the age group of young people and adults aged 18 and over. For these reasons, the percentage of under-18s in the sample is very low. In the cases at hand, it was possible to assume that the young person had the capacity to understand or that the consent of the accompanying adult was obtained verbally. When the oral survey was conducted (the questions were read out by the interviewer), the respondent was usually given a questionnaire to look at the same time if they wished. In addition, the laminated list with the anchor points of the Route of Industrial Culture was handed out to the respondent to make it easier to conduct the survey.

2.4 Data Analysis

We calculated descriptive statistical parameters (frequencies, mean, modus, standard deviation) of the quantitative data, including demographical information of the respondents, to answer our research questions and to summarise the data. Of particular interest to us was the comparison between the two industrial tourist attractions. For individual questions, a distinction was made between visitor groups based on the distance travelled between their place of residence and the tourist attraction. The statistical software SPSS was used to analyse the data. A total of 211 visitors took part in the study, which corresponds to the number of questionnaires included in the statistical analyses. Of these, 98 were from the German Mining Museum in Bochum and 113 from the Duisburg-Nord Landscape Park. An item response rate of 90-100 % was considered as good, 80-90 % as acceptable. A rate of below 80% was considered rather problematic for drawing reliable conclusions. In addition, the Pearson's chi-squared test (chosen significance level of 0.05) was used to determine whether certain categorical variables are related or independent of each other. In addition, a correlation analysis (chosen significance level of 0.01) was carried out to determine the implicit importance of the characteristics surveyed in addition to the individual satisfaction with certain offers and aspects of the touristic offer at the two study locations and the overall satisfaction with the visit, which was directly queried in the questionnaire.

3. Results

This section outlines the main findings of the research study. The presentation of the results of the statistical analyses follows the sequence of the research questions listed above. Frequencies stated as percentages have been rounded to one decimal place for the tabular presentation. The number of missing values for the individual variables was not additionally specified in order to make the table clearer for the reader. We have capitalised the proper names of well-known industrial tourist attractions throughout the text.

3.1 Characteristics of the Visitors

The proportion of men and women among the respondents in the study was almost equal, with a slight majority of men (54.5 %). The gender distribution of respondents was only somewhat different at the two study sites. At the German Mining Museum, this was 53.1% men to 46.9% women; at the Duisburg-

Nord Landscape Park, it was 55.8% men to 44.2% women. This corresponds to the results of other empirical studies (Voigt, 2002 as cited in Steinecke, 2007; Wolf, 2005; cf. also Castillo et al., 2010) which also show a dominance of male visitors, which Steinecke (2007) attributes to the greater affinity for technology among men.

In terms of age, we found that the vast majority of respondents could be assigned to the 20-<40 age group. Overall, however, the percentage allocation to the age groups of 20-<40 and 40-<60 years old is relatively balanced, with a decline in the age group of 60-<80 year olds. Hücherig (1999) summarises according to the findings to date, that young adults aged between 20 and 29 make up a larger share of cultural tourists, but that, in contrast to this, a dominance of this age group cannot be determined for industrial tourism, which is confirmed by our study, but that the share of the individual age groups is relatively equal.

Most visitors surveyed are in full-time employment. For both locations, this amounts to 39.4 % with the proportion being higher for the German Mining Museum (43.5 %) than for Duisburg-Nord Landscape Park. This is followed by the group of people without employment, which also includes pupils, students, those on early retirement or those in retirement with no further income. The percentage share here is greater for the Duisburg-Nord Landscape Park location than for the German Mining Museum in Bochum.

The educational level of the visitors to both locations is comparatively high. 28.0 % of those over 25 years of age who were surveyed had a university degree and 7.0 % had a college degree, a degree from a university of applied science. A comparison of the two industrial tourism sites showed that the German Mining Museum in particular attracts visitors with a high level of education (37.0 % with a university degree, 5.5 % with a college degree in the age group of > 25 years old, compared to 20.2 % and 8.3 % at the Landscape Park Duisburg-Nord).

Regarding the catchment area of the decent industrial tourism sites, it can be said that just over half of the visitors surveyed at the two sites came from outside the Ruhr area. Overall, the share is 54.3 %. Here, too, there are clear differences between the two locations. The German Mining Museum in Bochum had a larger catchment area; 66.3 % of the visitors we surveyed came from outside the Ruhr area. At the Landscape Park Duisburg-Nord, the figure was 43.8 %. Please refer to Table 1 for more details on visitor characteristics.

Table 1: Visitor characteristics

Variable	**N**	**Frequency (v)**	**Variable**	**N**	**Frequency (v)**
GENDER			AGE		
male	114	54.5 %	under 20	12	5.8 %
female	95	45.5 %	20 to < 40	73	35.1 %
			40 to < 60	70	33.7 %
			60 to < 80	42	20.2 %
			80 to < 100	11	5.3 %
EMPLOYMENT			NATIONALITY		
full-time employment	80	39.4 %	german	194	91.9 %
part-time employment	24	11.8 %	other nationality	17	8.1 %
not employed *	75	36. 9 %	MIGRANT BACKGROUND		
slightly busy / 450 € Job / "mini-job"	10	4.9 %	yes	14	7.5 %
in vocational training	8	3.9 %	no	173	92.5 %
partial retirement	2	1.0 %			
maternity leave, parental leave or other leave of absence	4	2.0 %			

Table 1: Continuation – Visitor characteristics

Variable	N	Frequency (v)	Variable	N	Frequency (v)
PLACE OF RESIDENCE			HOUSEHOLD		
place of the tourist attraction (B/D)	37	17.6 %	one-person household	25	11.8 %
another city in the Ruhr area	59	28.1 %	two-person household	98	46.4 %
another city in NRW	34	16,2 %	three-person household	27	12.8 %
another city outside NRW	66	31.4 %	four-person household	42	19.9 %
another city outside Germany	14	6.7 %	household with 5 persons or more	19	9.0 %
HIGHEST EDUCATIONAL QUALIFICATION			NUMBER OF VISITORS		
dropped out of school without primary school completion	1	0.5 %	alone	23	11.0 %
primary school completion	37	17.7 %	with spouse	58	27.6 %
secondary school (O-level)	41	19.6 %	with spouse and child / children	25	11.9 %
college entrance / completion of a specialised secondary school	20	9.6 %	(only) with child / children	10	4.8 %
general or subject-specific higher education entrance qualification/ high school graduation, A-level	30	14.4 %	with other relatives, friends, colleagues	56	26.7 %
college degree	17	8.1 %	with a school class	8	3.8 %
university degree (e.g. bachelor, master)	54	25.8 %	with a group of students	5	2.4 %
other degree	9	4,3 %	with a travel group	11	5.2 %
			other	14	6.7 %

*Note: * Including students/ scholars and students not working, unemployed/early retired, pensioners without additional income*

In the following, we will take a closer look at the nature of visitors' stays at the industrial tourism sites. Table 2 provides information on the characteristics of the visits, in a comparative presentation of the two sites. It shows that for the majority of those visitors who did not live at the location of the attraction visited, it was a day trip. The number of same-day visitors to the Duisburg-Nord Landscape Park was particularly high. The German Mining Museum in Bochum, on the other hand, recorded a share of almost 50 % of overnight tourists, who combined a visit with a short or longer stay in the region.

The most frequently used means of transport for getting to the sites is the private car, followed by local public transport. Both locations have good transport connections.

Mostly, it was the first visit to the industrial tourist attraction, although there were, as expected, differences between the locations. The Landscape Park Duisburg-Nord attracts a diverse audience with the wide range of leisure activities it offers, including of course, walkers, people seeking recreation and recreational athletes from the surrounding areas, who regularly visit the park. This is why the percentage of those who have already visited the park twice or more is comparatively high (43.4 %).

Table 2: Features of visiting the industrial tourism attraction

		German Mining Museum Bochum	Landscape Park Duisburg-Nord
TYPE OF VISIT*	day trip	45 (50.6 %)	65 (77.4 %)
	short holiday (< 4 days)	29 (32.6 %)	9 (10.7 %)
	longer holidays	15 (16.9 %)	10 (11.9 %)
FREQUENCY OF PREVIOUS VISITS	first time	70 (71.4%)	54 (47.8 %)
	been here before	14 (14.3 %)	10 (8.8 %)
	been here twice or more	14 (14.3 %)	49 (43.4 %)
DURATION OF STAY	about 30 minutes	4 (4.1 %)	7 (6.2 %)
	up to one hour	1 (1.0 %)	7 (6.2 %)
	up to two hours	38 (39.2 %)	39 (34.5 %)
	up to three hours	36 (37.1 %)	25 (22.1 %)
	more than three hours	12 (12.4 %)	25 (22.1 %)
	still open	6 (6.2 %)	10 (8.8 %)
TRANSPORT	car	58 (59.2 %)	62 (54.9 %)
	train	9 (9.2 %)	2 (1.8 %)
	public transport (bus, tram)	25 (25.5 %)	20 (17.7 %)
	coach	2 (2.0 %)	0
	bike	2 (2.0 %)	21 (18.6 %)
	by foot /walk	2 (2.0 %)	8 (7.1 %)

*Note: The absolute frequencies are given, as well as the frequencies (valid) in parentheses. *The question only applied to those visitors who did not live at the location of the respective attraction they visited.*

In our study, we were also interested in the question of how the visitors became aware of the industrial tourist attraction, which information channels were used and which were not used. Multiple answers were allowed here. It was surprising that family and friends were named as the most frequent source of information (47.8% for the total sample, 53.1 % at the German Mining Museum, 43.2 % for the Landscape Park Duisburg-Nord site), especially in view of the large proportion of visitors from outside the Ruhr area. It was even shown that, when only visitors coming from outside the Ruhr area are considered, the importance of family members and friends is even greater. Other frequently used sources of information were the daily press, radio and television (total sample: 18.2 %), and information was obtained at school, vocational training centres or universities (total sample: 17.7 %).

