The impact of the COVID-19 pandemic on the use of urban green spaces by international youth in Bonn

Annebel Soer

The impact of the COVID-19 pandemic on the use of urban green spaces by international youth in Bonn

Annebel Soer

Publishing and archiving

Approved students' theses at SLU are published electronically. As a student, you have the copyright to your own work and need to approve the electronic publishing. If you check the box for **YES**, the full text (pdf file) and metadata will be visible and searchable online. If you check the box for **NO**, only the metadata and the abstract will be visible and searchable online. Nevertheless, when the document is uploaded it will still be archived as a digital file.

If you are more than one author you all need to agree on a decision. Read about SLU's publishing agreement here: https://www.slu.se/en/subweb/library/publish-and-analyse/register-and-publish/agreement-for-publishing/.

☒ YES, I/we hereby give permission to publish the present thesis in accordance with the SLU agreement regarding the transfer of the right to publish a work.

☐ NO, I/we do not give permission to publish the present work. The work will still be archived and its metadata and abstract will be visible and searchable.

Abstract

Throughout the COVID-19 pandemic in Germany, international youth is undergoing manifold negative impacts on their living situation, mobility, mental and physical health and their social life. It is well-known that urban green space (UGS) offers multiple benefits for all age groups, and there are specific advantages for youth in particular, which impact their lifestyle and usage of UGS during COVID-19. In this thesis, usage of urban green spaces in the city of Bonn are being studied, while the study focuses on international youth with specific lifestyle traits, which define their challenges and limitations while living in Bonn during COVID-19. This thesis researches the changes in usage of UGS by international youth during COVID-19, and will study the impacts of these changes on social cohesion, physical activity and mental wellbeing – three pillars derived from a study by Hartig et al. Additionally, the study will briefly highlight how these experiences can lead to more inclusive policy in relation to UGS.

To navigate youth's experiences, ethnographic interviews with several youth have been carried out, of which the results have been analysed and categorized. For this, a systematic method for analysing qualitative interviews (Grounded Theory) has been used. The method uses labelling and tagging of words called 'open' and 'selective coding'. Results showed social interaction and cohesion are one of the main incentives of visiting UGS, which is now severely affected, rendering international youth incapable to perform essential activities related to their specific lifestyles. UGS are often utilized as a tool to become more grounded in youths living environments through exploration, prior and during the COVID-19 pandemic. Conclusively, UGS serve as a green refuge to international youth, offering a space to exercise mental and physical wellbeing, and they have been proven crucial for coping with the effects of the COVID-19 pandemic. As youth is often ill-represented in policymaking in relation to UGS, future policymaking should be addressed to youth's needs and challenges, which will in its entirety lead to more inclusive and accessible UGS. Youth should occupy a central position while policies on UGS need to be developed, breaking currently existing generational barriers.

Popular Summary

Youth in Bonn, just like in other cities with lockdowns, is suffering gravely from the pandemic. Staying at home in their tiny apartments, pressure from work and the global crisis is sometimes hard to escape for international youth. Urban green spaces can offer relief from current restrictions – and are generally known to offer manifold benefits to youth such as encouraging social cohesion, lower the risk of developing disease later on in life, and keeping youth happy and mentally healthy. Unfortunately, youth, here international youth in specific, are ill-represented in policy ensuring and defining access to green spaces in cities such as Bonn. And since older generations are often more vocal and present in policy, adolescents are still the one group missing overall. Though, urban green space can specifically work as a green refuge for youth who are experiencing specific challenges like having limited access to space and transport, limited private space due to living conditions, and who experience being apart from their family and culture.

Working as a space for strengthening friendships, social inclusion and social networks, urban green spaces play an important role in the lives of international youth. They are essential for fostering social interactions and promoting a sense of community. Moreover, the greenness of urban green spaces improves youth's mental health, while offering a space to relax and release stress experienced by the COVID-19 pandemic. Urban green space also improves sleep quality, decreases risks of disease, and so on.

Around 20,000 international youth between 15-29 years live in Bonn during the COVID-19 pandemic. The COVID-19 pandemic has put a significantly burden on them, having experienced strong social and environmental influences due to the lockdown measures. According to research, almost 70% of the global student population has experienced the impact of lockdown measures of varying degrees, while roughly the same percentage reported significant limitations on recreational activities, including going out, meeting up with friends, pursuing sport and cultural interests and travel, as a result of the pandemic.

So how did international youth experience urban green spaces during COVID-19, and what changed?

Ample mentions of affect and experiences related to mental wellbeing have been found within the interviewee's statements. Clearly, positive notes of relaxation, happiness and enjoyment are associated with the visitation of urban green spaces prior to the COVID-19 lockdown, while notions of negative emotional feelings of the general restrictions and mental wellbeing outside of urban green spaces visitation are abundant. Some respondents mentioned they experienced anxiety while thinking about visiting, or while spending time in urban green spaces, while they also recognized the need they had of visiting urban green spaces and the relieving effect a visitation can have. Respondents acknowledged the positive effect urban green spaces have on poor mental wellbeing caused by the COVID-19 induced lockdowns – urban green spaces seem to help mitigate the pressing situation youth is experiencing.

Prior to lockdowns, the youth that has been interviewed used urban green spaces for their sports activities, ranging from biking, to yoga, to walking or running. Due to the individual nature of sports activities like running or biking and therefore the possibility to do these exercises individually under lockdown restrictions, it is still possible for youth to use urban green spaces for exercise during the pandemic. Though, research showed that most of the respondents initially took a break from performing physical activities, likely due to the restrictions of the pandemic, or possibly the uncertainty of possibilities for physical exercise or visitation or urban green spaces during the lockdown restrictions. For some respondents, it took some weeks, or even months, to resume these activities.

Confirmed by both research and theory, youth mainly uses urban green spaces to get together with friends, meet new people, or spend time with others – while having lunch, a drink, or simply to have a chat or play sports. All of the respondents mentioned social interaction in one way or another as a primary and frequent usage of urban green spaces. This could be interacting with friends, family or colleagues. Unfortunately, the pandemic rendered youth unable to gather in urban green spaces, which has a significant effect on youth's wellbeing as well. In this sense, mental wellbeing and social interaction are connected – youth are social beings, and they need these kinds of interactions to thrive and feel well.

What was interesting about the results of the research is that international youth likes to go and 'explore' urban green spaces, through visiting new areas. Youth likely has a stronger willingness than other age and socio-economic groups to use urban green spaces for the goal to explore the city, because they want to get to know the city and its environment, especially when having moved to Bonn recently.

Respondents mention 'visiting parks is a good way to explore (parts of) the city'. This is likely is due to the international background of the respondents. Even though respondents have been living in Bonn sometimes for three years already, youth uses the positioning and location of urban green spaces and other larger urban infrastructures to ground themselves in their new living environment. urban green spaces are a useful tool to do so, due to their use and popularity (there is probably a lot of word-of-mouth advertising by colleagues or friends to visit) and how they connect to the city fabric.

Mental wellbeing is one of the strongest incentives among international youth to visit green spaces, and urban green spaces offer a great deal in helping international youth to relax, come down and enjoy outdoor spaces while having limited access to nature. Urban green space works as a green refuge in times of crises and helps youth mitigate some of the emotional effects of the pandemic. While physical activity can still be exercised, although individually, social interaction in these spaces has dropped to almost zero, rendering youth incapable to exercise the activity that they prefer most, and that is most defining for what youth is doing in urban green spaces. Finally, research showed international youth in Bonn has special preferences, as they also like to visit urban green space to become more acquainted with their urban environment, which is now something that they are missing out on.

What recommendations does this research propose?
Bonn's municipal administration must work to include the 30% of Bonn inhabitants (which is expected to keep growing) by giving desired attention to, and research on what youth needs most, and how their needs can be better included in urban society. The COVID-19 pandemic has highlighted the importance ample urban green spaces, where everyone can enjoy nature to release stress and effects of the pandemic, and has revealed most important incentives to visit urban green spaces by international youth.

(International) youth heavily depends on urban green spaces to relief mental stress and to exercise. Bonn municipality needs to ensure enough green spaces and keep them open at all times. Additionally, the municipality should find ways to ensure social interaction, especially for international youth. This is one of the main uses of urban green spaces and is now severely limited. Promotion of outdoor activities in urban green spaces, although on distance, can be considered to be allowed as long as youth meets in smaller groups. Secondly, the municipality should be the primary responsible for the wellbeing of their citizens. International youth is often overseen as demographic and needs to be included in policy making – around 20,000 international youth in Bonn has their rights disregarded. Acces and use of urban

green spaces should be considered a primary right for citizens to stay healthy. The municipality of Bonn can launch project initiatives focused on the use of urban green spaces by international youth, during COVID-19, but certainly also in the future. Here, specific needs of youth need to be addressed and integrated in future design, such as social interaction and exploration. Some final key messages to conclude:

1. (International) youth with their specific needs and challenges are often overlooked in policymaking in relation to urban green spaces. Participation of the society and its individual members (and therefore youth) is one of the main principles of sustainable development and one of the main human rights.

2. The COVID-19 pandemic has put a significantly burden on international youth, having experienced strong social and environmental influences due to the lockdown measures, while responses during health crises are lacking solutions addressing younger generations. And since seniority is an important element in legislatures, adolescents are the one group missing overall.

3. International youth is characterized by specific needs and challenges in urban green spaces that are unique to them. Social interaction is of the main incentives of visiting urban green spaces, which is now severely affected, rendering international youth incapable to perform essential activities related to their specific lifestyles.

4. Urban green spaces serve as a green refuge to international youth, offering a space to exercise mental and physical wellbeing, and are crucial for coping with the effects of the COVID-19 pandemic. Though, the pandemic has heavily affected the possibility for international youth to roam in such spaces with the purpose of enhancing social interaction and cohesion, which leads to better integration of international youth.

5. The COVID-19 pandemic has revealed the subordinate role international youth plays in urban green spaces and has highlighted most important use of urban green spaces by international youth. Future policymaking should be addressed to youth's needs and challenges, which will in its entirety lead to more inclusive and accessible urban green spaces. International youth should occupy a central position while developing such policies, breaking currently existing generational barriers. Bonn municipality should upholster project initiatives focusing on the needs of international youth in urban green spaces, aimed developing spaces for, among other benefits, enhancing social cohesion, as one of the primary needs of international youth.

Preface

I started pondering about a research topic from the beginning of 2020, when I decided to take a half year break from studies to follow an internship at the FAO Forestry Department in Rome. Ever since the beginning of my master's trajectory, I wanted to conduct research focused on the social aspect of landscape architecture. After all, the field of landscape architecture is built on three main knowledge pillars: the knowledge and understanding of natural science (e.g., botany, soil science, climate studies, ecology), the arts and culture (landscape design, theory and history, visual communication), and finally: social studies. The profession of landscape architecture should always focus on the wellbeing of people, and I find inclusivity of all groups of people in our urban landscapes essential, and something I want to commit my skills as a landscape architect to.

My education in urban forestry has taught me the range of benefits urban green spaces offer to urban dwellers and how vital they are to a healthy and happy urban life. The pandemic has exacerbated gaps in society, take for example the inequality gaps widened during the pandemic in access to (mental) healthcare, public services, as well as the access to urban green space. Watching the news, regrettably, notions of inequality and exclusion of marginalized groups are a daily occurrence, making me think often on how our profession could help in advancing our society and addressing these disparities by making access to our landscapes possible for all.

I see access to urban green spaces as a vital part of living a healthy urban life and as a tool to educate, offer a space to relax and stay healthy, and to make society more inclusive – as I believe the life in urban green spaces should be a reflection of the myriad of people of all parts of society. So, when I found myself in a difficult situation in Rome with limited access to my favourite urban landscapes, I imagined there must have been more people like me experiencing the same or at least similar problems. Although might not be the first demographic you think of when speaking about a marginalized group, often we are still overlooked in policy and decision-making processes, arguably because of how challenging it can be to define youth and their needs, and how fleeting and ever-changing our lifestyles are. Separatism in terms of age-, discipline-, or gender-stratified division [within policymaking] does not offer a future-oriented and inclusive solution to immediate or longer-term

challenges (Plagg et. al, 2020). So, how can we use the pandemic situation to highlight the needs of youth and to give them a stronger voice, I thought? As follows, the pandemic gave me this opportunity to learn how to carry out a research focused on the societal aspects of landscape architecture, and to unite my passion and the knowledge of the several disciplines I have studied, and worked in for the past decade.

Table of contents

List of tables

List of figures

Abbreviations

To make it easier for the reader, you can make a list with common abbreviations in alphabetical order. Here you have a table you can use to make your list.
See example below:

SLU	Swedish University of Agricultural Sciences
UGS	Urban Green Space
COVID-19	Coronavirus disease 2019 is a contagious respiratory and vascular disease of zoonotic origin, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).
NRW	Nord-Rhine-Westphalia, Federal state in Germany
UN	United Nations
GDP	Gross Domestic Product
PA	Physical Activity
SB	Sedentary Behaviour
GT	Grounded Theory
MW	Mental Wellbeing
SIC	Social Interaction and Cohesion
IGO	Inter-Governmental Organization
NGO	Non-Governmental Organization
OC	Open Coding
SC	Selective Coding

NB: To avoid long texts and repetition, with the word 'youth', the researcher is referring to the interviewees and the group they represent in this research. In Chapter 1, the word youth is referring to the general demographic in global academic research.

1. Introduction

Youth are social animals. A large part of their adolescent life consists of making connections with peers and interacting with people as part of becoming an adult and actively shaping their circle of close ones through interactions related to work, in spare time or in their studies. Green space can play an important role in fostering social interactions and promoting a sense of community, especially in urban areas often lacking other public spaces (Kim and Kaplan 2004 see WHO 2016).

There is a well-known protective effect of social relationships on health and well-being, while social isolation is a known predictor of morbidity and mortality (Nieminen et al., 2010; Pantell et al., 2013; Yang et al, 2016 see WHO 2016). Hartig et al. (2014) suggest four principal and interacting pathways through which nature or green space may contribute to health: improved air quality, enhanced physical activity, stress reduction and greater social cohesion.