3.2 Interest in the Touristic Offer

In the following section, we would like to take a closer look at the motives for and interest in the visits to the two industrial tourism sites. That is to say, we looked at what was of interest to visitors at the respective sites. The results are shown in Table 3. The interest in the industrial tourism facilities can be attributed in particular to an interest in the mining and industrial history of the Ruhr area, and in the case of visitors to the Duisburg Nord Landscape Park, also to an interest in the very specific architecture of the buildings in the park as well as the specific industrial nature, a specific colonisation of plants and animals on former industrial sites. Other individual reasons mentioned, looking at the Duisburg-Nord Landscape Park, were the outstanding evening illumination of the buildings, presenting themselves to visitors in a spectacular light, and the opportunity to relax while walking in the park. In the case of the German Mining Museum, it was also the visitors' family ties to mining or the industrial history of the Ruhr area (e.g. a relative was a miner).

Table 3: Interest of the Visitors in the Touristic Offer

		German Mining Museum Bochum	Landscape Park Duisburg-Nord
ARCHITECTURE	yes no	27 (27.6 %) 71 (72.4 %)	56 (49.6 %) 57 (50.4 %)
MINING HISTORY	yes no	59 (60.2 %) 39 (39.8 %)	38 (33.6 %) 75 (66.4 %)
SPORT FACILITIES	yes no	-	18 (15.9 %) 95 (84.1 %)
EVENTS	yes no	-	13 (11.5 %) 100 (88.5 %)
INDUSTRIAL NATURE	yes no	-	63 (55.8 %) 50 (44.2 %)
OTHERS	yes no	32 (32.7 %) 66 (67.3 %)	18 (15.9 %) 95 (84.1 %)

Note: The absolute frequencies are given, as well as the frequencies (valid) in parentheses.

3.3 Visitor Activities

The visitors to the German Mining Museum in Bochum who were surveyed reported high levels of use of the visitor demonstration mine, the headframe, and particularly the permanent exhibition (each with values over 70%, demonstration mine: 87.8 %, headframe: 77.6 %, permanent exhibition: 76.5 %). The museum shop, special exhibitions, catering and guided tours were less attractive (between 30 and 46% of the visitors surveyed use these offers). The Duisburg-Nord Landscape Park was used primarily for walking on the park grounds, according to over 82% of the visitors surveyed. Visiting the blast furnace and its viewing platforms is also very popular. 57.5 % of the respondents at this location told us that they had taken advantage of this offer. Other activities for which the park is also known, such as various sport offers including diving, climbing, bicycle hire or events, are significantly less frequently mentioned. It is interesting to note that a high proportion of visitors, even if they only came to take a walk, took advantage of the gastronomic offer in the park (69% of respondents).

3.4 Visitor Satisfaction

Next, we would like to address the satisfaction of the respondents with the visit of the industrial tourism attraction. We will look at both the overall satisfaction and satisfaction with individual aspects of the touristic offer. We used a six-point scale ranging from 1 = 'very satisfied' to 6 = 'very dissatisfied'. Table 4 shows that the overall satisfaction with the two tourist attractions was high.

Table 4: Visitor Satisfaction – Overall Assessment

	German Mining Museum Bochum	Landscape Park Duisburg-Nord	Total
very good	35 (35.7 %)	45 (42.9 %)	80 (39.4 %)
good	57 (58.2 %)	54 (51.4 %)	111 (54.7 %)
medium	5 (5.1 %)	6 (5.7 %)	11 (5.4 %)
poor	1 (1.0 %)	-	1 (0.5 %)
very poor	-	-	-
mean	1.71	1.63	1.67
median	2.00	2.00	2.00
Std Dev	0.609	0.593	0.601
N valid	98	105	203
missing	0	8	8

Note: The absolute frequencies are given, as well as the frequencies (valid) in parentheses.

When considering the individual levels of satisfaction regarding various aspects and offers at the two industrial tourism sites, the German Mining Museum in Bochum (see Table 5) received the highest satisfaction ratings for the friendliness of its staff, the level of admission fees, transport connections, followed by opening times, the quality of guided tours and the presentation of exhibits.

Table 5: Visitor Satisfaction Scores for Various Parameters, German Mining Museum Bochum

Variable	N (valid)	Mean	Median	Std Dev	Missing
ROAD ACCESS	94	1.53	1.00	0.799	4
FRIENDLINESS OF STAFF	98	1.40	1.00	0.743	0
OPENING HOURS	98	1.57	1.00	0.692	0
ADMISSION FEES	98	1.47	1.00	0.692	0
ORIENTATION IN THE MUSEUM	95	1.95	2.00	0.790	3
PRESENTATION OF EXHIBITS	97	1.82	2.00	0.842	1
EXPLANATION OF THE EXHIBITS	94	2.09	2.00	0.991	4
INFORMATION MATERIAL	85	2.34	2.00	1.108	13
QUALITY OF GUIDED TOUR	47	1.79	2.00	0.832	51
RESTAURANT/CAFETERIA	26	2.31	2.00	0.788	72

The highest individual satisfaction ratings for the Duisburg-Nord Landscape Park location (see Table 6) were for the events programme, the quality of the guided tours, the sports facilities, the hiking and biking trails, followed by the friendliness of the staff and the transport connection.

In general, high to very high levels of satisfaction were achieved at both industrial tourism sites.

Table 6: Visitor Satisfaction Scores for Various Parameters, Landscape Park Duisburg-Nord

Variable	N (valid)	Mean	Median	Std Dev	Missing
ROAD ACCESS	110	1.97	2.00	1.018	3
FRIENDLINESS OF STAFF	74	1.92	2.00	0.976	39
QUALITY OF GUIDED TOUR	24	1.75	2.00	1.073	89
RESTAURANT/CAFETERIA	67	2.12	2.00	0.729	46
HIKING AND BIKING TRAILS	88	1.91	2.00	0.705	25
SIGNS IN THE PARK	96	2.55	2.00	1.123	17
CLEANLINESS	103	2.20	2.00	1.097	10
SECURITY	82	2.15	2.00	0.862	31
SPORT FACILITIES	47	1.89	2.00	0.914	66
PLAYGROUNDS	54	2.28	2.00	1.156	59
EVENT PROGRAMME	52	1.75	2.00	0.926	61

In response to the open question "What do you like most about the museum / about the park?", the following aspects, features and services offered, as well as attractions, were mentioned in addition to the things we had already asked about in the closed question about satisfaction with individual aspects: the visitor mine (25 mentions), the exhibition itself (7 mentions), the simulated coal mining journey (6 mentions), the pit frame (5 mentions), the history (4 mentions) and the technology (3 mentions). The following answers were given for the Duisburg-Nord Landscape Park: nature / green spaces (23 mentions, including eight mentions of the combination of industry and nature), old industrial plants / old industrial buildings/blast furnace (18 mentions, including three explicit mentions of the blast furnace), climbing / high ropes course (8 mentions), architecture / industrial architecture (6 mentions), the view (4 mentions), history/reappraisal of history (4 mentions).

We also asked in an open question what the visitors did not like. And what suggestions for improvement they had. The following answers were given for the German Mining Museum in Bochum: parking (3 mentions), signage (3 mentions), descriptions (9 mentions), guided tour (2 mentions), lack of friendliness in the museum shop (2 mentions). With regard to the signage, it was noted that some of it is difficult to read. The criticisms of the descriptions (of the exhibits) also concern readability, as well as the fact that they are too complicated, not detailed enough and no information is provided in English. For the Landscape Park Duisburg-Nord these aspects were addressed, that were not liked or should be improved: signage (12 mentions), traffic connection (4 mentions) and playgrounds (4 mentions).

Regarding signage, it was criticised that there is too little signage, especially for non-locals, that some of the signage is difficult to read, and some is missing. More playgrounds were also desirable, and the safety of the existing playgrounds is criticised.

For both open questions, only answers that were given more than twice were listed here, with the number of mentions indicated.

No questions were asked in our self-developed questionnaire about the importance of certain offers or aspects. That is why we used correlation analysis as a statistical method to be able to make statements about the importance of the aspects for which we had requested satisfaction in the questionnaire. The correlation between overall satisfaction and individual satisfactions was calculated; an ordinal scale level was consistently present, so the Spearman rank correlation coefficient was used.

Table 7 shows the results of the correlation analysis carried out for the German Mining Museum in Bochum, and Table 8 shows the results for the Duisburg-Nord Landscape Park. Let us first look at the results for the German Mining Museum. With a value just under or just over 0.5 for the correlation coefficient, three individual satisfaction factors emerged: satisfaction with the presentation of the exhibits, satisfaction with the explanation/description of the exhibits, and satisfaction with the catering. These were found to be of medium importance for overall satisfaction. Now we will look at the results for the Landscape Park Duisburg-Nord. Of little importance, with a correlation coefficient of just under or over 0.3, are two of the individual satisfaction levels queried, namely satisfaction with the condition of the hiking and biking trails and satisfaction with the cleanliness in the park.

Table 7: Determining the Implicit Importance of the Surveyed Characteristics in the Satisfaction Analysis Using Correlations – German Mining Museum Bochum

	overall satisfaction	**transport connection**	**opening hours**	**entrance fees**	**friendliness of staff**	**orientation in the museum**	**presentation of the exhibits**	**description of the exhibits**	**information material**	**quality of the guided tour**	**gastronomic offer**
overall satisfaction	1.000	.156	-.057	.028	.186	.312(**)	.458(**)	.457(**)	.343(**)	.098	.538(**)
transport connection	.156	1.000	.341(**)	.083	-.060	.167	.188	.233(*)	-.083	.044	.255
opening hours	-.057	.341(**)	1.000	.380(**)	.080	.091	.116	.191	.006	.230	-.106
entrance fees	.028	.083	.380(**)	1.000	.256(*)	.120	.108	.289(**)	.012	.007	.131
friendliness of staff	.186	-.060	.080	.256(*)	1.000	.215(*)	.150	.082	.101	.082	.394(*)
orientation in the museum	.312(**)	.167	.091	.120	.215(*)	1.000	.463(**)	.485(**)	.486(**)	.216	.619(**)
presentation of the exhibits	.458(**)	.188	.116	.108	.150	.463(**)	1.000	.557(**)	.339(**)	.299(*)	.621(**)
description of the exhibits	.457(**)	.233(*)	.191	.289(**)	.082	.485(**)	.557(**)	1.000	.514(**)	.281	.640(**)
information material	.343(**)	-.083	.006	.012	.101	.486(**)	.339(**)	.514(**)	1.000	.115	.227
quality of the guided tour	.098	.044	.230	.007	.082	.216	.299(*)	.281	.115	1.000	.268
gastronomic offer	.538(**)	.255	-.106	.131	.394(*)	.619(**)	.621(**)	.640(**)	.227	.268	1.000

*Note: ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level(2-tailed)*

Table 8: Determining the Implicit Importance of the Surveyed Characteristics in the Satisfaction Analysis Using Correlations – Landscape Park Duisburg-Nord

	overall satisfaction	**transport connection**	**friendliness of staff**	**gastronomic offer**	**condition of hiking and biking trails**	**signage in the park**	**cleanliness in the park**	**safety in the park**	**quality of the guided tour**	**sport facilities**	**playgrounds**	**event programme**
overall satisfaction	1.000	.233(*)	.268(*)	.048	.297(**)	.199	.319(**)	.259(*)	.270	.054	.168	.193
transport connection	.233(*)	1.000	.431(**)	.163	.478(**)	.299(**)	.199(*)	.143	.521(**)	-.085	.099	.339(*)

	overall satisfaction	transport connection	friendliness of staff	gastronomic offer	condition of hiking and biking trails	signage in the park	cleanliness in the park	safety in the park	quality of the guided tour	sport facilities	playgrounds	event programme
friendliness of staff	.268(*)	.431(**)	1.000	.395(**)	.310(*)	.225	.115	.342(**)	.652(**)	.088	.225	.079
gastronomic offer	.048	.163	.395(**)	1.000	.224	.115	.257(*)	.302(*)	.143	.276	.286	.318(*)
condition of hiking and biking trails	.297(**)	.478(**)	.310(*)	.224	1.000	.205	.202	.288(*)	.551(*)	.200	.130	.424(**)
signage in the park	.199	.299(**)	.225	.115	.205	1.000	.394(**)	.161	-.060	.046	.183	.061
cleanliness in the park	.319(**)	.199(*)	.115	.257(*)	.202	.394(**)	1.000	.517(**)	.145	.406(**)	.096	.212
safety in the park	.259(*)	.143	.342(**)	.302(*)	.288(*)	.161	.517(**)	1.000	.090	.189	.230	-.167
quality of the guided tour	.270	.521(**)	.652(**)	.143	.551(*)	-.060	.145	.090	1.000	.401	-.101	.574(*)
sport facilities	.054	-.085	.088	.276	.200	.046	.406(**)	.189	.401	1.000	.296	.511(**)
playgrounds	.168	.099	.225	.286	.130	.183	.096	.230	-.101	.296	1.000	.118
event programme	.193	.339(*)	.079	.318(*)	.424(**)	.061	.212	-.167	.(*)	.(**)	.118	1.000

*Note: ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed)*

3.5 Awareness of the Route of Industrial Culture

This section focuses on the awareness of the Route of Industrial Culture as a touristic theme route among the respondents at the two study sites. We were interested in any differences with regard to the study sites, the origin of the respondents and the distance of the respondents' homes from the industrial tourism site visited. In order to be able to make a statement about whether the concept of a tourist theme route, the connection and joint marketing of different attractions and places of industrial cultural significance, leads to an increase in the popularity of the industrial cultural offer in the region and in tourist demand, we also asked which other anchor points of the route of industrial culture had already been visited by the visitors surveyed. Results regarding the question of awareness of the Route of Industrial Culture are presented in Table 9 and 10.

Table 9: Awareness of the Route of Industrial Culture

	German Mining Museum Bochum	Landscape Park Duisburg-Nord	Total
yes	43 (43.9 %)	72 (63.7 %)	115 (54.5 %)
no	55 (56.1 %)	41 (36.3 %)	96 (45.5 %)

Note: The absolute frequencies are given, as well as the frequencies (valid) in parentheses.

It turns out that the majority of all respondents were familiar with the Route of Industrial Culture. A higher level of awareness was present at the study site of the Duisburg-Nord Landscape Park. This is probably due to the smaller catchment area of this location. Compared to the study site of the German Mining Museum in Bochum, a larger proportion of the respondents here came from the Ruhr area.

Table 10: Awareness of the Route of Industrial Culture

	PLACE OF RESIDENCE					
	at the location of the tourist attraction visited	in another city in the Ruhr area	in another city in North Rhine-Westphalia (outside Ruhr area)	in another city in Germany (not in NRW)	in another city outside of Germany	Total
yes	23 (62.2 %)	44 (74.6 %)	16 (47.1 %)	26 (39.4 %)	6 (42.9 %)	115 (54.8 %)
no	14 (37.8 %)	15 (25.4 %)	18 (52.9 %)	40 (60.6 %)	8 (57.1 %)	95 (45.2 %)

Note: The absolute frequencies are given, as well as the frequencies (valid) in parentheses.

We used the Pearson Chi Square test to test the null hypothesis that there is no significant association between the awareness of the Route of Industrial Culture and already made visits to other industrial cultural sites or attractions in the Ruhr area, X^2 (1, N = 210) = 42.3, p < .01. The hypothesis of the independence of the two variables could be rejected.

We also wanted to examine whether the Route of Industrial Culture fulfils its purpose as a themed tourist route by asking whether the participants in our research study had already visited other industrial tourism attractions in the Ruhr area and especially those designated as anchor points of the Route. We provided a list of the 25 anchor points of the Route of Industrial Culture at the time we conducted the survey in 2015, and asked them to indicate which ones they had already visited. Two further anchor points have since then been added to the Route of Industrial Culture, the St. Antony ironwork in Oberhausen (LVR Industrial Museum) in 2019 (LVR-Industriemuseum St. Antony-Hütte, 2019) and the Friedrich Heinrich Colliery in Kamp-Linfort in 2021 (Ruhr Tourismus GmbH, n.d.b). We also asked whether the respondents had visited other industrial tourism attractions in the Ruhr region that were not part of the anchor points of the Route of Industrial Culture. Overall, 54.8 % of our respondents said that they had already visited other industrial cultural places or facilities in the Ruhr area. As expected, the proportion of respondents who came from the Ruhr area was particularly high here. However, the fact that the proportion of those who came from outside the Ruhr area, from another city in North Rhine-Westphalia, or from another city in Germany outside North Rhine-Westphalia, or even from abroad, was comparatively high, also speaks in favour of the success of the industrial tourism marketing concept. The corresponding frequencies are shown in Table 11.