Based on literature on the benefits of UGS to youth and the four pathways defined by Hartig et al., this thesis will focus on following **three** main benefits of usage of UGS by youth, and how they have been influenced by the COVID-19 pandemic:

1. Mental Wellbeing

2. Social interaction and Cohesion

3. Physical Activity

Additionally, a fourth category will be presented in the analysis, which has been developed after initial analysis of the interviews (page 45).

1.1. Aim and Research Questions

The aim of this research is to understand the changing use of Urban Green Spaces by international youth in Bonn. Generally, youth as a demographic is poorly represented in urban green space policies. The assumption is that youth would have developed different uses of UGS during the COVID-19 pandemic. Supposedly, the

functions and mental and physical health benefits have changed. Youth will feel an increased necessity to visit UGS but might encounter difficulties in usage of the spaces. As a result of the pandemic, UGS gained a more central focus and an increased value amongst youth. UGS became a *green refuge*, a place to find distraction or relief from pressing issues related to personal life, like home officing, social isolation and the general mental and physical impact of the measures and restrictions taken to reduce COVID-19 cases. As a consequence, usage of UGS might have changed, the green refuge being a space for relief (mental well-being), social interaction and physical activity. With gyms, bars and other public services closed, UGS will to some extent serve as, and partially replace these services.

This research focuses on the social aspect of landscape architecture, which is one of the three pillars of the profession. Without our users, landscape architecture would be purposeless. In my role as landscape architect, here I study the perceptions and experiences of international youth as a specific target group which can help both landscape architects and policymakers give an insight in their behaviour. Ergo, the result of this thesis informs the field to make better design and policy choices, specifically regarding urban green spaces in cities and their purpose. Arguably, the field of landscape architecture is still lacking knowledge of the needs and experiences of youth in the category discussed here, which the thesis aims to elaborate on, and contribute to. The study will advise future policy towards youth in urban green spaces, through establishing UGS as a green refuge during global crises.

It will also emphasize the important role UGS play in youths' lives. Youth is often excluded in policy processes, as youth is a difficult demographic to define. The study will debate for a more fundamental inclusion of youth as part of all demographics and age categories in UGS planning and policy processes.

The research questions are:

1. How does international youth in Bonn experience changes in usage of UGS during Covid-19?

2. What is the impact of these experienced changes on social cohesion, physical activity and mental health?

3. How can experiences of international youth during the pandemic contribute to more inclusive policy in relation to Urban Green Spaces?

1.2. Background

1.2.1. Bonn: an international hub

Bonn is a medium-sized city located on the banks of the Rhine, in the province of Nordrhein-Westfalen (NRW), a province adjacent to the Dutch border. Located around 25 kilometres from Cologne, the city hosts a population of over 300,000. Bonn is in the southernmost part of the Rhine-Ruhr region, Germany's largest metropolitan area, with over 11 million inhabitants.
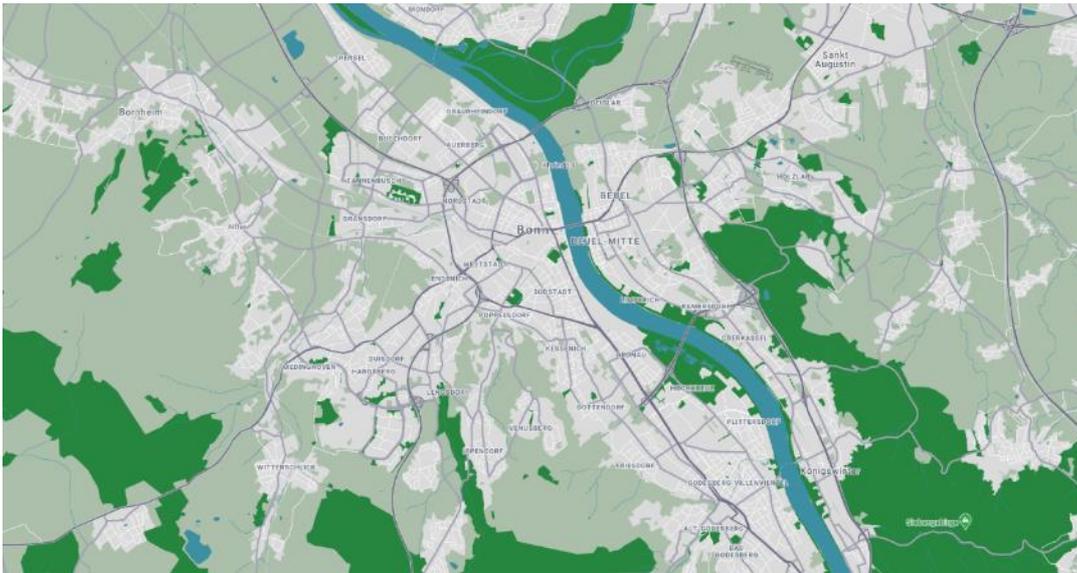
Figure 1: Map of Bonn, showing peri-urban and UGS marked in dark green. Source: Google Map Styles

It is famously known as the birthplace of Ludwig van Beethoven in 1770 as well as the capital city of West Germany until 1990, although the city is still considered as a 'second' capital due to the ministerial presence – around one-third of the ministerial workforce is located in Bonn (New York Times, 2011). The Rhine river takes a prominent space within the city's infrastructure, offering several urban green areas for its inhabitants to relax, socialize and exercise. The most popular UGS in the city are the Rheinaue park (developed in the 1970s), the Rhine Boulevard and the Hofgarten.

Figure 2: Aerial view over Bonn taken from the southeast, with Rheinaue park in the foreground. The park is often mentioned (in interviews) as a place where international youth like to go. Source: WDR

Figure 3: Another aerial axonometric view showing Bonn city centre, the Haupbahnhof, Stadthaus, and part of the renown Hofgarten, another popular park, in the foreground. Source: Pickist

With its idyllic green surroundings, it the city waits to be explored by nature-lovers, hikers and cyclists. Bonn is a multicultural city where people from around 180

nationalities live peacefully together. Bonn has developed a profile that is unique in the world as a second political centre (Berlin being the primary hub) and a place for international dialogue – Germany's United Nations city focusing on environment and development. UN Bonn has become the hub of UN efforts geared towards global sustainable development with 23 UN secretariats, among them the UN Climate Convention and the SDG Action Campaign. The city also hosts 170 globally active institutions and NGOs and many other players in the field of sustainability, development and cooperation. The landmark of the city's international district is the UN Campus, located between the city centre and Rheinaue.

Bonn municipality is growing over the past few years (at least since 2012), and is expected to keep expanding. Of all inhabitants, the most common origin countries or continents outside of Germany are European (10,223) (other than Poland and Italy), Asia (7,334), Turkey (5,536), Africa (4,360), America (2,089), and Italy (1,798). There are 68,336 people aged between 15-29 years living in Bonn, of a total of 305,765 inhabitants according to the 2011 census (so, 22,35% is youth). It is unknown what the nationalities of the youth category in specific are, though it is known that a little less than 30% of the total youth population between 15-29 years is born elsewhere, therefore **around 20,000 international youth (not being born in Germany) aged between 15-29 years live in Bonn** (Citypopulation.de, 2020). Compared to all of Germany, the share of young residents in Bonn is larger than on average (Old Age Index of +/- 120 vs 155 in Germany) (Urbistat, 2020), while there is an almost 50/50 gender balance within the youth category.

1.2.2. Timeline, context and history of the pandemic in Bonn

As the pandemic is still working through its course globally at the time of writing, it is difficult to provide a comprehensive and complete overview of the influence the pandemic has on youth long-term in Germany. WHO shows up-to-date data on cases in Germany, currently sitting at 1.640.858 confirmed cases of COVID-19 with 29.778 deaths (December 28th, 2020) (WHO, 2020). A timeline of the research project 'Exemplars Health' shows the country's early response, as soon as the first case of infection was registered (on January 27, 2020). The government's measures can be identified in two phases, with a first and second semi-lockdown phase (update: a third lockdown phase has been put in place around the second half of December). The IMF has summarized Germanys policy response:

> Germany registered the first confirmed COVID-19 case on January 27th, 2020. The government responded with a range of measures to contain the spread of the virus through border closures, closure of schools and non-essential businesses, social distancing requirements, enforcement of mask-wearing, and a ban on public gatherings. Following a steady decline since early-April, infections are again on the rise, with daily new cases gradually

trending up since late July and now exceeding the previous peak. However, mortality rates remain relatively low to date.

In light of the rising number of new infections in Germany since the summer vacation season, a mandatory COVID-19 test requirement, in addition to 14-day quarantine, for people entering from around 130 "high risk" countries upon their arrival came in effect on August 8th. Mass events remain banned until at least end-2020, and local governments have committed to tightening local containment measures where infections exceed the "emergency brake". Non-essential travel from and to high-infection hot spots are discouraged. On October 14th, federal and state governments agreed on common hot-spot strategy: whenever and wherever the threshold of 50 (new cases per 100K inhabitants over 7 days) is exceeded, local governments shall tighten mask-wearing mandates, limit public and private gatherings, and introduce curfews for restaurants and bars.

Against a rising second wave of infection, a nation-wide "lockdown light" was introduced for the month of November: Restaurants/bars, leisure/sports and personal services providers will be closed nationwide, though schools remain open. Gathering in public is limited to maximum 10 persons from two households. Non-essential travel is strictly discouraged and hotels must not offer accommodation to tourists (IMF, November 20, 2020).

Many sources claim and show (Exemplar health, Deutsche Welle, etc.) the fast and adequate response of the country of Germany which has been celebrated and noted as 'exemplary' to other nations, has helped flatten infection rates quickly during the 'first wave' In general, two 'COVID-19 waves' can be identified, when interpreting the trends of infection rates and the response of the German government. The first wave occurred from the first COVID-19 case in Germany in January, until April or May, after which across Europe, mobility and travel restrictions were again eased. After a rise of cases starting in the end of July, due to the holiday season, cases are now exceeding the peak of the first 'wave' and again, regulations have been imposed, now stricter than before. The nation-wide 'lockdown-light' mentioned above, has been put in place from the start of November, and will now last until January 10th, according to an update on December 13th, 2020.

Just recently, before finalizing the thesis, a third lockdown response has contributed to Germany's policy response. Since December 16, the lockdown has been tightened in light of continued high infection rates and rising death rates. The decision came as Germany reported a record of nearly 30,000 new infections and 598 deaths from Covid-19 a few weeks before Christmas. Under the decree, most shops are closed from December 20, 2020 until January 10 2021, as will hair salons, cosmetic studios, massage parlours and tattoo shops. Schools will remain closed during the period and companies have been encouraged to allow employees to work from home. A government statement said German hospitals, especially intensive care wards, were under increasing strain due to the "high number of gravely ill corona patients". A lockdown was needed to prevent the healthcare system becoming "overburdened", it said. A "lockdown-lite" imposed at the start of November — under which restaurants, bars, theatres and gyms were closed, but

schools and shops remained open — briefly succeeded in stopping the exponential growth in cases. But infections started to surge again as people met friends and relatives in greater numbers ahead of the Christmas holiday (FT, 2020).

1.3. Theory

1.3.1. Demographics of youth

There is no universally agreed international definition of the youth age group. For statistical purposes, however, the United Nations—without prejudice to any other definitions made by Member States—defines 'youth' as those persons between the ages of 15 and 24 years (UN, 2020).

Germany uses the age range of 15 until 29 years (European Council Youth Partnership, 2016). The document also describes characteristics of youth: key events could be the milestone in education to job transition, maintaining residential independence from the parental home, going from being financially dependent on parents to managing its own money, and the transition from being a child to raising own children. Wyn and White on youth:

> Young people grow up in incredibly varied circumstances, with different priorities and perspectives and does not exist as a single group. Youth as an age category for institutional and policy purposes, generally starts at age 13 and continues until the age of 25 – it is likely that in the future this shifting category will extend even further, at both ends. Youth is roughly understood as constituting the period between the end of childhood on one end, and the entry into the world of work on the other.

The fact that the category of youth will extend even further could be explained by societal changes and different responsibilities and expectations of youth within their age category. A globalizing world means a more diverse world, with youth becoming a more diverse category as well. Presumably, access to services such as the internet, a smartphone and social media, could lead to a new type of youth that grows independently more quickly and educates themselves about society and the world around them through growing social media and internet access. Opportunities to learn, work abroad, grow and travel become more available and accessible as they browse the internet. Knowing more about the world, could mean that travel and studying abroad becomes easier to pursue. Globalization in general has given youth more opportunities for their work and their lifestyles globally, and therefore is hard to define. But one thing youth has in common:

It is a relational concept because it exists and has meaning largely in relation to the concept of adulthood. If youth is a state of 'becoming', adulthood is the 'arrival'. (Wyn and White, 1997).

The ambiguity of the above definition and the lack of further specification rather than only age, portrays how youth and their lifestyles in between the ages are notably diverse, as individuals within this category transition into different roles and occupations. The cloudiness is making youth both difficult to grasp and define in this thesis, as well as making it difficult to identify research on youth and to even study youth in targeted ways. Youth can mean so many different things – from a high school student, to being unemployed, to a fulltime working individual, sometimes even taking care of children or running a household. Additionally, relationships and social interaction play a large role within this age category and can take many shapes and forms, identifying lifestyles.

This thesis focuses primarily on a *specific* type of youth, that is either doing tertiary studies, or having already graduated from their follow-up studies and is settling within the highly educated middle class as a young professional. The target group is international youth in Bonn who generally works within an international institution, Bonn being an international hub and therefore a cradle for freshly graduated students looking for a job in the international development sector – it is also presumed that the individuals interviewed in this thesis represent a sizeable share of Bonn's youth, due to Bonn's identity as international development hub. International youth as defined in this thesis carries their own unique opportunities and challenges within the subject matter: they start a new life, perhaps planning to settle in Bonn for the long haul, with sometimes limited financial means, having to overcome language barriers, their family and friends being far away, and limited access to public services and personal transport. These limitations are defining the target group specified in this thesis – though it cannot not be determined what the exact age range of this target group should be that the research focuses on, even though respondents are all between 20-29 years old, fitting within the age range handled by the federal state of Germany.