Table 11: Other Industrial Heritage Sites Visited

	PLACE OF RESIDENCE					
	at the location of the tourist attraction visited	in another city in the Ruhr area	in another city in North Rhine-Westphalia (outside Ruhr area)	in another city in Germany (not in NRW)	in another city outside of Germany	Total
yes	23 (62.2 %)	44 (74.6 %)	16 (47.1 %)	26 (39.4 %)	6 (42.9 %)	115 (54.8 %)
no	14 (37.8 %)	15 (25.4 %)	18 (52.9 %)	40 (60.6 %)	8 (57.1 %)	95 (45.2 %)

Note: The absolute frequencies are given, as well as the frequencies (valid) in parentheses.

Looking at the frequencies with which the (other) anchor points of the Route of Industrial Culture were visited shows the outstanding importance of three industrial tourism attractions: the Zollverein Coal Mine Industrial Complex, a UNESCO world heritage site, the Villa Hügel in Essen and the Gasometer in Oberhausen. Table 12 also shows how the visits are distributed specifically for the respondents who come from further afield, from outside North Rhine-Westphalia or from abroad.

Table 12: Other Industrial Heritage Sites Visited in the Ruhr Area

PLACE OF RESIDENCE								
	in another city in Germany (not in NRW) or outside of Germany	total		in another city in Germany (not in NRW) or outside of Germany	total		in another city in Germany (not in NRW) or outside of Germany	total
World Heritage Colliery Zollverein (Essen)	16	82	Transformer Station (Recklinghausen)	-	8	Gasometer Oberhausen	12	68
Villa Hügel (Essen)	6	61	Colliery Ewald (Herten)	6	18	Marl Chemical Park	-	13
Jahrhunderthalle (Century Hall) Bochum	6	42	Hohenhof (Hagen)	-	3	Old Ship Lift Henrichenburg (Waltrop)	6	37
German Mining Museum (Bochum)	7	47	Open-Air Museum (Hagen)	1	28	Maximilianspark (Hamm)	-	15
Railway Museum (Bochum)	1	23	Inner Habour (Duisburg)	4	57	Linden Brewery (Unna)	-	7
Colliery Zollern (Dortmund)	1	20	Museum of German Inland Shipping (Duisburg)	1	28	Colliery Nachtigall (Witten)	2	17
DASA Working World Exhibition (Dortmund)	1	15	Landscape Park Duisburg-Nord (Duisburg)	8	42	Henrichshütte (Hattingen)	5	26
Coking Plant Hansa (Dortmund)	-	10	LVR Industrial Museum (Oberhausen)	1	14	Aquarius Watermuseum (Mühlheim an der Ruhr)	2	29
						Nordsternpark (Gelsenkirchen)	6	36

Note: for the industrial heritage site German Mining Museum Bochum, only the respondents at the Landscape Park Duisburg-Nord location and vice versa were included in the analysis

The following places and attractions in the Ruhr area were also mentioned, but are no anchor points of the Route of Industrial Culture:

Mining Museum in Lünen, Haniel Slag Heap, Tetrahedron in Bottrop (pyramidal viewing terrace on the Beckstraße slag heap), Homberg Slag Heap, Rheinpreußen Mine in Moers-Westerbruch, Eisenheim Settlement in Oberhausen, OLGA Park in Oberhausen, Phoenix Lake in Dortmund, Thyssenkrupp Factory, Camera Obscura in Mülheim (museum for the history of film in a former water tower), Muttental Mining Tour in Witten. The Tetrahedron in Bottrop and the Eisenheim Settlement in Oberhausen are part of the Route of Industrial Culture

For us, it was also important to examine the question of whether there is a desire to visit other industrial cultural tourist attractions in the Ruhr region or not. The number of those who are very interested in industrial tourism attractions in general and would like to visit more of them is very high, over 70 % for all respondents. Among those visitors surveyed who come from outside North Rhine-Westphalia, the frequency is still almost 67 %. The detailed results are presented in Table 13.

Table 13: Wish to Visit Other Places of Industrial Culture

	German Mining Museum Bochum	**Landscape Park Duisburg-Nord**	**in another city in Germany (not in NRW) or outside of Germany – both survey locations**	**total**
yes	61 (42.4 %)	83 (57.6 %)	50 (66.7 %)	144 (71.3 %)
no	29 (50.0 %)	29 (50.0 %)	25 (33.3 %)	58 (28.7 %)

Note: The absolute frequencies are given, as well as the frequencies (valid) in parentheses.

The following attractions were mentioned most often as attractions that would be interesting to visit in the future: the World Heritage Colliery Zollverein in Essen, the Bochum Railway Museum, Villa Hügel in Essen, the German Mining Museum and the Inner Harbour in Duisburg. Table 14 also shows which places appear to be particularly interesting for visitors who come from further afield.

Only a few industrial tourism attractions were listed that the respondents would like to visit and that are not part of the anchor points of the Route of Industrial Culture. These were the following: the harbour in Dortmund, the Magarethenhöhe Housing Settlement in Essen, the Tetrahedron in Bottrop (pyramidal viewing terrace on the Beckstraße slag heap), the Textile Museum in Krefeld, the Opel Museum in Rüsselsheim, the Tiger and Turtle Magic Mountain on the Heinrich-Hildebrand Slag Heap in Duisburg. Of the attractions mentioned, Magarethenhöhe in Essen is one of the most important settlements that are part of the Route of Industrial Culture, the Tetraeder in Bottrop and the Tigre and Turtle Magic Mountain are among the panoramic views of the Route (cf. Ruhr Tourismus GmbH, n.d.f,g). It should also be mentioned that the cities of Dortmund, Essen and Duisburg are among those cities that the Route of Industrial Culture connects due to their special significance in the industrial age in Germany.

Table 14: Other Industrial Heritage Sites Which One Would Like to Visit in the Ruhr Area

PLACE OF RESIDENCE								
	in another city in Germany (not in NRW) or outside of Germany	total		in another city in Germany (not in NRW) or outside of Germany	total		in another city in Germany (not in NRW) or outside of Germany	total
World Heritage Colliery Zollverein (Essen)	12	14	Transformer Station (Recklinghausen)	-	1	Gasometer Oberhausen	3	6
Villa Hügel (Essen)	5	9	Colliery Ewald (Herten)	-	2	Marl Chemical Park	3	6
Jahrhunderthalle (Century Hall) Bochum	2	6	Hohenhof (Hagen)	1	4	Old Ship Lift Henrichenburg (Waltrop)	1	5
German Mining Museum (Bochum)	5	8	Open-Air Museum (Hagen)	3	6	Maximilianspark (Hamm)	1	3
Railway Museum (Bochum)	9	12	Inner Habour (Duisburg)	7	11	Linden Brewery (Unna)	-	3
Colliery Zollern (Dortmund)	3	4	Museum of German Inland Shipping (Duisburg)	3	5	Colliery Nachtigall (Witten)	1	3
DASA Working World	1	4	Landscape Park Duisburg-Nord (Duisburg)	1	8	Henrichshütte (Hattingen)	3	5

PLACE OF RESIDENCE								
	in another city in Germany (not in NRW) or outside of Germany	total		in another city in Germany (not in NRW) or outside of Germany	total		in another city in Germany (not in NRW) or outside of Germany	total
Exhibition (Dortmund)								
Coking Plant Hansa (Dortmund)	2	6	LVR Industrial Museum (Oberhausen)	1	3	Aquarius Watermuseum (Mühlheim an der Ruhr)	2	2
						Nordsternpark (Gelsenkirchen)	2	4

Note: for the industrial heritage site German Mining Museum Bochum, only the respondents at the Landscape Park Duisburg-Nord location and vice versa were included in the analysis

3.6 The Educational Experience

In this section, we want to take a closer look at the educational aspect or educational experience associated with visiting the industrial tourist attractions, the German Mining Museum in Bochum and Duisburg-Nord Landscape Park. In this regard, we were initially interested in the relevant prior knowledge of the surveyed visitors. In addition, we wanted to know how well informed the visitors felt after their visit, about the development of mining (visitors of the German Mining Museum in Bochum) and the process of iron production (visitors of the Duisburg-Nord Landscape Park).
It turns out that most visitors had little to no relevant prior knowledge before visiting the industrial tourism attraction. Table 15 shows the frequencies we determined.

Table 15: Relevant Previous Knowledge

	German Mining Museum Bochum (development of mining)	**Landscape Park Duisburg-Nord** (production of pig iron)	**Total** (existence of relevant prior knowledge related to the location, about the development of mining or the production of pig iron)
no knowledge	30 (30.6 %)	26 (23.2 %)	56 (26,7 %)
very little knowledge	16 (16.3 %)	21 (18.8 %)	37 (17.6 %)
little previous knowledge	30 (30.6 %)	29 (25.9 %)	59 (28.1 %)
extensive previous knowledge	14 (14.3 %)	16 (14.3 %)	30 (14.3 %)
very extensive previous knowledge	8 (8.2 %)	20 (17.9 %)	28 (13.3 %)
mean	2.53	2.85	2.70
median	3.00	3.00	3.00
Std Dev	1.286	1.403	1.356
N valid	98	112	210
missing	0	1	1

Note: The absolute frequencies are given, as well as the frequencies (valid) in parentheses.

The respondents definitely perceived their visit to the industrial tourism attractions as an educational experience. Overall, 60.0 % felt themselves well or fairly well informed after their visit. Looking at the two locations separately, it can be seen that, as expected, the educational effect is greater at the German

Mining Museum than at the Duisburg-Nord Landscape Park (see Table 16). The Landscape Park Duisburg-Nord offers a variety of possibilities, including simply going for a walk, enjoying nature and doing sports. Learning about the industrial history, for example by taking part in a guided tour, exploring the old industrial sites on one's own or reading about it in one of the books sold in the souvenir shop, is just one of the leisure activities the park offers.

Table 16: Level of Information After the Visit

	German Mining Museum Bochum	**Landscape Park Duisburg-Nord**	**Total**
uninformed	1 (1.0 %)	16 (17.0 %)	17 (8.9 %)
somewhat informed	25 (26.0 %)	34 (36.2 %)	59 (31.1 %)
well informed	55 (57.93%)	31 (33.0 %)	86 (45.3 %)
very well informed	15 (15.6 %)	13 (13.8 %)	28 (14.7 %)
mean	2.88	2.44	2.66
median	3.00	2.00	3.00
Std Dev	0.669	0.934	0.838
N valid	96	94	190
missing	2	19	21

Note: The absolute frequencies are given, as well as the frequencies (valid) in parentheses.

Finally, we would like to address the question of how many respondents have already visited attractions of industrial cultural significance outside the Ruhr region. We see this as an indicator of a particular interest in industrial and mining history, as well as a particular interest in technology. Overall, 39.6 % of the respondents stated that this was the case for them. This is in contrast to the 60.4 % who have not yet visited an industrial attraction outside the Ruhr area.

The following sites were named as visited attractions in Germany (outside the Ruhr region): Augsburg gasworks MAN, foundry in Augsburg MAN, MAN Augsburg diesel production, mining museum in the Ore Mountains, mines in the Sauerland, mines in the Harz, mines in the Ore Mountains, LWL museum Textilwerk in Bocholt, brown coal open-cast mine in Thuringia, copper mine Fischbach, waterworks in the Eifel, salt mine / old salt works in Bad Reichenhall, Edelfettwerk in Hamburg, Feldschlößchen brewery in Dresden, Ana pit in Alsdorf (hard coal), port of Hamburg, ship lift in Hamburg, Hamburg's Speicherstadt historical warehouse district, Brunsbüttel lock system for ships, Ems barrage, salt mine in Berchtesgaden, Völklingen ironwork in Saarland, Speyer Technical Museum, Deutsches Museum in Munich, Berlin Technical Museum.

Outside of Germany, the following European countries were visited: mines in Belgium, salt mine in Hallstatt (Austria), salt mine in Salzburg (Austria), salt mine in the Czech Republic, mines in France, harbour in Rotterdam (Netherlands).

And for non-European regions: mines in the USA, workers' housing settlements in England.

4. Summary

The findings of this quantitative research study contribute to a better understanding of the general characteristics of industrial heritage site visitors and their travel motives. The study builds on findings from existing empirical studies on industrial tourism and expands on them by examining two anchor points, the Duisburg-Nord Landscape Park and the German Mining Museum Bochum, along the Route of Industrial Culture, a touristic theme route, in the Ruhr region. In doing so, it makes an important contribution to visitor research of industrial heritage tourism with a spatial focus on the Ruhr region, which, as well as the federal state of North Rhine-Westphalia as Köchling (2021) already mentioned, plays "a pioneering role in German industrial tourism" [translated by the author] (p. 42).

The most important results are summarised briefly below:

- The gender distribution of visitors at the two industrial tourism attractions surveyed was almost balanced, with a slight predominance of male visitors.
- The age groups 20-40 and 40-60 years old were the most strongly represented among the respondents.
- Visitors to both industrial heritage sites have quite high levels of education, but especially the visitors of the German Mining Museum in Bochum.
- Both sites examined have an appeal that extends beyond the Ruhr region; the German Mining Museum in particular has a comparatively large catchment area for industrial tourism attractions.
- For the majority of respondents who did not live directly at the location of the industrial tourist attraction, the visit was a day trip.
- Most visitors find out about the two attractions through stories and recommendations from friends and acquaintances.
- Important reasons for visiting include an interest in industrial history and mining, and, in relation to the Duisburg-Nord Landscape Park, an interest in the specific architecture and industrial nature.
- The majority of the visitors surveyed are familiar with the concept of the Route of Industrial Culture.
- The high level of interest among the visitors surveyed in tourist offerings geared explicitly toward industrial tourism is reflected in the fact that a comparatively high proportion of visitors from outside the Ruhr region had already visited other industrial heritage sites in the Ruhr region. This is also reflected in the fact that over 70% of visitors surveyed said they would be interested in visiting other industrial tourism sites in the Ruhr area in the future.
- Visitors perceive the visit to the two industrial tourist attractions as an educational experience.

5. Strengths, Limitations and Future Research

The self-developed bilingual questionnaire is one of the strengths of our research study. Despite its length, it proved to be a suitable and well-suited instrument in the field. According to feedback from the interviewers, there were no significant comprehension difficulties regarding individual questions among the visitors interviewed. Despite the limited time available for conducting the survey, a sufficient number of participants were recruited for our quantitative study to allow further conclusions to be drawn, such as a comparison of the two industrial tourism sites examined. The questionnaire could possibly have been extended by adding one more question, a question asking whether the respondents would recommend a visit to the German Mining Museum in Bochum or the Duisburg-Nord Landscape Park to acquaintances, friends or family. This would have been a further indicator of a high level of satisfaction with the visit to the tourist attraction.

Our study makes an important contribution to a better understanding of the demand side of the specific market segment of industrial tourism and can complement and expand on the results of the limited number of other empirical studies in this area. Furthermore, the results also allow some conclusions to be drawn for the marketing of industrial tourism attractions in general. In future studies, an expansion of the survey locations is suggested. With a focus on the Ruhr area, the addition of further anchor points of the Route of Industrial Culture in the investigation would be helpful. Furthermore, comparative studies between different regions of industrial tourism significance are also suggested. In addition, it would be useful to supplement the quantitative results of the study with qualitative interviews with visitors to industrial tourist attractions in order to be able to classify visitors based on qualitative and quantitative data.

6. Recommendations

The results obtained in our research study should ultimately be used to make recommendations for practitioners and decision-makers in the tourism industry and related areas in the Ruhr region, for those involved in the further development of the industrial tourism market segment, the marketing of industrial heritage, and industrial cultural attractions for tourism purposes. Since industrial tourism today also contributes to economic development and diversification of economic structures in many other old industrialised regions around the world that are undergoing structural change, creating direct and indirect jobs and generating income, conclusions can also be drawn from the results of our study for other regions with industrial tourism potential or already developed industrial tourism infrastructure.

For the Ruhr region, we generally recommend, based on our findings, a strong strategic marketing of the Route of Industrial Culture in major tourism source areas outside of the Ruhr area and beyond the borders of North Rhine-Westphalia, and to use a variety of information channels for this purpose. Although a great deal has already been done in this direction, it is also noticeable that the majority of the visitors we surveyed learned about the individual industrial tourist attraction they visited through friends or relatives. Whereas the proportion of other information sources used is significantly lower. There is therefore still potential to increase awareness of the individual industrial tourism attractions as well as the Route of Industrial Culture in the Ruhr area, whether through the daily press, radio and television, posters, websites, or references in other print media such as travel brochures and guidebooks. Because the majority of the respondents of our study were satisfied or very satisfied with their visit to the attraction and there is a great deal of interest in visiting other industrial tourism attractions in the Ruhr area, it seems recommendable to provide the best possible information about the anchor points, the settlements and panoramas of the Route of Industrial Culture also at the individual tourist attractions. The need for optimisation should then be examined at the individual locations.