Thus, it can be argued that the most prominent common denominator of the target group is generally the choice they have made to become a young expat, working in the international development sector in Bonn and surroundings. This does not necessarily mean that other types of young people in other phases of their life do not experience similar effects and phenomena as described in the results in the thesis, nevertheless, one must be careful with the overgeneralization of results. To conclude – the target group in this thesis is representative of a *specific* youth category in Bonn, but cannot be representative of youth in Bonn in general.

The discussion above shows how diverse youth is as a category – here focusing on the 'older' section of the category – as opposed to other age categories that presumably have quite consistent lifestyles, like the elderly. This diversity poses a very interesting research target group which should be studied more in-depth, to gain an understanding of in this context – the specific needs and challenges posed in relation to the visitation of UGS during the COVID-19 pandemic.

1.3.2. Urban Green Spaces

There is no universal definition of urban green spaces. Some definitions of urban green space include water bodies as well, while some other disregard urban green infrastructure like tree boulevards and disregard smaller areas, like pocket parks and green around parking spaces. The most common definition of urban green space that has been used in studies in Europe is based on the definition from the European Urban Atlas (European Union, 2011): it includes public green areas used predominantly for recreation such as gardens, zoos, parks, and suburban natural areas and forests, or green areas bordered by urban areas that are managed or used for recreational purposes.

This thesis uses the broad definition of urban green spaces: all greenspace within the peri-urban and urban perimeter of Bonn, such as cemeteries, (urban) forests, parks and vegetable gardens, pocket parks, green lanes, green road infrastructure et cetera, derived from a study carried out by the WHO (2011). The boundaries of Bonn have been more or less defined by the administrative boundaries, although sometimes exceptions are more for peri-urban green spaces that are easily accessible and within a range of 1-3 kilometres from the administrative boundary of Bonn. In the research we focus on urban green space that is always open to the public (so no fencing or entrance fees), with a particular focus on international youth. UGS is used as a plural in this thesis, indicating all urban green spaces in Bonn considered as a general amenity.

1.3.3. The pandemic and youth health

According to Plagg et al., the COVID-19 pandemic has put a significantly burden on youth, having experienced strong social and environmental influences due to the lockdown measures. In fact, almost 70% of global student population has experienced the impact of lockdown measures of varying degrees. Children and youth represent the highest risk group to mental and physical damage caused by the lockdown measures imposed. A British study (Young Minds, 2020) recently found that 26% of 2111 included children with mental health needs were unable to access mental health support during COVID-19.

Responses during health crises are often lacking solutions addressing younger generations. And since seniority is an important element in legislatures, children and adolescents are the one group missing overall. The unbalanced distribution of intergenerational interests regarding health policies has been evident before and will continue to be a key challenge on a global scale: In the disease continuum from acute to chronic, scientific evidence shows there are increasing threats to children as due to increased environmental threats it's "highly probable that this current pandemic will be neither the last nor the worst global health crisis of the present century" (Plagg et al., 2020).

1.3.4. Urban Green Space: a multitude of benefits to youth

To understand the changes experienced by youth in relation to the COVID-19 pandemic this thesis uses a framework based on Hartig et al. (2014). The framework consists of three parts: social interaction and cohesion, physical activity, and mental well-being.

According to research in Switzerland, public urban green spaces play an important role in young people's social networks, including friendships across cultures, promoting social inclusion (Seeland et al., 2009 see WHO 2016). A case study in Lithuania (Vaznonienė & Vaznonishas, 2020) determined that green spaces provide considerable social benefit to both the youth and the local community. Participation of the youth in various activities in green spaces enhances their values, expands the field of knowledge about the natural environment, cultivates healthy lifestyle attitude, contributes to positive socialization not only in the local community, but in the society as well.

Participation of the society and its individual members (and therefore youth) is one of the main principles of sustainable development and one of the main human rights. According to Lewis (2000), Wake (2007), Jociūte (2012), promotion of integration into society and assurance of participation in various activities are important in reducing social disparities and increasing social integration. WHO (2002) emphasized that the degree of integration and participation depends on its level and may range from the sense of 'participation' to "being a part of" or "sharing something". Ability to be with people and among people rather than acting individually strengthens manifestations of individualism, alienation or even leads to social exclusion – is viewed as the key factor under this concept.

Challenges for youth participation in UGS might arise when it integrates different categories of young people. Some of the challenges towards better participation are common to youth, due to their specific age of life and sociodemographic categories

(Jaszczak et al., 2018). The research shows that indeed, there are large differences within the age range of 'youth' which cause difficulty of integration and participation in UGS, thereby supporting the researchers' assumption that the age category is too broad, and includes a too broad range of youth in different stages of life, see chapter 1.2.3.

Moreover, research from Switzerland shows that social inclusion among Zurich's young people (please do note: the participants are 10-17 years old) depends in many practical respects on urban public green space. Outdoor activities are popular among Swiss and foreign resident youngsters, even as this generation is said to be increasingly oriented towards the virtual reality of the cyberworld. For socialising and making friends, public open space is still the dominant arena for personal interactions and face-to-face communication. The survey of Swiss and foreign children and youths in selected quarters of Zurich and two nearby communities has shown this rather clearly. To see and be seen among one's peers and to make friends are essential for the social cohesion that is a prerequisite for social inclusion. Sports and other leisure activities in convenient and attractive outdoor environments such as parks, playgrounds, and urban forests that are free and geographically accessible provide occasions for youngsters to meet and make new friends. A society that considers the potential of public urban green space for social interaction in its green space planning has recognized the social policy value of the landscape (Seeland et al., 2009).

Physical activity in UGS during adolescence is associated with many health benefits, including improving cardiovascular health (Janssen & LeBlanc, 2010), bone and skeletal health (Gunter et al., 2012), cognitive functioning (Kellert, 2005), motor skill development (Riethmuller et al., 2009), and sleep quality (Philbrook and El-Sheikh, 2016) (Akpınar, 2020). An example of how youth is generally less considered in the design of UGS is found in this study as well: UGS designed primarily for younger children were found as significant UGS-based barriers that were negatively associated with adolescents` physical activity.

For young people, access to green space is critically important for promoting physical activity. Several studies have also pointed out that social factors play a role in enhancing physical activity in UGS, suggesting that urban spaces that encourage social interaction also stimulate physical activity. Van Hecke et al. have found that when visiting parks, youngsters prefer the presence of their peers, whether they are active or inactive, although when they visit a park with the specific aim of exercising, they prefer a park with active or no peers over a park with inactive peers (Veen et al., 2020).

Finally, some studies have found girls to be less active than boys in parks, partly due to perceived gender stereotypes (e.g., football is for boys). In contrast, Akpınar (2020) found a positive correlation between the existence of sports fields and physical activity amongst girls.

In children and adolescents, there is significant evidence for an inverse relationship between green space exposure and emotional and behavioural problems. For older children and adolescents, associations with mental health are found with average greenness in the surrounding neighbourhood and with the quality of green spaces, suggesting that this age group, as opposed to children, benefits not merely from the closest green space, but rather from green spaces of their choice, reflecting their growing autonomy (Vanaken & Danckaerts, 2020).

Research in the United Kingdom has shown that there is a great attraction in risky and adventurous activity, especially for adolescent boys. Wild or natural environments that offer challenge within an accessible context can help satisfy the need for risky and adventurous behaviour among adolescents (Natural England, 2010b). Opportunities to develop skills in risk management and coping with uncertainty, important attributes for adulthood, are often unavailable to teenagers and young people unless they are introduced to wilder areas and risky situations (Natural England, 2010b).

1.3.5. Policy: Urban Green Spaces and Youth in Germany

This section will study how youth is represented in German policy and to what extent, researching the inclusion of youth in policymaking and identifying the currently existing gaps. First and foremost, it must be mentioned there is a limited amount of policy available, indicating the lack of addressing challenges that this age category experiences.

The leading government authority responsible for the development, coordination and implementation of the joint youth strategy (Jugendstrategie) of the Federal Government is the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (Bundesministerium für Familie, Senioren, Frauen und Jugend, BMFSFJ). The Federal Youth Strategy identifies nine youth-relevant fields of action and lists a total of 163 measures of all ministries which will be newly adopted or further developed.

The chapter on Environment Federal Youth Strategy showed most interesting information on access to UGS for youth:

> "The term "environmental justice" describes questions of the unequal social and spatial
> distribution of environmental pollution on the one hand and quality-of-life-enhancing

environmental uses on the other, which particularly affect young people. For example, **young people** from socially disadvantaged population groups, despite their usually smaller ecological footprint due to their place of residence, are **often more affected** by environmental pollution than other population groups and **have less access to green spaces.** The increased exposure to noise and air pollutants has a negative effect on the health status of **young people**".

In this section of the document, we find a brief mention of a reduced access to green spaces amongst youth. Though, no further strategy or policy on how to improve access to green spaces has been mentioned. Nor is there a mention or specifically *urban* green spaces in this policy document.

Even though UN clearly addresses several aspects of environment to focus on, outside of the common denominator of 'Klimawandel' and 'Klimaschutz'. The document is rather generic and seems to serve more as an overview of policies rather than comprehensive action plans. The policy document 'Grün in der Stadt-Für eine lebenswerte Zukunft of the BMI (Federal Ministry of the Interior, Building and Community) includes UGS (Stadtgrün) and focuses briefly on the health benefits of UGS, as also mentioned in the introduction of this thesis.

Focused on youth, Urbane Liga (Urban League) is a project of the Federal Ministry of the Interior, Building and Homeland. It originated from the Youth Forum of Urban Development. The aim of the project is to create a space of opportunity for young people who want to discuss their cities and actively participate in shaping them. The project is supported by the office 'stadtstattstrand - Kreativer Umgang mit urbanem Raum' and the Bundesinstitut für Bau-, Stadt- und Raumforschung (BBSR). The platform also focuses on Freiflächen (open spaces) and urban greening projects. A resource on 'Werkzeuge' shows different ways in which youth can become more engaged in the development of their cities (and therefore also its urban green spaces) – some examples are interventions, demonstrations, expert-workshops, the use of social media, and vision mapping.

Ensuring proper access to UGS for (international) youth has not been included in Federal law in Germany, although it has been included as a general topic in environmental and urban policy. Ministry-led initiatives attempt to engage youth, giving them spaces of creation and generating ideas. It is unclear what the impact of the work of youth in these spaces is on the actual use of urban green spaces, although according to social media, some urban projects have been executed with the help and engagement of youth, for example the project *Urbane Liga*. As limited examples of engagement of youth and the function of UGS that should be included for this category are available, it can be concluded that not the full age range of youth (14-29), even a very limited range, has been considered in the access, planning and maintenance of UGS.

The main services for youth to benefit from that are included in the structuring of UGS are services like playgrounds, nature adventure paths, and so forth, primarily for the younger 'half' of the age category. This could be due to the fact that young adults in the youth categories have more diverse and pronounced usage and access preferences than the younger category of youth (14-17 years old). As discussed in paragraph 1.2.3., youth is difficult to define and has diverse needs, and the ambiguity of youth might explain why there are no policies specifically addressed to this group. Moreover, due to the relatively small share of youth that has an international background, they have not been considered overall and little to no policy has been defined for this group, showing a clear gap. The policy study is not comprehensive and valuable enough and cannot be considered as a guiding framework. Thus, the thesis will focus more on the theoretical background and interviews to try to answer the research questions.

1.3.6. What is the confluence of UGS and international youth during the pandemic?

The COVID-19 pandemic and its socio-economic impacts are expected to affect mental health and wellbeing of youth negatively. Social isolation, disrupted education and uncertainty about the future are some of the channels through which COVID-19 impacts emotional development. A survey by the International Labour Organization found that globally, a staggering 50% of young people aged between 18-29 are possibly subject to anxiety or depression, while a further 17% are probably affected by it. Average wellbeing for young women has been found to have been lowered with 7 percentage points as opposed to men's likeliness to show possible depression or anxiety (ILO, 2020).

An unavoidable corollary to stay-at-home measures has been the limiting of young people's freedom of movement, which has had a severe impact on the rights of youth to leisure, to participate in public affairs and to practice their religion or beliefs. Sixty eight percent of young people reported significant limitations on recreational activities, including going out, meeting up with friends, pursuing sport and cultural interests and travel, because of the pandemic. Young women registered a greater impact on their rights to leisure (71%) than did young men (65%) (ibid.).

The COVID19 has motivated several international organizations such as UNESCO to launch youth campaigns evolving around engaging youth in the 'new normal' (UNESCO, 2020). Youth is also being addressed in national TV commercials, urging youth to stay home (Jakarta Post, 2020).

According to an US study on children of young age, short-term changes in physical activity and sedentary behaviour in reaction to COVID-19 may become

permanently entrenched, leading to increased risk of obesity, diabetes, and cardiovascular disease in children. (F. Dunton et al., 2020). Frequent PA in UGS is likely to reduce the risk to become subject to aforementioned non-communicable diseases. During the COVID-19 lockdown in Switzerland, increase in leisure-related sedentary activity was associated with decreasing physical health, mental health, and subjective vitality (Cheval et al., 2020).

Thus far, no comprehensive research has been found on the impact on social aspects related to visitation of UGS. Though, sources can confirm in general, social interaction has been highly impacted during COVID-19. The COVID-19 pandemic has caused inequalities among social classes to become even greater. Youth is one of the demographics that has experienced strong effects of the COVID-19 pandemic, especially related limited possibilities for social interaction.

A study published in The Lancet for Child and Adolescent Health (Orben, et al., 2020) carried out among adolescents between 10-24 years old shows physical distancing measures to contain the spread of COVID-19 have removed many sources of face-to-face social connection from people's lives, which might affect people's mental health, particularly in adolescence, a period of life characterised by a heightened need for peer interaction. The findings of the study highlight how physical distancing might have a disproportionate effect on an age group for whom peer interaction is a vital aspect of development. Finally, a report from the Australian Human Rights Commission (n=2,567) shows that the main concerns of youth from 18-25 years is to experience mental health concerns, followed by social isolation and impacts on family life.