At the two locations we surveyed, the German Mining Museum in Bochum and the Duisburg-Nord Landscape Park, the majority of visitors were day trippers. However, visitors who stay longer in the Ruhr region, whether for a short trip of several days or a longer stay, are of particular importance. The aim should be to bundle different offers for visitors who are not from the Ruhr area into packages tailored to specific target groups such as cultural and city travellers, sports tourists, youth groups, couples and business travellers. Visiting one or more industrial tourist attractions is then part of a larger tourist package. Such combined travel packages should be marketed in particular to travellers whose primary reason for visiting is not the region's industrial heritage or the educational experience associated with the visit. On a larger scale, this also applies to holiday trips and business trips to North Rhine-Westphalia. The individual cities are very well connected, and a city trip to Cologne or Düsseldorf can easily be combined with a visit to the Ruhr area or a wellness and relaxation stay in the Sauerland, Münsterland or other regions of North Rhine-Westphalia.

Based on the visitor characteristics identified at the locations surveyed, we would recommend focusing additionally on senior tourists as a target group in the future. Special guided tours offered by tour operators are likely to be of particular interest as learning experiences for these groups. This also applies to youth travel groups, school classes, groups of university and college students from all over Germany and other countries, especially neighbouring countries, and countries with which university partnerships or town twinning arrangements exist in the region who could be interested in industrial and technical history as well as the broader range of leisure and cultural activities available in the Ruhr region. To this end, industrial tourism could also be viewed more strongly as a form of educational tourism, and the corresponding process model could be considered (cf. McGladdery et al., 2017), as we did to some extent in Chapter 3.6.

The networking and joint strategic marketing of industrial tourist attractions through a themed tourist route, such as the Route of Industrial Culture in the Ruhr region, has proven, despite the minor areas for improvement we have identified, to be a very suitable and efficient tool for providing tourists interested in a region's industrial heritage and industrial history with information about interesting attractions and the existing offerings in a region in a bundled form. The level of awareness among visitors to the industrial tourism sites surveyed was high. The Industrial Heritage Trail in the Ruhr region, which was established in 1999, plays a pioneering role, and the successful implementation of

the overall concept and marketing of the region's industrial heritage, the connection and accessibility of the individual industrial tourism locations and attractions, by car, public transport, bicycle, the establishment of a central visitor centre at the World Heritage Site Zollverein Coal Mine Industrial Complex, extensive provision of information for visitors, both in analogue and digital form, integration into an overarching regional tourism and cultural marketing strategy, regular use of individual locations for special events as well as the integration into the European Route of Industrial Heritage (ERIH) can serve as a model for other regions worldwide to follow.

Acknowledgment

The publication of this paper would not have been possible without a fellowship for international conference participation. We would therefore like to express our sincere thanks to the FRU Sponsoring Group of Spatial and Environmental Research Association of Friends of the ARL e.V. In addition, the two authors would like to express their gratitude to the colleagues and students from the University of Duisburg-Essen and the United Arab Emirates University who participated in the data collection for this study as part of the exchange programme financed by the German Academic Exchange Service. Janine Bittner would also like to thank Jennifer Knorre, Andreas Schönemann, Birgit Sattler and Julia Thiemann for their general support, and especially Ulrike Overbeck for creating the maps. Furthermore, the Regional Association Ruhr for providing data and Timo Hauge, team leader industrial heritage section, culture, sport and industrial heritage unit, Ruhr Regional Association (RVR) for the interest in this work and the encouragement to continue this study. Another thank you goes to Janina Kempchen and Prof. Dr. Reinhold Kloos for their support. Janine Bittner would also like to acknowledge the Munich Economic Geography for the early insights given in the field of tourism geography.

Authors Contributions

Janine Bittner (research associate) was the principal investigator of this research study, responsible for the conceptualisation, design and methods, the development of the survey instrument, the data analysis and interpretation, presentation of the results, drafting the paper, reviewing and editing and the acquisition of the conference grant.

Bianca Momo Skowron (former student research assistant) contributed to the development of the survey instrument, translated some of the documents into English, supported the students in collecting the data, helped to process the data afterwards, was involved in compiling the literature and critically reviewed the paper.

References

Ahlers, H. (2000). Ruhrgebiet - Mut zum eigenen Profil. IITF Integra(1), 15–17.

Almeyda-Ibáñez, M., & George, B. P. (2017). The evolution of destination branding: a review of branding literature in tourism. *Journal of Tourism, Heritage & Services Marketing*, *3*(1), 9–17. https://doi.org/10.5281/zenodo.401370

Álvarez Areces, M. Á. (2010). Patrimonio Industrial, Paisaje y Desarrollo Territorial. *Áreas. Revista Internacional de Ciencias Sociales*(29), 21–29.

Andrade, M., & Caamaño-Franco, I. (2018). Theoretical and Methodological Model for the Study of Social Perception of the Impact of Industrial Tourism on Local Development. *Social Sciences*, *7*(11), Article 217. https://doi.org/10.3390/socsci7110217

Basten, L. (1997). Developing redevelopment: a project, a city image, a planning process. The case of the" Neue Mitte Oberhausen". *Geographica Polonica*, *68*, 109–118.

Bathelt, H., Glückler, J. (2018): Wirtschaftsgeographie. Ökonomische Beziehungen in räumlicher Perspektive. 4., vollständig überarbeitete und erweiterte Auflage. Stuttgart: UTB GmbH; Verlag Eugen Ulmer (utb-studi-e-book, 8217. Betriebs- und Volkswirtschaftslehre). https://doi.org/10.36198/9783838587288

Berger, S., Golombek, J., & Wicke, C. (2018). A post-industrial mindscape? The mainstreaming and touristification of industrial heritage in the Ruhr. In *Industrial Heritage and Regional Identities* (pp. 74–94). Routledge. https://doi.org/10.4324/9781315281179-5

Blotevogel, H. H. (1998). The Rhine-Ruhr metropolitan region: Reality and discourse. *European Planning Studies*, *6*(4), 395–410. https://doi.org/10.1080/09654319808720470

Bogumil, J., & Heinze, R. G. (2021). Von der Industrieregion zur Wissensregion: Strukturwandel im Ruhrgebiet. In Schriftenreihe / Bundeszentrale für Politische Bildung: Band 10751. Abschied von der Kohle: Struktur- und Kulturwandel im Ruhrgebiet und in der Lausitz (pp. 149–163). bpb Bundeszentrale für politische Bildung.

Butzin, B. (1987). Strukturwandel im Ruhrgebiet? Zum Entstehungs- und Wirkungszusammenhang der Krise. In E. Köhler & N. Wein (Eds.), Münstersche Geographische Arbeiten: Vol. 27. Natur- und Kulturräume. Ludwig Hempel zum 65. Geburtstag (pp. 301–314).

Butzin, B., Franz, M., & Noll, H.-P. (2006). Strukturwandel im Ruhrgebiet unter Schrumpfungsbedingungen. Zeitschrift für Wirtschaftsgeographie, 50(1), 258–275. https://doi.org/10.1515/zfw.2006.0024

Castillo, A. M., Lopez-Guzman Guzman, T. J., & Vazques de la Torre, G. M. (2010). Industrial Mining Tourism Activities. *Anatolia: An International Journal of Tourism and Hospitality Research*, *21*(2), 1–9. https://doi.org/10.1080/13032917.2010.9687110

Chmielewska, M. (2015). Conservation of post-industrial cultural heritage in Europe in local and global context. *Region Und Regionalism*, *12*(2), 133–145.

Clark, C. (2007). The future of leisure time. In *Tourism and Hospitality in the 21st Century* (pp. 89–99). Routledge. https://doi.org/10.4324/9780080521565-11

Copic, S., Drdevic, J., Lukic, T., Stojanovic, V., Dukicin, S., Vesermenji, S., Stamenkovic, I., & Tumaric, A. (2014). Transformation of industrial heritage - an example of tourism industry development in the Ruhr Area (Germany). *Geographica Pannonica*, *18*(2), 43–50. https://doi.org/10.5937/GeoPan1402043C

Deutsches Bergbau-Museum Bochum. (n.d.a). Geschichte | Deutsches Bergbau-Museum Bochum. Retrieved April 10, 2025, from https://www.bergbaumuseum.de/museum/geschichte

Deutsches Bergbau-Museum Bochum. (n.d.b). Über das Museum | Deutsches Bergbau-Museum Bochum. Retrieved April 10, 2025, from https://www.bergbaumuseum.de/museum

Deutsches Bergbau-Museum Bochum. (n.d.c). Besuch | Deutsches Bergbau-Museum Bochum. Retrieved April 10, 2025, from https://www.bergbaumuseum.de/besuch

Deutsches Bergbau-Museum Bochum (Ed.). (2018). *Jahresbericht 2016*. https://www.bergbaumuseum.de/fileadmin/files/zoo/uploads/jahresberichte/dbm_jahresbericht_2016.pdf

Duisburg Kontor Hallenmanagement GmbH. (n.d.). Einführung // Hintergrundwissen | Landschaftspark Duisburg-Nord. Retrieved February 12, 2025, from https://www.landschaftspark.de/hintergrundwissen/einfuehrung/

Ebert, W. (2000). ERIH. European Route of Industrial Heritage. *IITF Integra*(1), 5–6.