2. Methods

The research is based on both inductive and deductive methods. Literature research focused on how youth is currently represented and taken into consideration as a demographic in the design and management of urban green spaces in Germany. Secondly, interviews with selected international youth are carried out to uncover affect and experiences during the lockdown from a first-person perspective. Categorization and analysis of the results will lead to a comprehensive overview, which will then be juxtaposed with theory from chapter 1.

2.1. Interviews

Looking into personal experiences of youth in Bonn, interview methods based on humanistic interview styles or ethnographies gathered data related to the physical and mental health of youth in relation to the visiting and access to UGS, and to how these experiences changed. The research focused mainly on gathering information from interviewee respondents, showcasing personal experiences related to the limitation in access or visitation to UGS.

The interview method used to collect responses is loosely based on ethnographic interviewing styles. Ethnographic techniques are founded on the idea that standard interview techniques often overlook shared assumptions, contextual understandings, and common knowledge that allow respondents to understand the meaning of questions and answers. Ethnography strives to describe native ideas and experiences from the native point of view, rather than through preconceived notions of the researcher. (Johnston et al., date unknown). The interview style used can be best described as an informal conversation with the interviewee, after explaining the goal for the interview and how it will contribute to this research. Respondents are aware of a set of questions but are encouraged to elaborate on questions or bring up recollections of situations not necessarily related to the initial questions.

Through using ethnographic style interviews, the research aims to display elaborate accounts of youth's experiences related to specific events or moments in time during the COVID-19 pandemic. With the pandemic still happening and being

freshly present in the minds of youth, the research contains detailed accounts. The broad interview questions were developed keeping in mind that they are to be answered openly, allowing for elaboration from the interviewee and the interviewer. Therefore, interview questions slightly differ per interview. A set of mandatory questions has been identified, upon which additional questions have been posed at moments where necessary for clarification purposes, or where there was reason to do so to receive more detailed responses.

Apart from the questions, during executing the interviews, time and space has been given to participants to answer elaborately, allowing to deviate from the specific question to try to establish a more detailed account, as testimonials of events or feelings not specifically related to access to UGS can help shaping a temporal framework through which experiences can be understood.

Interview process

The majority (all but one) of the interviews has been carried out through Zoom, an online conferencing software which allows recording of the interview. All audio tracks have been transcribed, with saved audio tracks allowing for replaying and further analysis apart from the transcripts. The interviews lasted between 29 and 58 minutes.

2.2. Grounded Theory in qualitative research and analysis

Grounded Theory (GT) is the most popular framework for analysing extensive qualitative data, such as interviews or ethnographies. The aim of the method is to discover social and social psychological processes, where the theoretical sampling (see below) refines, elaborates and exhausts conceptual categories. There are roughly four phases in the Grounded Theory approach that can be identified:

- Theoretical sampling— the process of data collection for generating theory whereby the analyst jointly collects, codes, and analyses their data and decides what data to collect next and where to find them, in order to develop their theory as it emerges. The process of data collection is controlled by the emerging theory, whether substantive or formal (Glaser and Strauss, 1967).
- Coding—the key process in grounded theory, whereby data are broken down into component parts, which are given names.
- Theoretical saturation— a process that relates to two phases in grounded theory: the coding of data and the collection of data (implying that, once a concept or category has been developed, you may wish to continue

collecting data to determine its nature and operation but then reach a point where new data are no longer illuminating the concept).

- Constant comparison—an aspect of grounded theory that was prominent in Glaser and Strauss (ibid.) and that is often referred to as a significant phase by practitioners, but that seems to be an implicit, rather than an explicit, element in more recent writings. It refers to a process of maintaining a close connection between data and conceptualization, so that the correspondence between concepts and categories with their indicators is not lost.

Coding is one of the most central processes in grounded theory. It entails reviewing transcripts and/or field notes and giving labels (names) to component parts that seem to be of potential theoretical significance and/or that appear to be particularly salient within the social worlds of those being studied. As Charmaz (1983: 186) puts it: 'Codes…serve as shorthand devices to label, separate, compile, and organize data' (Bryman, 2012).

Charmaz (2006) prefers to distinguish between two main forms or phases of coding: initial coding and selective or focused coding. Initial coding tends to be very detailed and may even result in a code per line of text, whereby a code is assigned to every line of text to provide initial impressions of the data. It is crucial at this stage to be open-minded and to generate as many new ideas and hence codes as necessary to encapsulate the data. It is the qualitative researcher's first steps towards making sense of his or her data.

Data for this study has been collected over a period of several weeks between September-October 2020, without intermittent adjustments to the data collection approach. Examples of grounded theory that reveal all its facets and stages is very difficult, according to Bryman (ibid.). In this light, the GT method has been adjusted for research purposes, eliminating iterative getting back to interview respondents or adding new accounts, due to time limitation not allowing for this process. The following adjusted and simplified interview analysis process fitting the research purpose and time limitations has been developed:

- **Theoretical sampling and literature studies**— conducting literature studies related to the hypothesis prior to, and in parallel with the collection of interviewees' responses. Traditionally, GT works with data collection and analysis simultaneously, while this research starts with collection, and only analyses data afterwards.
- **Open and Selective coding** —the key process in grounded theory, whereby data are broken down into component parts, which are given names. This research uses briefly the open and elaborately the selective approach, which

'through selective coding, aims to find the core category [as] the central issue or focus around which all other categories are integrated - the storyline that frames an analytical account of the phenomenon of interest" (Bryman, ibid.).

- o Start with open *coding*: go through all interviews once and mark sections of sentences, words, or full sentences potentially descriptive or contributing to the theory and hypothesis
- o Take *notes* after doing this of first findings in separate document – merging observations from text
- o Again, go through every interview and link, comment, analyse in text by adding notes and additional markings and labels.
- o Finally, using step 1, 2, and 3, merge and start *categorization*, and ultimately analysis
- **Analysis and comparison of data** — the process of maintaining a close connection between data and conceptualization, so that the correspondence between concepts and categories with their indicators is not lost.
- **Discussion of results**.

Figure 3 shows the full process of grounded theory, of which specific sections have been used to develop the amended analysis process. The detailed analysis process and a flowchart can be found in paragraph 2.3.3.
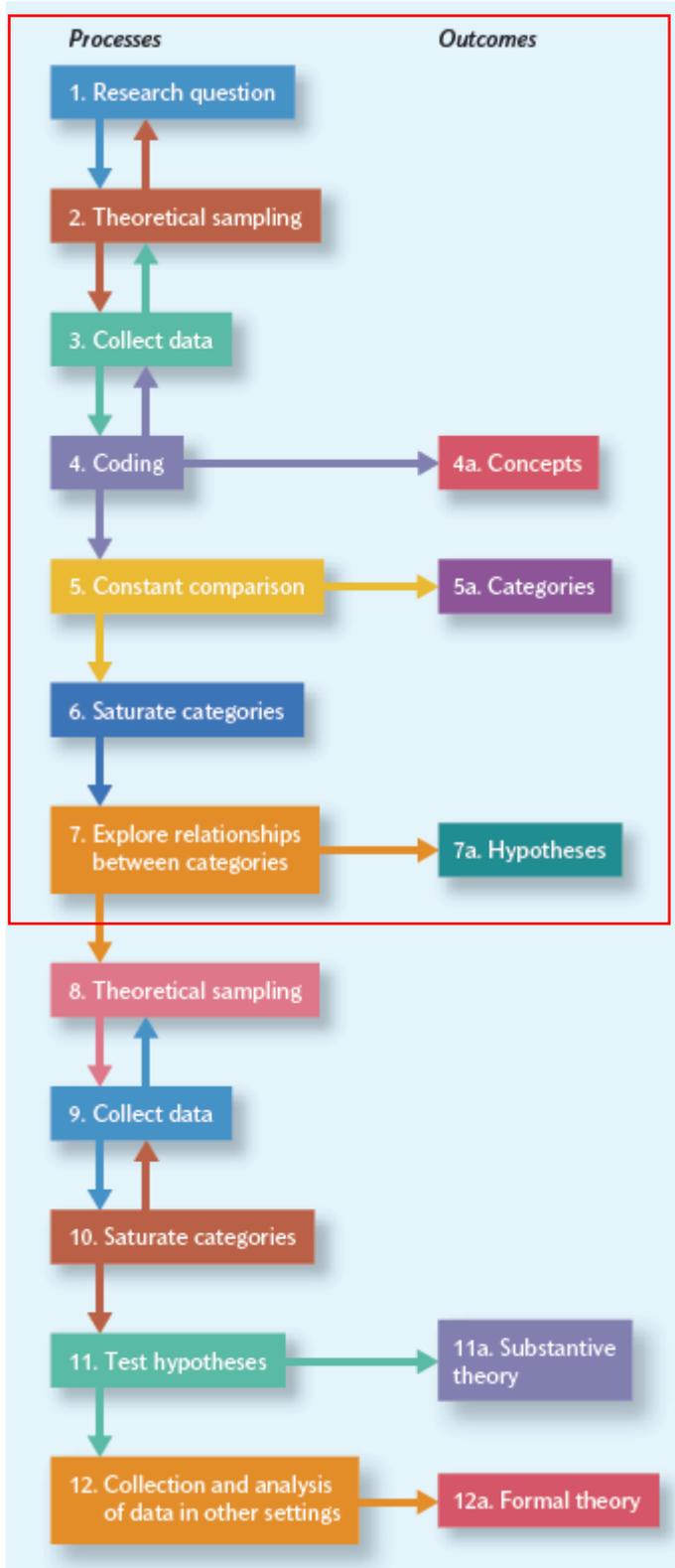
Figure 4: Complete Grounded Theory process. Outlined in red (roughly) the section of the GT method applied in this research (Bryman, 2012).

2.3. Ensuring quality in qualitative research

There has been a proliferation of various schemes for appraising and/or thinking about quality criteria for qualitative research. For example, Tracy (2010) stipulates eight criteria:

1. Worthy topic—relevant, interesting, significant, etc.

2. Rich rigour—rich data supplied in abundance and appropriately

3. Sincerity—the researcher is reflexive about values and biases and is transparent in approach

4. Credibility—implements practices such as thick descriptions, triangulation and respondent validation

5. Resonance—has an affecting impact on readers

6. Significant contribution—makes an impact in terms of such outcomes as theory, practice, and morality

7. Ethical—considers and engages in ethical practices

8. Meaningful coherence—addresses what it claims to address, uses appropriate methods, and links research questions, literature, findings and interpretations.

These criteria have been compared to the interviewees results and have helped identify usability of the interviews. This has led to the exemption of one interview (no. 5), which was disregarded as the interviewee did not live in the city of Bonn, but just outside. To keep the focus of this research on Bonn city, this interview was deemed not eligible.

2.3.1. Sampling

After identifying the target group of the research, the Facebook groups 'Bonn Expats', 'International Friends of Bonn', and 'Bonn International Group' and have been used as a public noticeboard to gather point persons among international youth or expats currently living in Bonn as a 'demographic'. Interviewees are qualified if they meet the following conditions:

1. Interviewees should be aged between 15-29 years old; based on the German definition of youth (see introduction and theoretical framework)

2. Interviewees should be living in Bonn or close surroundings since at least the beginning of 2020 (interruption of this period in Bonn is allowed, as long as the respondent has been living in Bonn both before and during the

COVID-19 pandemic, using the period before COVID-19 as a baseline.

In the notice, the interviewer has stated that diversity in gender, ethnicity, race and social status of the individuals contributing to the research is appreciated, to allow diverse perspectives in the research. The interviewees come from Greece, Turkey, India, the United States and Italy. All (but one) of the respondents live in either shared flats or live on their own or with their partner. Four out of five interviewees identify as female, which doesn't guarantee a gender balance in the thesis. As the thesis focuses on individual accounts and is not aiming to quantify experiences, the gender balance is deemed less important than the quality of the interviews. All the interviewee respondents work for an IGO or NGO where the working language is English. Interviewees work in diverse sectors, from the IT sector to healthcare, an environmental organization, a research institute, to an institute delivering humanitarian aid.

2.3.2. Analysis

In the introduction chapter, three main benefits of UGS have been identified for the youth category in this study (15-29 years old, reflecting on the definition of youth by the German government, European Council Youth Partnership, 2016). These three categories (mental wellbeing, social interaction and cohesion and physical activity) define the focus maintained during analysing the interviews and have been integrated in the GT approach, which will link back to the research questions and hypothesis. The categories support the final categorizations during the selective coding phase (SC).
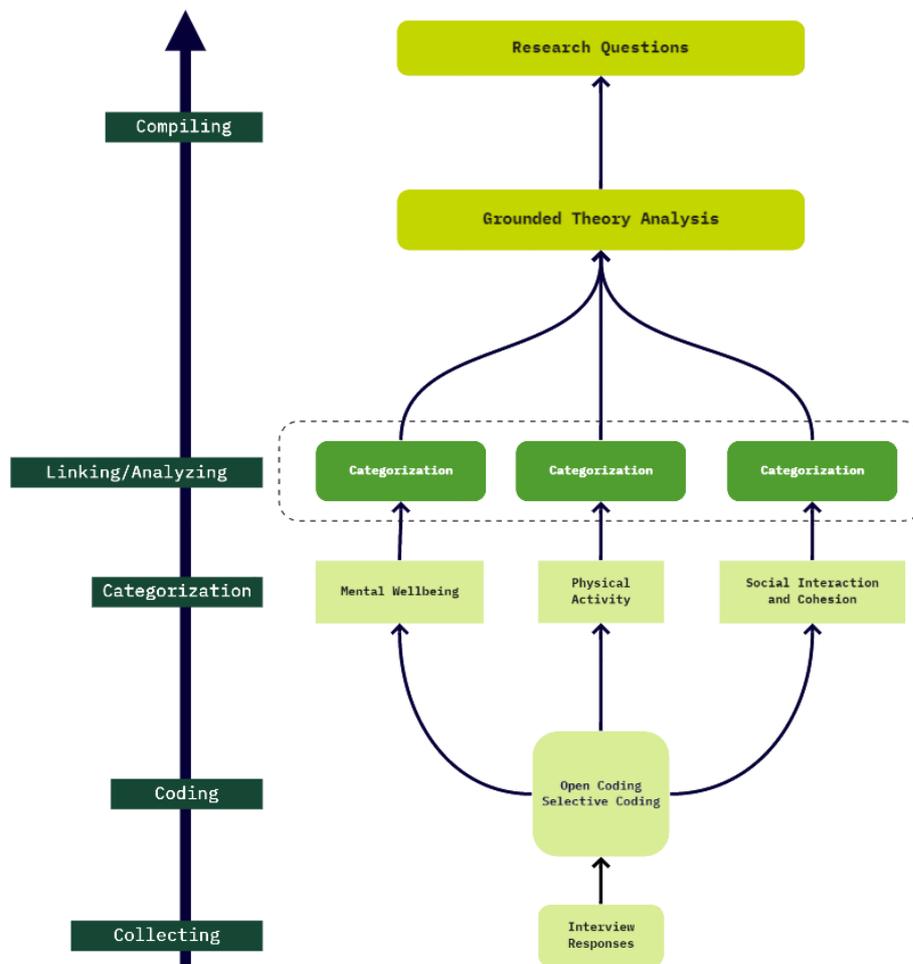
Figure 5: Flowchart visualizing the analysis of individual interviews using analysis based on Grounded Theory.

Phase 1: Open coding (OC)

Keywords from the interview responses about changes in phenomena, experiences and affect are labelled. These keywords are descriptive of phenomena or experiences lived by the interviewee in UGS. This phase defines a word database per interview, which is later linked to extracted descriptive text from the selective coding (SC) phase and used for phase 3.

Phase 2: Selective coding (SC)

Larger, more descriptive and contextual lines, sentences and phrases per interview will be highlighted. These will then be summarized in the following three categories: mental wellbeing (MW), physical activity (PA), and social interaction and cohesion (SIC). Results from the selective coding that cannot be categorized under one of these three categories, will be placed in a separate section focusing on additional changes related to one theme, in case necessary. Note: categories have been identified *after* collection of interviews, which lead to additional

categorization of a category titled 'Exploration'. This category has not been identified during building the theoretical framework, which is why only results will focus on this aspect of usage of UGS. Affect and experiences related to the category emerged in the interviews only, and will be described and analysed in the Analysis and Results chapter.

Phase 3: Linking and analysis of the categories

The results from phase one and two are merged into a compilation of individual respondents' experiences. It will draw comparisons between the interviews' experiences, keeping in mind and linking to the theoretical background. Concepts and main experiences are summarized and quantified. Here, *constant comparison* will be maintained—the process of maintaining a close connection between data and conceptualization, so that the correspondence between concepts and categories with their indicators is not lost. Attention to the procedure of constant comparison enjoins the researcher constantly to compare phenomena being coded under a certain category. This is so that a theoretical elaboration of that category can begin to emerge (Bryman, 2012).

Phase 4: Compiling of results

This data is compared and juxtaposed in a broader sense with the theoretical background in the 'Results and Discussion' chapter. This final phase will answer the research questions.

3. Results and Analysis

Initially, interview results are treated separately per individual record of the interviewees. Later, through categorization, the interview responses will be compared and categorization and concepts will occur, allowing for the abstraction and conceptualization of results and for the identification of common patterns and phenomena among the interviewees. Through open coding, general keywords related to pre- and post-COVID-19 (or during the COVID-19 pandemic, as there are several pandemic 'waves' in Germany) are found.

3.1. Results of Open Coding

Open coding is the first stage after transcription of the interviews, which led to the overall affect and experiences of respondents. As the interview focused on pre- and post-COVID-19 experiences, it is possible to separate these two phases and form a word cloud of highlighted keywords of all respondents together.

Below, the word cloud prior to COVID-19 shows keywords mentioned by respondents that have a generally positive, or neutral notion. The emphasis of the keywords is on the *functions* of the UGS they visited (e.g., running, bonfire, hiking, hang out), the *people* they spent time with in the parks (e.g., family, friends), or comments about the *positive qualities* of the park (e.g., peaceful, well-connected, beautiful, big space, calm). Notions of negative aspects of the park were 'busy'. These keywords will be used to explain the changes that respondents experienced pre- and post-COVID.

Figure 6: Keywords related to UGS usage before COVID-19 of all respondents

During or after the first wave of COVID-19 in Bonn, the experiences of respondents quite drastically changed. Many of the keywords are now related to changes in *personal behaviour* and needs (such as affected, heavy, needed, increased, bored, leisure, relax et cetera). Some keywords seem to be related to *limitations* due to the COVID-19 pandemic (such as restricted, unusual, confined, remote, change, adapt, avoiding, out of place). Lastly, some notions of the *positive effects* of visiting UGS can be identified as well (appreciated, release, relief, explore, fresh air, nature, new routines).
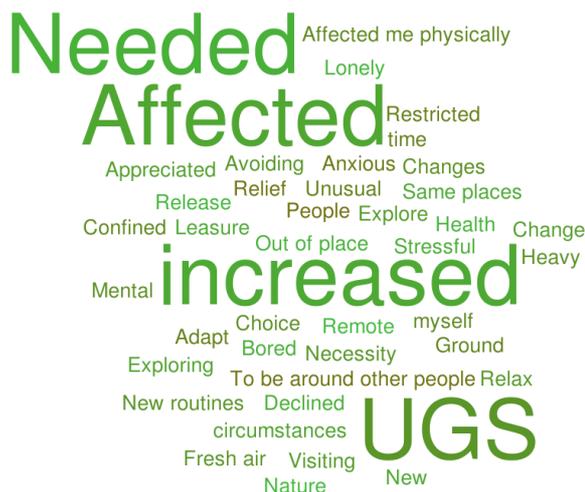

Figure 7: Keywords related to UGS usage during COVID-19 of all respondents

These results can help the research navigate the selective coding phase. They support and create a general overview of the experiences pre- and post-COVID-19

usage of UGS. The following selective coding phase will focus on the identification of specific categories of usage, based on the theory in the Introduction chapter.

3.2. Results of Selective Coding

Here, I will give a brief overview of which responses came forward among respondents, related to the three categories: MW, PA and SIC. An additional category has been identified after inventory of the results. This category is defined as 'Exploration' – meaning the usage of UGS to the means of exploring, getting to know unknown places and becoming literate in orienting throughout the city. The research, through these emerging results, will argue why this category emerged and what it could mean for the usage of parks by international youth.

3.2.1. Mental wellbeing

*Table 1: Affect and experiences related to **mental wellbeing** in UGS prior to COVID-19 lockdowns*

Interviewee no.	Quote
2	I used UGS for having a walk to clear my thoughts.
2	Rheinaue is - in a way peaceful - it's a green part of the city so it's kind of relaxing and so nice to sit there.
2	To do nothing there. It's a nice space to be in, which definitely brings positive feelings attached to it, and that's I would say [the feeling] in general for any green space.
2	I just really enjoy to be by myself in such places.
2	I used to go for a long walk, I really wanted to disconnect, away from everything and I feel these are good spaces to do that.
2	So mostly it's really to have a change of environment: I just want to step outside at some point and not meet colleagues, or not see or do work related things!
4	It's so beautiful, it's so rewarding, there's so many green spaces, there's so many amazing places to just rest at. Honestly, they take care of it a lot. I feel like they mow the lawns. There's like a lot of space that is just like grass and they may mow it so much, and they keep it really good. They do. It's beautiful.
4	I felt… definitely easy going, heartfelt and just, easy.
4	Easy - I can't think of anything else besides that, just easy going and trying to have a good time with the intention and I'm just going there,

	and letting loose, and having some drinks and listening to some music and yeah.
4	It always was a way to step out of daily life. Yeah, for sure. Because I grew up with that here in Bonn, every time I would go out would be to go out to Rheinaue.
4	And it was the environment - we didn't have to keep up this kind of standard of like and you know just we have to keep up the standard of continuously looking for something … in terms of, music or something.
4	There's so much salvation and so much solitude in being in these green spaces.
4	I feel so much peace being there, like walking through the nature there.
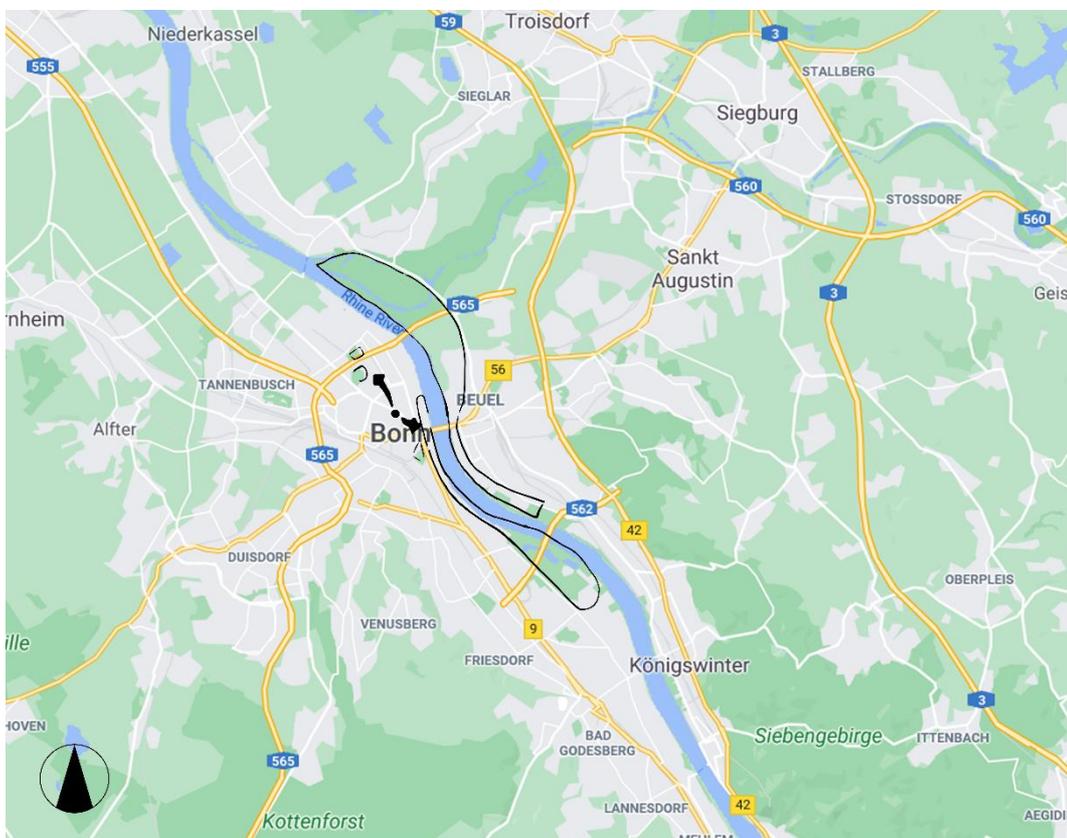
Figure 9: Visiting patterns during COVID-19 of interviewee #2 (Map data ©2021 Geobasis-DE/BKG (©2009) & Soer, 2021)

45

Ample mentions of affect and experiences related to mental wellbeing have been found within the interviewee's statements. Clearly, positive notes of relaxation, happiness and enjoyment are associated with the visitation of UGS prior to the COVID-19 lockdown. Open coding shows keywords associated with mental wellbeing to be positive. Interviewee respondent #2 and #4 were most cognisant of MW benefits of UGS, while responses of others were less pronounced. Instead, they were linked with general health benefits (excluding PA) to visit UGS (e.g., getting fresh air, being outside is healthy, etc.).
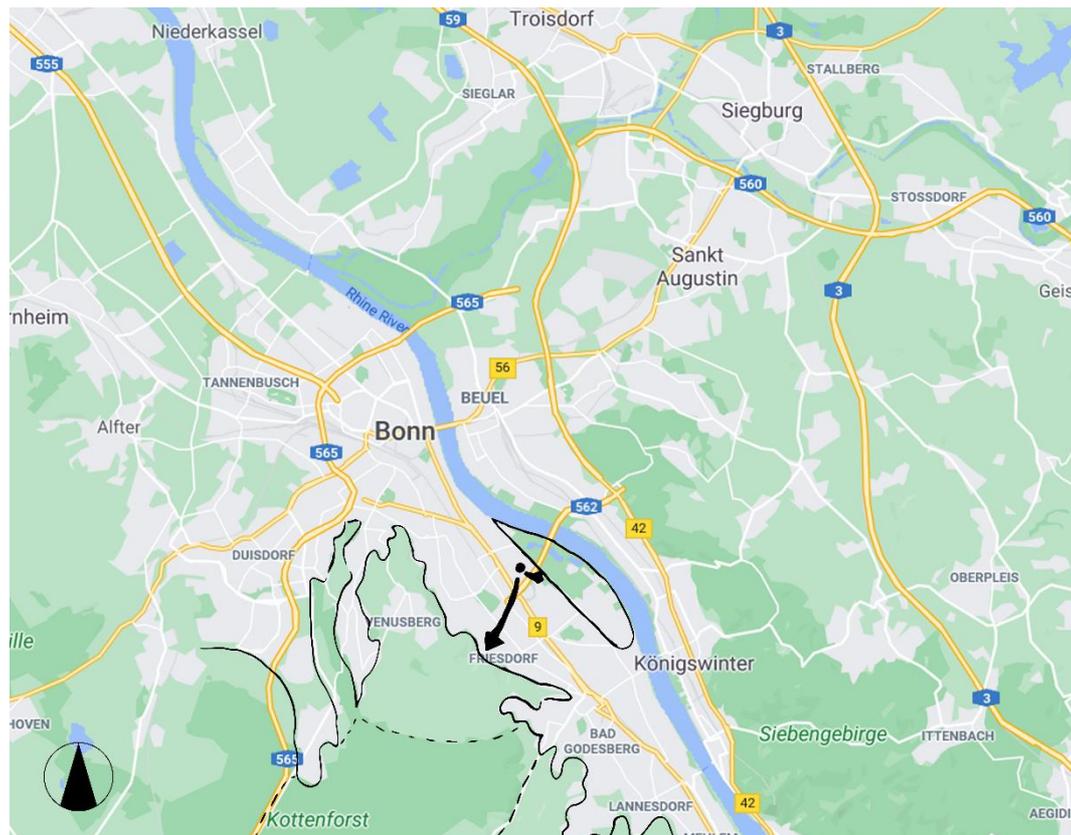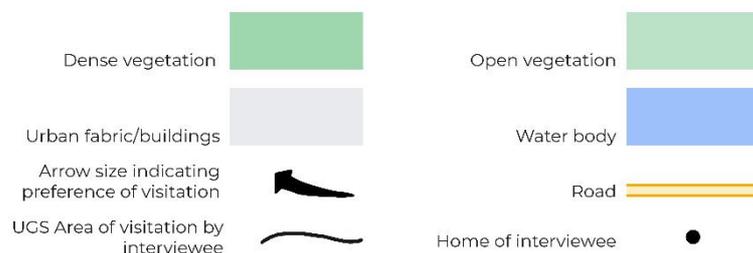
Figure 10: Visiting patterns during COVID-19 of interviewee #4 (Map data ©2021 Geobasis-DE/BKG (©2009) & Soer, 2021)