Edwards, J. A., & Llurdes i Coit, Joan Carles (1996). Mines and quarries: Industrial heritage tourism. *Annals of Tourism Research*, *23*(2). https://doi.org/10.1016/0160-7383(95)00067-4

ERIH - European Route of Industrial Heritage e.V. (n.d.). *Startseite – ERIH*. Retrieved April 29, 2025, from https://www.erih.de/

Escudero, M. R. R. (2019). Del paisaje incierto al jardín: landschaftspark Duisburg-Nord. Rita: Revista Indexada de Textos Académicos(11), 126–135. https://dialnet.unirioja.es/servlet/articulo?codigo=6996317

Faust, H. (1999). Das Ruhrgebiet: Erneuerung einer europäischen Industrieregion; Impulse für den Strukturwandel durch die Internationale Bauausstellung Emscher Park. *Europa Regional*, *7.1999*(2), 10–18. https://www.ssoar.info/ssoar/handle/document/48308

Forßmann, J. (1991). Der Landschaftspark Duisburg-Nord: Ein Beispiel des Wiederaufbaus von Landschaft. In T. Sieverts (Ed.), *Arcus: Vol. 13. IBA Emscher-Park, Zukunftswerkstatt für Industrieregionen* (pp. 18–21). R. Müller.

Franz, D. (2018, December 21). Zechenschließung: Ein letztes Glückauf für den Bergbau. *WELT*. https://www.welt.de/politik/deutschland/article185986296/Zechenschliessung-Ein-letztes-Glueckauf-fuer-den-Bergbau.html

Fuchs, G. (1992). Die Bundesrepublik Deutschland: Mit aktualisierten Daten 1989 und einem Ausblick auf die neuen Bundesländer (5., aktualisierte Aufl.). Länderprofile. Klett.

Goodall, B. (1993). Industrial heritage and tourism. *Build Environment*, *19*(2), 93–104.

Gronau, W., & Kagermeier, A. (2007). Leisure and tourism: An approach to the economic regeneration of heavily industrialised regions? The example of the German Ruhrgebiet. In C. Aitchison, G. Richards, & A. Tallon (Eds.), *Urban Transformations: Regeneration and Renewal Through Leisure and Tourism* (pp. 1–16). Leisure Studies Association.

Haas, Hans-Dieter; Neumair, Simon-Martin (2015): Wirtschaftsgeographie. 3. Auflage. Darmstadt: WBG (Geowissen kompakt).

Hasselberg, T. (2011). Parks und Gärten auf Brachen: Umnutzung industrieller Flächen im Ruhrgebiet. Zugl.: Köln, Univ., Diss., 2008 u.d.T.: Hasselberg, Tanja: Der Landschaftspark Duisburg-Nord, ein neues Konzept der Ästhetik in der Gartenkunst? Arbeitsheft der rheinischen Denkmalpflege: Vol. 77. Werner.

Hemmings, S., & Kagel, M. (2010). Memory Gardens: Aesthetic Education and Political Emancipation in the "Landschaftspark Duisburg-Nord". German Studies Review, 33(1), 243–261.

Hospers, G.-J. (2002). Industrial Heritage Tourism and Regional Restructuring in the European Union. *European Planning Studies*, *10*(3), 397–404. https://doi.org/10.1080/09654310220121112

Hospers, G.-J. (2010). The Ruhr beyond RUHR. 2010: The greatest legacy of the Ruhr's year as a European Capital of Culture for 2010 may be an improvement in regional self-confidence and governance. *Town and Country Planning*, 79(5), 244–248. https://repository.ubn.ru.nl/bitstream/handle/2066/86889/86889.pdf

Hücherig, R. (1999). Kulturtourismus im Ruhrgebiet. In T. Heinze (Ed.), *Kulturtourismus: Grundlagen, Trends und Fallstudien* (pp. 262–291). Oldenbourg Wissenschaftsverlag. https://doi.org/10.1515/9783486800500.262

Juchelka, R. (2011). Die Bedeutung des Tourismus für den wirtschaftlichen Strukturwandel in altindustrialisierten Regionen - das Beispiel des Ruhrgebiets. *Grazer Schriften der Geographie und Raumforschung*, *46*, 309–318.

Kasapi, I., & Cela, A. (2017). Destination Branding: A Review of the City Branding Literature. *Mediterranean Journal of Social Sciences*, *8*(4), 129–142. https://doi.org/10.1515/mjss-2017-0012

Keil, A., & Wetterau, B. (2012). Metropolis Ruhr: A Regional Study of the New Ruhr. Woeste Druck + Verlag.

Kiese, M. (2019). Strukturwandel 2.0: Das Ruhrgebiet auf dem Weg zur Wissensökonomie? Standort, 43(2), 69–75. https://doi.org/10.1007/s00548-019-00581-6

Knapp, W., Kunzmann, K. R., & Schmitt, P. (2004). A Cooperative Spatial Future for RheinRuhr. *European Planning Studies*, *12*(3), 323–349. https://doi.org/10.1080/0965431042000195047

Köchling, A. (2021). Tourismus in altindustriellen Räumen. Auf Kumpel folgt Kultur – Chancen im Industrietourismus. In B. Eisenstein, Kampen Jule, & Weis, Rebekka, Reif, Julian, Eilzer, Christian

(Eds.), Tourismusatlas Deutschland (pp. 42–43). UVK Verlag. https://doi.org/10.24053/9783739880426-14

Köddermann, P. (2000). Städtetourismus im Ruhrgebiet. Tourismus Journal, 4(1), 71–78.

Lane, B., Weston, R., Davies, N. J., Kastenholz, E., Lima, J., & Majewsjki, J. (2013). Industrial Heritage and Agri/Rural Tourism in Europe. Advance online publication. https://doi.org/10.2861/13312

Latz & Partner. (n.d.). Duisburg Nord Landscape Park, DE. Retrieved February 24, 2025, from https://www.latzundpartner.de/en/projekte/postindustrielle-landschaften/landschaftspark-duisburg-nord-de/

LVR-Industriemuseum St. Antony-Hütte (2019, Dezember 18). *St. Antony-Hütte ist neuer Ankerpunkt der Route der Industriekultur.* Retrieved February 11, 2025, from https://industriemuseum.lvr.de/de/presse/aktuelles/pressemeldung/meldung_10624.html

Llurdes i Coit, Joan Carles (1994). El turismo industrial y la estética de los paisajes en declive. *Estudios Turisticos*, *121*(91-107). https://doi.org/10.61520/et.1211994.671

McGladdery, C. A., & Lubbe, B. A. (2017). Rethinking educational tourism: Proposing a new model and future directions. *Tourism Review*, *72*(3), 319–329. https://doi.org/10.1108/tr-03-2017-0055

Mfi Immobilien Marketing GmbH. (n.d.). *https://www.westfield.com/de/germany/centro/unterhaltung*. Retrieved April 29, 2025, from https://www.westfield.com/de/germany/centro/unterhaltung

Ministerium für Wirtschaft und Arbeit des Landes Sachsen-Anhalt (Ed.). (2003). *Industrietourismus in Sachsen-Anhalt: Kulturtouristisches und industriegeschichtliches Rahmenkonzept.*

Montenegro, Z., & Marques, Jorge, Sousa, Cristina (2022). Understanding the Concept of Industrial Tourism: A Systematic Review of the Literature. *ICTR 2022 5th International Conference on Tourism Research*, 271–280. https://doi.org/10.34190/ictr.15.1.235

Naßmacher, H. (2014). Tourismus als Option für alte Industriestädte? VM Verwaltung & Management, 20(6), 324–330. https://doi.org/10.5771/0947-9856-2014-6-324

Neill, B. (1992). Letter from the Ruhr: Creating an identity after coal. Planning Practice & Research, 7(2), 21–24. https://doi.org/10.1080/02697459208722843

Neumann, U., Trettin, L., & Zakrzewski, G. (2012). Tourismus im Ruhrgebiet: Chancen für kleine Unternehmen? (RWI Materialien No. 70). Essen: Rheinisch-Westfälisches Institut für Wirtschaftsforschung (RWI). https://www.econstor.eu/handle/10419/62147

Niederrheinische Industrie-und Handelskammer (Ed.). (2024). *IHK-Handelsreport Ruhr 2024 – Der Handelsreport der IHK*. https://ihkhandelsreport.ruhr/

Oberhausen Tourismus. (n.d.). *Westfield Centro*. Retrieved April 29, 2025, from https://www.oberhausen-tourismus.de/poi/westfield-centro/

Otgaar, A. (2010, November 30). *Industrial Tourism: Where the Public Meets the Private* (No. EPS-2010-219-ORG). *ERIM Ph.D. Series Research in Management*. Retrieved from http://hdl.handle.net/1765/21585

Pereira, R. L. G., Correia, A. L., & Schutz, R. L. A. (2012). Destination Branding: A Critical Overview. *Journal of Quality Assurance in Hospitality & Tourism*, *13*(2), 81–102. https://doi.org/10.1080/1528008X.2012.645198

Regionalverband Ruhr, Referat Bildung, Soziales und Regionalanalysen, Regionale Statistik und Umfragen (n.d). *Statistikportal Ruhr*. Retrieved April 22, 2025, from https://statistikportal.ruhr/#Demografie

Regionalverband Ruhr (Ed.). (2005). *Zahlenspiegel Ruhrgebiet, [Data set].*

Regionalverband Ruhr, Referat Bildung, Soziales und Regionalanalysen, Regionale Statistik und Umfragen (2016a). Besucherzahlen an den Ankerpunkten und Museen der "Route der Industriekultur" (Data record excerpt, provided on request, as at 02/12/2016).