*Table 2: Affect and experiences related to **mental wellbeing** in UGS during COVID-19 lockdowns*

Interviewee no.	Quote

2	The presence of the lockdown restrictions while roaming through the city is a little unsettling.
2	I really did miss this feeling of being in a huge space with less people because sometimes parks were crowded.
3	Visiting Rheinaue really helped me kind of ground myself, yeah.
3	As I don't really go outside too much anyway, I thought I would be really fine with it. But then I realized I really need it just being outside doing whatever.
3	I feel like I can disconnect from work and I'm usually calmer when I'm just walking around. I feel peaceful and more energized to do other stuff afterwards.
3	I needed more time to relax more because I was really, really anxious.
3	It really affected my mental health, I felt very lonely even if I'm living with my partner. It was very, very stressful to just know that I was kind of confined.
3	I felt really, I don't know, somehow heavy, during these months.
6	During this time (in March) we had this cherry blossom festival and there are a lot of young people who want to take pictures that came to the street and started congregating. Then I didn't want to go down because there are people on the street just taking pictures which is not a nice thing to do, but as they were there, I tried to be more responsible. I think those things come into picture when our movement is restricted in that sense yeah.
1	When I moved to Germany after living in a very small town, I was also being kind of institutionalized to the idea of avoiding other people. It has kind of made me hesitant to explore the green spaces in Bonn, so I only started doing it after like ten days or two weeks that I was there, and I was quite hesitant too.
1	I felt uncomfortable even with the idea that there were other groups of people quite far away in very open spaces. After I left my fear and everything and it was kind of imposed on me. I felt quite nice. I was very happy that Bonn has a lot of green spaces.
1	I would say that COVID-19 definitely increased my emotional and physical needs to do that (visit UGS) because what I realized a lot is during the lockdown you couldn't go out or you felt you couldn't go out.
1	The idea that the outside is bad and the inside is good, kind of grows into your head, and you become really hesitant to go out.
1	There are days I remember that I felt "I can't breathe" and like "Oh my God, this is this is too much" - I needed to go out and walk.
1	So, for me going to a green area was like a fresh breath or a very nice thing in my day. So, I would say it was hard. I can imagine that it was

> much harder if you didn't have the chance of going out, again bringing somebody else's experience in during the lockdown.

Results of the interviews generally, are very strongly related to mental wellbeing (also see word clouds). Mental wellbeing is now heavily affected, while being discussed in the news often. Notions of negative emotions of the general restrictions and mental wellbeing outside of UGS visitation are abundant. Some respondents mentioned anxious feelings, thinking about/ or while spending time in UGS, while they also recognized the willingness of visiting UGS and the relieving effect a visitation can have. For example, respondent #1 said: 'I felt uncomfortable even with the idea that there were other groups of people quite far away in very open spaces. After I left my fear […] it felt quite nice. I was very happy that Bonn has a lot of green spaces.
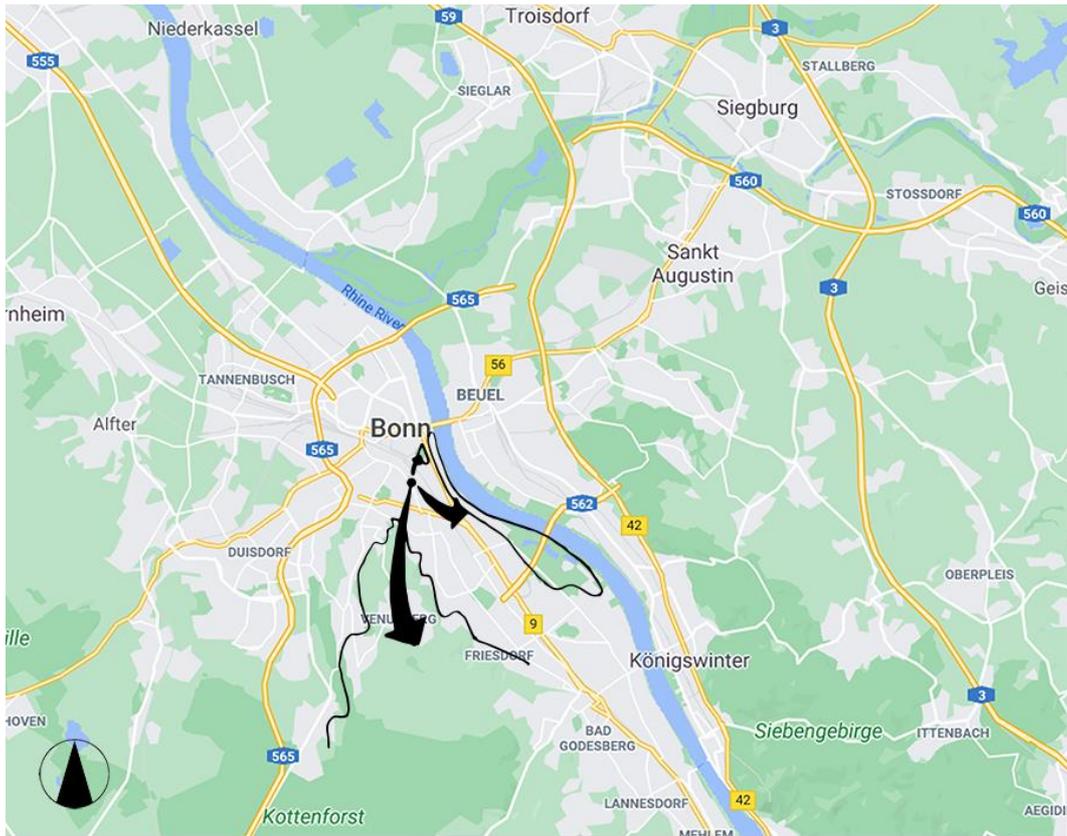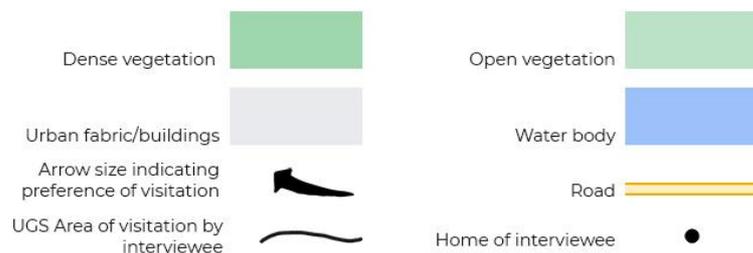
Figure 11: Visiting patterns during COVID-19 of interviewee #1 (Map data ©2021 Geobasis-DE/BKG (©2009) & Soer, 2021)

UGS arguably has a positive effect on mental wellbeing: "Visiting Rheinaue really helped me kind of ground myself", and "I felt quite nice. I was very happy that Bonn has a lot of green spaces.", and 'For me going to a green area was like a fresh breath or a very nice thing in my day." to "There are days I remember that I felt "I can't breathe" and "Oh my God, this is this is too much" - I needed to go out and walk." All show the potential positive effect UGS have on poor mental wellbeing caused by the COVID-19 induced lockdowns.

Many mentions and affect of MW are also related to spending time with friends, and to social interaction. These two categories (MW and SIC) are strongly linked,

and support each other in this way, while the category of physical activity is more independent.

Mentions of PA show how physical activity and changes in the experience of physical activity is mainly focused on individual experiences, both prior and during the COVID-19 lockdowns. Although one respondent mentioned doing a team sport with her partner, all others are mentions of individual sports like running, biking, walking and yoga. When visiting parks, young people prefer the presence of their peers, whether they are active or inactive, although when they visit a park with the specific aim of exercising, they prefer a park with active or no peers over a park with inactive peers.

3.2.2. Physical activity

*Table 3: Affect and experiences related to **physical activity** in UGS prior to COVID-19 lockdowns*

Interviewee no.	Quote
3	I would go for regular walks.
4	It's just like I go on my runs there every morning and yeah, it's just like a huge - it's a huge park and it is more of an urban park than anything.
6	Compared to bigger cities I would say Bonn is much more surrounded by nice green spaces than some other places, where I could go on a bike ride whenever I wanted.
1	What I really liked doing was doing yoga at the park. So that was something that I was doing pretty much every day I would say. And you know the first times you were like oh everybody's looking at me. This is uncomfortable. But then after a while you realize that people are actually doing the same things.

Prior to lockdowns, the youth interviewed showed to do exercise in UGS, ranging from biking, to yoga, to walking or running. For some of the respondents, jogging or running in Rheinaue park was a frequent activity. According to most respondents, Hofgarten (#1, #2) and Rheinaue park (everyone) offered the space to perform these kinds of activities. All except for one respondent, have mentioned they have performed physical activity in UGS during COVID-19.
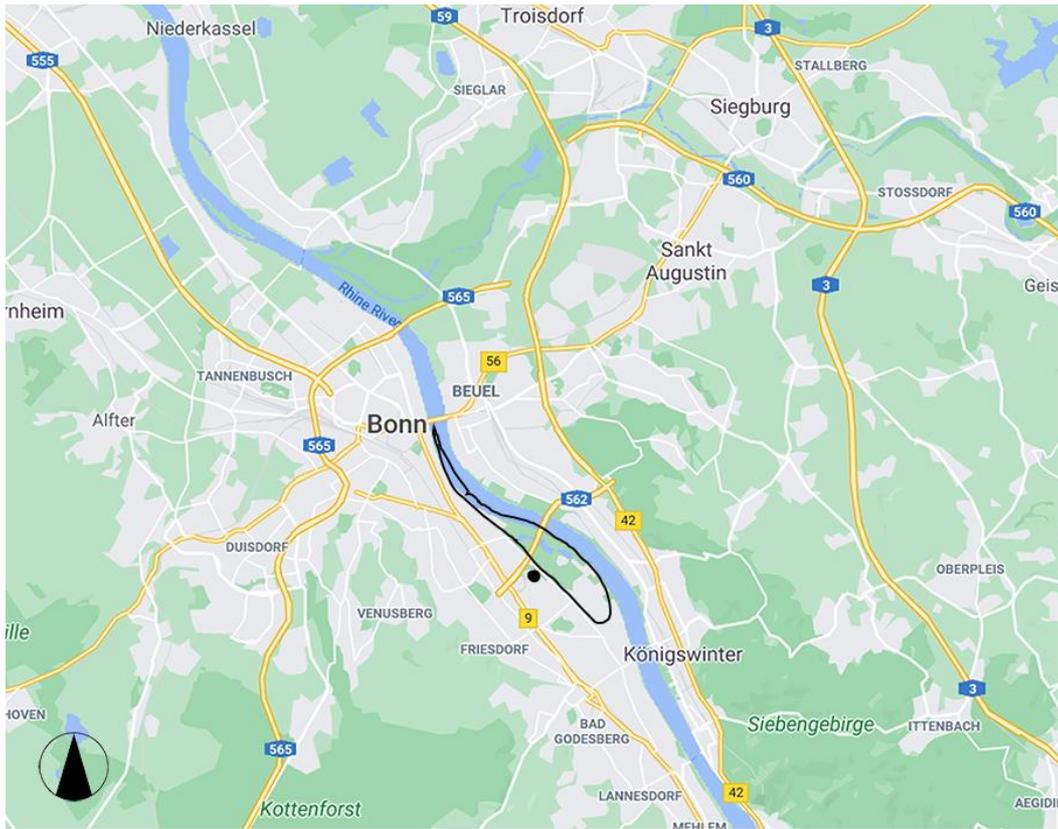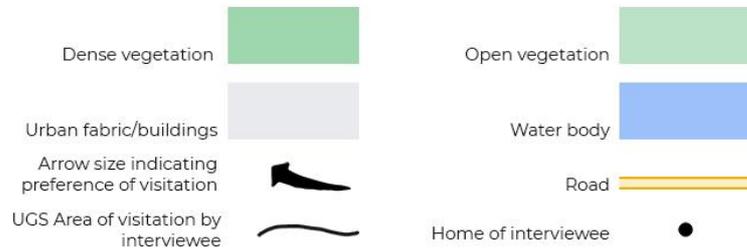
Figure 12: Visiting patterns during COVID-19 of interviewee #3 (Map data ©2021 Geobasis-DE/BKG (©2009) & Soer, 2021)

*Table 4: Affect and experiences related to **physical activity** in UGS during COVID-19 lockdowns*

Interviewee no.	Quote
3	So would go for a walk. Once a week I was going jogging, also with my partner, and we played badminton in the park.
3	I had to have new routines like going out for a walk. And yeah, it also affected me physically - I was more sedentary, not moving a lot.
4	It's such a relief to be physically active outdoors, people always go to parks for it, they don't go running the city centre right. So, we need parks to give them something.
6	I didn't find these places immediately, because I started running along the Rhine at first. I thought there were so many people, but then I started

	taking my bike and exploring more, and then I found out OK - these spaces are very nice.
1	They really enjoy taking long walks in the forest. I really like the forest. In the forest you actually go to walk for longer just like to actually walk. Yeah. Yeah. Like the use of doing something physical instead of relaxing along the river and yeah.
1	In my case, the first time I started walking again a lot. I felt super tired like I did something extraordinary. I just kept walking for like five kilometres, so I think I got the increased need to actually go out.

Most of the respondents experienced a break from performing physical activities during and after the first lockdown, likely due to the restrictions being imposed. Sometimes it took some weeks, or even months, to resume activities.

Interviewee #4 stated that running was one of the main reasons to visit UGS during lockdowns. Interviewee #6 started to exercise more with his bike, biking to and in UGS, and started exploring (see 3.2.4 Exploration) parts of the urban environment and the city centre. For this respondent, orienting along the main river the Rhine and the Sieg was important, possibly due to the suitable infrastructure and the presence of green space. The possibility to view landscapes and greenery was important for the success of the trip: viewing sunsets and the 'beautiful' landscapes felt as rewarding. The frequency of physical activity diminished, while the length of activities increased. The respondent felt he had less time during the week due to working-from-home. When he did have time, he would choose to go on longer trips, sometimes also leaving the city of Bonn.

Some respondents found new ways of exercising in UGS – interviewee #3 started to practice badminton in Rheinaue with her partner on weekends, and started jogging, trying to find new routines during the first lockdown period. She mentioned she felt physically and emotionally 'heavier' at the start of the lockdown due to increased sedentary behaviour.

3.2.3. Social interaction and cohesion

As expected, youth focuses strongly on the social aspect of usage of UGS prior to the pandemic. All respondents mentioned social interaction in one way or another as a primary and frequent usage of UGS. This could be interacting with friends, family or colleagues. Sharing food and drinks, listening to music or making a bonfire on designated spots available in for example Rheinaue park, were among the main activities related to social interaction.

*Table 5: Affect and experiences related to **social interaction and cohesion** in UGS prior to COVID-19 lockdowns*

Interviewee no.	Quote
2	There were one or two incredibly warm weeks and I remember it was maybe my second or third week in Bonn and I went to Rheinaue. Sometimes we have a work lunch break in the summer.
2	If it's a popular place, or if people say yeah, that is a very nice park to go, then I would definitely check it out.
2	Maybe the park is not amazing to have a picnic there, but it's a nice place to meet a friend or to grab and drink a beer.
2	So often actually, I go there [Rheinaue] when some friends come visit, because I feel that it's kind of like an attraction to see, or a nice place to spend time with people who are just visiting as well.
2	They know of course where the park [Rheinaue] is, it's not the first time they get to see it and there is nothing new about it but, they all enjoy it, and so I even in a way I attached some nice memories to those places.
2	We sometimes sit for lunch in the park. Those are also nice memories. It's a little bit more practical in a way – oh that's a park, a nice lunch spot.
2	Nobody would mind if you go in a group of people and some people are eating there, but you know, it's not the same and a lot of my colleagues, they actually don't eat out every day.
4	The main attraction was to go to the park and just hang out at the park, and go to a spot where we can make a bonfire, or hang out by the pond, or by the Rhine or - so everybody always wanted to hang out by the Rhine
4	or used to be like bars that are by the Rheinaue - and so there is the beer garden by Rheinaue. And we used to go all the way along the Rhine, we used to like go way up.
4	So definitely the first thing I could say - just like off the top of my head - is just to make a fire and to come together and like have a fire, a spot, and a point in the park where we come together and we just talk, and we sing songs.
4	Truly, that's it: just like have a good time and drink, and talk, and just get together, and that's the spot to hang onto you know.
1	I was always a person that enjoys picnics and I enjoy going to play with my friends in the park. That sounds childish, but you know, I do like playing boardgames or something like that, or in general really enjoy outdoor activities or enjoy going even for sports with people, like canoeing.

Only one respondent focused specifically on aspects of social cohesion during the first COVID-19 pandemic wave: the respondent felt it was nice to leave the house and see people's activity in the park (see table 6). Conflictingly, she also

appreciated the large open space of Rheinaue park which allowed her to be alone in nature.

*Table 6: Affect and experiences related to **social interaction and cohesion** in UGS during COVID-19 lockdowns*

Interviewee no.	Quote
3	I like how large it is [Rheinaue] so I never have to interact with people, I can be still kind of alone in kind of nature.
3	Since I wasn't able to meet with friends, it was nice to leave the house and just see people, even if I'm not even saying hi to them, just to be around other people.

3.2.4. Exploration

As has been exhibited in the theory of chapter 1, little theory is known about the following category of results. Though, the word clouds of 3.1 clearly show some keywords related to the affect and experiences of respondents, wanting to explore and therefore focusing in this aspect in the usage of UGS. In conjunction with popular theory, the interviews showed this large new benefit or reason of the visitation of UGS by international youth. Open coding resulted in the identification of a category titled 'exploration', after tagging individual keywords in the interviews. Words like 'explore/exploring', 'new' and 'discover' are words identified with this category.

Arguably, international youth has a stronger willingness than other age groups and other socio-economic groups to use UGS for this reason because they want to get to know the city and its environment. Respondents mention 'visiting parks is a good way to explore (parts of) the city'. Although only respondent #2 explicitly mentioned exploration before the COVID-19 lockdown, additional respondents mentioned keywords 'exploring' or explore' prior and during the pandemic (see word clouds in chapter 3.1), while more explicit mentions came forward during the lockdowns. Interviewee #4 mentioned exploring different parts of Bonn gave 'salvation', while respondent #6 started taking bike rides throughout the city and visit UGS, urban and peri-urban, to see new parts of the city. Arguably, respondents might choose to bike to unknown places that are less crowded to avoid being exposed to COVID-19 as opposed to walking, but this assumption should be treated carefully.
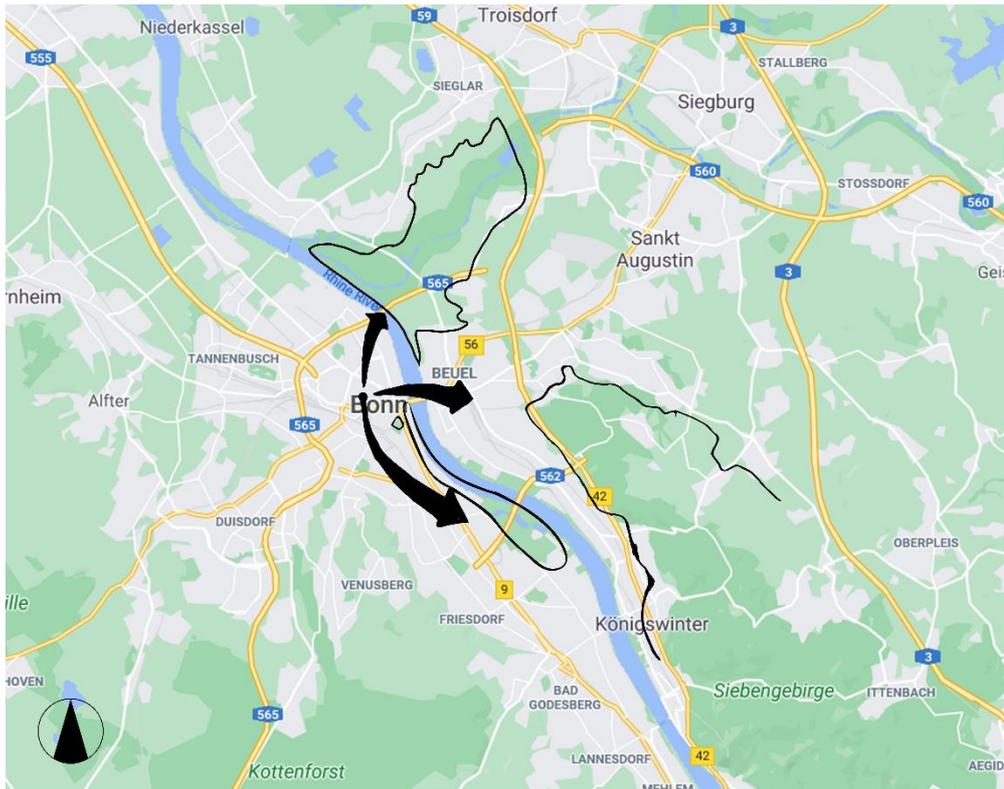
Figure 13: Visiting patterns during COVID-19 of interviewee #6, who has been using his bike more often (Map data ©2021 Geobasis-DE/BKG (©2009) & Soer, 2021)

*Table 7: Affect and experiences related to **exploration** in UGS prior to COVID-19 lockdowns*

Interviewee no.	Quote
2	I guess I wouldn't look on a map, thinking 'Where is the park?' and go there, but somehow, I really love to take walks. That can be inside the city just to explore, and then I end up visiting such places as well, frequently, because when you walk around and you'd like to get lost a little bit or explore the place where you live, you end up often in such spaces.
2	And sometimes it (choosing a park) is a little bit random, so I'm exploring the city, and maybe I look at a map frequently when I walk or before going out and then I see - OK I can take this route and there is a park here, then I can cross it and check it out.

2	But I like to do that, because somehow, I like to walk around and know the names of places and such things. So, this (wanting to explore the city) is sort of attached to it too, when I go for walks, and I remember the names and the place too when I see them in real life [that's nice].
2	When I go there, sometimes it's also to really explore this or that part of it, because you can't possibly be in the whole of the park, you have to choose an area and maybe just explore that.
2	And visiting parks is good to really get to know the city.

*Table 8: Affect and experiences related to **exploration** in UGS during COVID-19 lockdowns*

Interviewee no.	Quote
2	We would take long walks around the city -for the sake of going to a different area and buy things. Or we would select a place and just go there, even though it didn't have to be a nice place, but just to see a different area again.
2	I started to go to such places [UGS] again, and visit green areas more and more, or go a little out of the usual routes and explore other places as well.
2	I think in a way I was craving a different space (during lockdown phases).
4	We explored different parts of Bonn and that gave me so much salvation.
6	If you go along the Rhine by bike there is like six kilometres far, which is a nice place where it's very calm, and you have a nice beautiful view of the sunset as well. I mean you get to explore more of these kinds of places which are unknown for many people, if you are just having a bike ride.
6	I always enjoyed going out to open spaces but the frequency was a lot less. This time, I could explore because I have much more time every day. But now, when I had time, I could just take a bike and go.

Selective coding resulted in the identification of experiences and affect related to this category in multiple interviewees' responses (#2, #4 and #6). It can be presumed that the rise of this specific affect is due to the international background of the respondents. Even though respondents have been living in Bonn for several years, it can be understood that international youth use the positioning and location of UGS and other larger urban infrastructures to ground themselves in their new living environment. It will shape a mental image of the city's infrastructure, scale and size, and amenities and services. UGS presumably are a useful tool to do so, due to their popularity and how they connect to the city fabric. As urban dwellers and visitors interact with such a space, they define a pattern or habit of visitation

which youth can then choose to adopt. It can allow them to understand the urban fabric through visitors' eyes and visitation of spaces and places.

3.3. Results

As research suggests (Australian Human Rights Commission, 2020), what youth missed most, or the aspect of their use of UGS that changed the most during the COVID-19 pandemic, is the level and form of social interaction.

To a limited extent among interview respondents (#3 and #6), physical activity has been mentioned as one of the main changes in use of UGS. This could be due to the fact that PA is often an individual activity (Veen et al., 2020) that doesn't collide with COVID-19 restrictions, which allows the respondents to continue their physical activities as normally or in slightly adapted ways (e.g., choosing to exercise with a close friend or partner with whom they live together).

COVID-19 restrictions are known to increase imbalances or struggles with mental health and wellbeing. The interviews as well, have demonstrated that this has been the most significant *change in the use* of UGS among youth in Bonn. #1 said: 'I would say that COVID-19 definitely increased my emotional and physical needs to do that (visit UGS) because what I realized a lot is during the lockdown you couldn't go out or you felt you couldn't go out.', while #3 said: 'I needed more time to relax more because I was really, really anxious', and 'I felt really, I don't know, somehow heavy, during these months'.

Interviewees positively experienced feelings of peace: 'I feel like I can disconnect from work and I'm usually calmer when I'm just walking around. I feel peaceful and more energized to do other stuff afterwards'. Interviewees felt grounded: 'Visiting Rheinaue really helped me kind of ground myself' (#3). They also appreciate the beauty of the place (#4) and enjoyed exploration of new places: 'Six kilometres far along the Rhine is a nice place where it's very calm, and you have a beautiful view of the sunset as well. I mean, you get to explore more of these kinds of places which are unknown for many people, if you are just having a bike ride.'.

Visiting UGS was described as an activity suitable to disconnect, and a space to find relief or relieve loneliness among respondents. The stress of feeling confined would lead to respondents visiting UGS, presumably to mitigate that feeling.

Looking at benefits to MW, theory that UGS serves as a green refuge emerges sturdily, offering relief of home or work-related issues. During the COVID-19 lockdown in Switzerland, increase in sedentary activity was associated with

decreasing physical health, mental health, and subjective vitality (Cheval et al., 2020). Persistent sedentary behaviour (which has strongly increased during COVID-19) is a physical issue which can be solved with frequent physical exercise. The researcher suggests that mental implications of sedentary behaviour are also partially relieved during low-intensity visitation of UGS, where limited physical exercise is required to feel that relief. Mostly, the change of environment is essential (see #2 and #3 – a park is a nice change of view after sitting in between office walls).

The three categories (mental wellbeing, physical activity and social interaction and cohesion, MW, PA and SIC respectively) have not been identified prior to conducting the interviews. Surprisingly, respondents reacted with reference, and sometimes specifically, to most of the categories. This shows that theory and interviewee respondents show strong correlation and therefore it could be said that on the one hand, existing theory and research on the use of UGS by youth *in general* is strong, grounded and resilient, and of high quality. On the other hand, a limited degree of generalization can be applied to the interviewees results.

3.3.1. Additional categorization resulting from interviews

As we can see in 3.2.4, one additional category has been identified – tagged as 'exploration'. This additional category has emerged since the target group is defined as youth with an international background. Respondents are all foreigners and have lived in Bonn for a limited amount of time (all but one less than 3 years). Being in this position, they feel that by visiting UGS they explore the city and become *grounded,* gain personal confidence, and feel more comfortable in their physical environment. This behaviour increases the degree of confidence of living in the city, as it will make youth familiar with the spatial, infrastructural and cultural aspects of a city.