Regionalverband Ruhr, Referat Bildung, Soziales und Regionalanalysen, Regionale Statistik und Umfragen (2016b). Bevölkerungsstand ab 1871 (Data record excerpt, provided on request, as at 02/12/2016).

Regionalverband Ruhr, Referat Bildung, Soziales und Regionalanalysen, Regionale Statistik und Umfragen (2016c). Tourismus in der Metropole Ruhr (Data record excerpt, provided on request, as at 24/07/2017).

Regionalverband Ruhr (Ed.). (2020). *Trägerschaft für den Emscher Landschaftspark: Evaluierungsbericht 2019*. Kettler.

Regionalverband Ruhr (Ed.). (2021). Metropole Ruhr: Die Region in Zahlen.

Regionalverband Ruhr, Referat Bildung, Soziales und Regionalanalysen, Regionale Statistik und Umfragen (2022). Sozialversicherungspflichtig Beschäftigte, Sektoren (seit 1976) (Data record excerpt, retrieved April 23, 2025 from https://statistikportal.ruhr/#Arbeitsmarkt).

Rodriguez-Zulaica, A. (2017). Redefining industrial tourism. Comparison of the term in Spanish, French and English literature. *Pasos-Revista De Turismo Y Patrimonio Cultural*, *15*(2), 311–318. https://doi.org/10.25145/j.pasos.2017.15.019

Ruhr Tourismus GmbH. (n.d.a). *Route Industriekultur*. Retrieved January 10, 2025, from https://www.route-industriekultur.ruhr/

Ruhr Tourismus GmbH. (n.d.b). *Zechenpark Friedrich Heinrich in Kamp-Lintfort*. Retrieved February 11, 2025, from https://www.route-industriekultur.ruhr/ankerpunkte/zechenpark-friedrich-heinrich-in-kamp-lintfort/

Ruhr Tourismus GmbH. (n.d.c). *Die Route Industriekultur - Route Industriekultur*. Retrieved April 27, 2025, from https://www.route-industriekultur.ruhr/die-route-industriekultur/

Ruhr Tourismus GmbH. (n.d.d). *Ankerpunkte Archiv - Route Industriekultur*. Retrieved April 27, 2025, from https://www.route-industriekultur.ruhr/ankerpunkte/

Ruhr Tourismus GmbH. (n.d.e). *RUHR.TOPCARD*. Retrieved April 28, 2025, from https://www.ruhrtopcard.de/

Ruhr Tourismus GmbH. (n.d.f). *Siedlungen*. Retrieved May 13, 2025, from https://www.route-industriekultur.ruhr/siedlungen/

Ruhr Tourismus GmbH. (n.d.g). *Panoramen*. Retrieved May 13, 2025, from https://www.route-industriekultur.ruhr/panoramen/

Ruhr Tourismus GmbH. (2017). *Komm zur Ruhr! Marketingstrategie 2017-2022 der Ruhr Tourismus GmbH.*

Schmude, J. (2003). Musicals in Deutschland: Eine Marktanalyse anhand des Modells des Produktlebenszyklus. Tourismus Journal, 7(1), 29–42.

Schnitzmeier, J. (1991). Die sieben Leitprojekte der Bauausstellung. In T. Sieverts (Ed.), *Arcus: Vol. 13. IBA Emscher-Park, Zukunftswerkstatt für Industrieregionen* (pp. 12–14). R. Müller.

Seltmann, G. (2007). *Renaissance of an Industrial Region: "Internationale Bauausstellung Emscher Park"–achievements and future model for others.* GseProject for regional development. http://www.riss.osaka-u.ac.jp/jp/events/point/P.Seltmann.pdf

Soyez, D. (1986). Industrietourismus im Saar-Lor-Lux-Raum - eine Chance für Industriegemeinden. In Deutscher Verband für angewandte Geographie (Ed.), *Material zur angewandten Geographie: Vol. 13. Fremdenverkehr und Freizeit: Entwicklung ohne Expansion: Ergebnisse der 3. Fachtagung der regionalen Arbeitsgruppe Saar/Mosel/Pfalz am 21. Juni 1985 in Trier* (pp. 71–88).

Soyez, D. (1987). Industrietourismus - Überlegungen zu Terminologie, Stand und Potential. In J. Conrad (Ed.), *Arbeitsmaterialien zur Raumordnung und Raumforschung: Vol. 49. Chancen für den ländlichen Raum - Regionalpolitik am Ende der 80er Jahre* (pp. 143–176).

Soyez, D. (1993). Kulturtourismus in Industrielandschaften: Synopse und Widerstandsanalyse. In Becker, Christoph, Steinecke, Albrecht (Ed.), *Kulturtourismus in Europa: Wachstum ohne Grenzen* (pp. 40–63). Europäisches Tourismus-Institut.

Stadt Oberhausen. (n.d.). *Stadtentwicklungsprojekt Neue Mitte Oberhausen*. https://www.oberhausen.de/de/index/wirtschaft-arbeit/stadtentwicklungsprojekt-neue-mitte-oberhausen.php

Statistisches Bundesamt. (2024). *Aktuelle Daten zur Tourismuswirtschaft: Tourismussatellitekonto für Wirtschaft und Umwelt (TSA-EE) 2015-2021*. Kurzfassung.

Statistisches Bundesamt (2016). Tourismus: Tourismus in Zahlen (Data record, retrieved April 26, 2025 from https://www.statistischebibliothek.de/mir/receive/DEHeft_mods_00096186).

Steinecke, A. (2006). *Tourismus: Eine geographische Einführung* (1. Aufl.). *Das geographische Seminar*. Westermann.

Steinecke, A. (2007). *Kulturtourismus: Marktstrukturen, Fallstudien, Perspektiven*. Oldenbourg. https://doi.org/10.1524/9783486711165

Steinecke, A. (2022). Tourism NOW: Industrie und Tourismus: Zwischen Fabrikruinen, Markenwelten und Kreativquartieren. Tourism Now. UVK Verlag; Narr Francke Attempto Verlag. https://doi.org/10.24053/9783739881904

Steiner, J. (2002). Das Beispiel Ruhrgebiet: Von der Ruhrgebiet Tourismus GmbH (RTG) zur Ruhrgebiet Tourismus GmbH & Co. KG. Tourismus Journal, 6(2), 215–221.

Steiner, J. (2003). Strategien und Maßnahmen zur Tourismusentwicklung im Ruhrgebiet. Siedlung Und Landschaft in Westfalen, 32, 65–73.

Tandzegolskiene, I. (2021). Revisiting Educational Potential of the Industrial Heritage Tourism: Ruhr Area in Germany and ignalina Power Plant Region in Lithuania. In N. Mazeikiene (Ed.), *Baltische Studien zur Erziehungs- und Sozialwissenschaften: Vol. 36. Learning the Nuclear: Educational Tourism in (Post)Industrial Sites* (pp. 19–63).

Tourismus NRW e.V. (Ed.). (2016). *Tourismus in Nordrhein-Westfalen: Zahlen-Daten-Fakten 2016.*

Trettin, L., Neumann, U., & Zakrzewski, G. (2010). Essen and the Ruhr Area - the European Capital of Culture 2010: The development of tourism and the role of small firms and entrepreneurs. ESRA Conference Papers Ersa10p357, European Regional Science Association.

Wehling, H.-W. (2022). The Industrial Cultural Landscape of the Ruhr: Its Structures and Perspectives. In S. Berger, S. Musso, & C. Wicke (Eds.), Palgrave Studies in the History of Social Movements. Deindustrialisation in Twentieth-Century Europe: The Northwest of Italy and the Ruhr Region in Comparison (1st ed. 2022, pp. 41–58). Springer International Publishing; Imprint Palgrave Macmillan. https://doi.org/10.1007/978-3-030-89631-7_2

Wolf, A. (2005). *Erfolgsfaktoren industrietouristischer Einrichtungen. Paderborner geographische Studien zur Tourismusforschung und Destinationsmanagement: Vol. 2.*

Xie, P. F. (2015). *Industrial heritage tourism. Tourism and cultural change: Vol. 43*. Channel View Publications. https://doi.org/10.21832/9781845415143