4. Discussion and Conclusion

There are many mental and physical health benefits related to visiting UGS. Urban green space is arguably even more important during the COVID-19 pandemic. Health benefits to youth include contributing to healthy social interactions and a feeling of community, improving social relationships, and fostering friendships. Visitation of urban green spaces increases integration into society and reduces social disparities. Physical activity in UGS during adolescence improves overall physical health, cognitive functioning and motor skill development. (WHO, Lewis (2000), Wake (2007), Jociūte (2012), Riethmuller et al., 2009 Kellert, 2005).

Young people from socially disadvantaged population groups, despite their usually smaller ecological footprint due to their place of residence, are often more affected by environmental pollution than other population groups and have less access to green spaces. The increased exposure to noise and air pollutants has a negative effect on the health status of young people". This thesis has focused primarily on a specific type of youth, that is either doing tertiary studies, or having already graduated from their follow-up studies and is settling within the highly educated middle class as a young professional. The target group is international youth in Bonn who generally works within an international institution, Bonn being an international hub and therefore a cradle for freshly graduated students looking for a job in the international development sector. The most prominent common denominator of the target group is generally the choice they have made to become a young expat, working in the international development sector in Bonn and surroundings. This does not necessarily mean that other types of young people in other phases of their life do not experience similar effects and phenomena as described in the results in the thesis, nevertheless, one must be careful with the overgeneralization of results.

German policy documents failed to address the nexus between youth and urban green spaces. Moreover, international youth is not mentioned in German policy documents focused on environmental matters, and urban infrastructure. Although Urbane Liga focused on the inclusion of youth in the designing of UGS (a local and small-scale initiative), limited examples of engagement of youth and the function of UGS that should be included for this category are available. It can be concluded

that not the full age range of youth (14-29), even a very limited range, has been considered in the access, planning and maintenance of UGS.

International youth as defined in this thesis carries their own unique opportunities and challenges within the subject matter: they start a new life, perhaps planning to settle in Bonn for the long haul, with sometimes limited financial means, having to overcome language barriers, their family and friends being far away, and limited access to public services and personal transport.

Around 20,000 international youth (not being born in Germany) aged between 15-29 years live in Bonn during the COVID-19 pandemic (Citypopulation.de, 2020). A research by Plagg et al., said the COVID-19 pandemic has put a significantly burden on youth, having experienced strong social and environmental influences due to the lockdown measures.

Through using ethnographic style interviews, the research aimed to display elaborate accounts of youth's experiences related to specific events or moments in time during the COVID-19 pandemic. With the pandemic still happening and being freshly present in the minds of youth, the research contains detailed accounts. Data for this study has been collected over a period of several weeks between September-October 2020, without intermittent adjustments to the data collection approach. The majority (all but one) of the interviews has been carried out through Zoom. The interviews lasted between 29 and 58 minutes. In the introduction chapter, three main uses, and therefore benefits of UGS have been identified for the youth category in this study (15-29 years old, reflecting on the definition of youth by the German government, European Council Youth Partnership, 2016). These three categories (mental wellbeing, social interaction and cohesion and physical activity) define the focus maintained during analysing the interviews and have been integrated in the GT approach, which will link back to the research questions and hypothesis.

Based on GT as a framework, the interviews have been analysed following four phases: open coding, selective coding, linking and analysis of the interviews, and finally, the compiling of results. Interviews have been split up in a pre-COVID-19 and during COVID-19 section. Open coding led to two sets of keywords. The word cloud prior to COVID-19 shows keywords mentioned by respondents that have a generally positive, or neutral notion. The emphasis of the keywords is on the functions of the UGS they visited, the people they spent time with in the parks, or comments about the positive qualities of the park. The word cloud of post-COVID relates to changes in personal behaviour and needs. Some keywords seem to be related to limitations due to the COVID-19 pandemic. Lastly, some notions of the positive effects of visiting UGS can be identified as well.

Ample mentions of affect and experiences related to mental wellbeing have been found within the interviewee's statements. Clearly, positive notes of relaxation, happiness and enjoyment are associated with the visitation of UGS prior to the COVID-19 lockdown, while negative emotions of the general restrictions and mental wellbeing outside of UGS visitation are abundant.

Prior to lockdowns, the youth interviewed showed to do exercise in UGS, ranging from biking, to yoga, to walking or running. Most of the respondents initially experienced a clear break from, or limitation of physical activities, likely due to the restrictions being imposed or the uncertainty of possibilities for physical exercise or visitation or UGS during the lockdown restrictions. Sometimes it took some weeks, or even months, to resume activities.

As expected, youth focuses strongly on the social aspect of usage of UGS prior to the pandemic. All the respondents mentioned social interaction in one way or another as a primary and frequent usage of UGS.

Arguably, international youth has a stronger willingness than other age groups and other socio-economic groups to use UGS for exploration because they want to get to know the city and its environment. Respondents mention 'visiting parks is a good way to explore (parts of) the city'. It can be presumed that the rise of this specific affect is due to the international background of the respondents. Even though respondents have been living in Bonn sometimes for three years already, it can be understood that youth uses the positioning and location of UGS and other larger urban infrastructures to ground themselves in their new living environment. UGS presumably are a useful tool to do so, due to their popularity and how they connect to the city fabric.

4.1.1. How does youth experience changes in usage of UGS during Covid-19?

For a relatively short period, international youth has been reluctant to visit well-visited UGS, likely because of the risk to encounter too many visitors in the park. As time passed, youth started to use UGS as a relief mechanism, a green refuge to lower mental and physical stress. A sizeable share of participants started to exercise more in UGS, and started to visit UGS more, although their choice of space sometimes changed. Respondents living nearby larger UGS did not necessarily change their preferred location. Though, respondents that need more time to reach a UGS, sometimes chose to visit different UGS, either ones that are nearby home, or ones just outside of the city. The presence of others sometimes made respondents

feel uncomfortable, but it has also been mentioned the presence of other visitors is appreciated because it is nice to be around others, even when they are unknown. Some respondents experienced a high number of visitors as negative and were therefore reluctant to use the space. The respondents fully stopped using UGS to meet friends or family, which prior to COVID-19 was a primary use of UGS. As some respondents felt they needed to avoid large and popular UGS, they explored different urban green spaces in Bonn.

4.1.2. What is the impact of these experienced changes on social cohesion, physical activity and mental health?

To summarize, the strongest changes in usage of UGS occur in social interaction (highly reduced use) and mental wellbeing (highly increased use). UGS offers lots of benefit in terms of mental wellbeing, especially now during lockdown and with repetitive sedentary behaviour, WFH conditions, and isolation. In this regard, UGS received a more significant role in youth's daily lives. Unfortunately, due to COVID-19 restrictions, youth has been rendered almost unable to meet in public spaces.

4.1.3. How can youth's experiences during the pandemic contribute to more inclusive policy in relation to Urban Green Spaces?

Bonn municipality needs to ensure enough green spaces and keep them open at all times (something which has been disregarded in other countries where some parks have opening hours). Youth depends on these spaces to relief mental stress and to exercise. Additionally, the muncipality should find ways to ensure social interaction, especially for international youth. This is one of the main uses of UGS and is now severly limited. Promotion of outdoor activities in UGS, although on distance, can be considered and allowed as long as youth meets in smaller groups. Secondly, the municipality should be the primary responsible for the wellbeing of their citizens. Youth is often overseen as demographic and needs to be included in policy making – around 20,000 youth in Bonn has their rights disregarded, while access and use of UGS should be seen as a primary right for citizens to stay healthy. The municipality of Bonn can launch project initiatives focused on the use of UGS by youth, during COVID-19, but certainly also in the future. Here, specific needs of youth need to be addressed and integrated in future design, such as social interaction and exploration. Planners can implement physical changes or additions in youth's favourite parks in Bonn, to better suffice needs of youth. Some ideas on how this can be done, are included in Appendix 3.

Strengths and weaknesses of the study

Demand characteristics and suggestiveness are risks that occur while doing research in general – whether you use a questionnaire or an ethnography to collect responses from interviewees, if the goal of your research is known amongst respondents, chances are that your research will be steered towards pre-assumptions of the researcher. The advantage of unclarity towards the outcome of this research, which has been caused by the lack of the framework adopted of Hartig et al., ensured to some extent that the interviews were not too focused on the expected outcome of this research, which means results are more reflective of reality.

The thesis also contains some limitations. The results of the thesis are specifically focused on international youth in Bonn. As this group is so specific, it is difficult to compare these results with youth's experiences in general. The age limitation defined in this thesis is set for research purposes. Interviewees have been interviewed in October and November, while the second lockdown phase in Germany was being established. This means the interviews do not reflect on the second and third lockdown phases. The current third lockdown phase is the most limiting and can have far-stretching effects on the overall wellbeing of international youth.

4.2. Conclusion: Can UGS act as a green refuge?

It can be interpreted that youth has clearly been affected in their usage of urban green space. It has served its purpose as a green refuge, offering relief for mental stress, while also being a place to exercise and reduce stress. Green refuges can play an important role in future crisis situations, which means they will always have to be considered in wellbeing of urban youth as an essential cornerstone to their lifestyles. This crisis could lead to the implementation of guidelines and policy regarding the presence of urban green space, and a more wide-spread understanding of the value of UGS among policymakers.

Both respondents' interviews and theory show that mental wellbeing has been impacted severely during the pandemic. The function of urban green space as a refuge, serving youths' needs in times of pressing societal issues which impose social and mobility restrictions has been discussed throughout this research. It can be concluded that urban green spaces play a significant role in lowering stress, fatigue and pressure. This is in normal instances already the case, though UGS have gained arguably an even larger role during the pandemic. UGS are used by participants to escape daily routine, to lower stress and to recharge their mental

battery. General fatigue, repetitive sedentary behaviour and working-from-home behaviour are affecting mental wellbeing which have exacerbated the urge to visit UGS. Though, social interaction and cohesion can also contribute to a better mental wellbeing of international youth in Bonn, and unfortunately, none of the respondents have been willing, or felt able to meet in UGS for social interaction. As other public services, bars, restaurants and other meeting places are also in lockdown, surely the lack of interaction has had a severe impact on youths mental wellbeing, and UGS has not been used to mitigate those changes. It is unclear if this is because of external factors like regulations, or if this hasn't been considered safe or an option from the perspective of youth.

4.2.1. Final key messages and recommendations

Future research recommendations

Although qualitative research and interviewing is a very powerful tool to understand affect and phenomena that have impacted interviewees, larger studies might benefit from additional collection of data, possibly through a widespread survey. A construction where mass-questionnaires are combined with a limited group of respondents representing the masses, can be considered to achieve more tried and impactful, and more grounded theory.

Further research can be carried out focusing on a wider age range of youth, where other socio-economic backgrounds are taken in consideration. This is limited in the thesis due to the time constraints of the thesis. Studies could be done in considering a wider age category, although the focus should still be on youth and adolescents often overlooked in policymaking. The municipality of Bonn could generally benefit to study German youth living in Bonn as well, which would allow for a more integral overview of needs of both national and international youth, so that the municipality can properly address their needs.

It could be beneficial to focus on specific urban green spaces (here in Bonn, for example, Rheinaue or Hofgarten) and their usages to identify the value of individual green spaces and how they suffice in offering benefits as mentioned in this thesis. This could then lead to a framework of spatial and functional recommendations for future park design in Bonn, and the functions they offer to international youth.

Key messages

1. (International) youth with their specific needs and challenges are often overlooked in policymaking in relation to urban green spaces. Participation of the society and its individual members (and therefore

youth) is one of the main principles of sustainable development and one of the main human rights.

2. The COVID-19 pandemic has put a significantly burden on youth, having experienced strong social and environmental influences due to the lockdown measures, while responses during health crises are often lacking solutions addressing younger generations. And since seniority is an important element in legislatures, adolescents are the one group missing overall.

3. International youth is characterized by specific needs and challenges in UGS that are unique to their demographic. Social interaction and cohesion are one of the main incentives of visiting UGS, which is now severely affected, rendering international youth incapable to perform essential activities related to their specific lifestyles. Additionally, usage of UGS is often utilized as a tool to become more grounded in youths living environments.

4. UGS serve as a green refuge to international youth, offering a space to exercise mental and physical wellbeing, and are crucial for coping with the effects of the COVID-19 pandemic. Though, the pandemic has heavily affected the possibility for youth to roam in such spaces with the purpose of enhancing social interaction and cohesion, which leads to better integration of youth.

5. The COVID-19 pandemic has revealed the subordinate role youth plays in UGS, and has highlighted most important use of UGS by international youth. Future policymaking should be addressed to youth's needs and challenges, which will in its entirety lead to more inclusive and accessible UGS. Youth should occupy a central position while developing such policies, breaking currently existing generational barriers. Bonn municipality should upholster project initiatives focusing on the needs of youth in UGS, aimed developing spaces for, among other benefits, enhancing social cohesion, as one of the primary needs of youth.

References

Akpınar, A. (2020). Investigating the barriers preventing adolescents from physical activities in urban green spaces. *Urban Forestry & Urban Greening*, vol. 53, p. 126724

BMFSMJ (2019). *In gemeinsamer Verantwortung: Politik für, mit und von Jugend. Die Jugendstrategie der Bundesregierung*. BFSMJ. [2020-10-04]

Bonn Eurocities. Available on: https://eurocities.eu/cities/bonn/ [2020-12-19]

Charmaz, K. (2006). Constructing grounded theory. London; Thousand Oaks, Calif: Sage Publications.

Charmaz, K. (1983). The Grounded Theory Method: An Explication and Interpretation. In: Emerson, R.M. (red.) (1983). Contemporary field research: a collection of readings. Boston: Little, Brown.

Cowell, A. (2011). In Germany's Capitals, Cold War Memories and Imperial Ghosts (Published 2011). The New York Times. Available on: https://www.nytimes.com/2011/06/24/world/europe/24berlin.html [2020-12-19]

Derks, J., Giessen, L. & Winkel, G. (2020). COVID-19-induced visitor boom reveals the importance of forests as critical infrastructure. *Forest Policy and Economics*, vol. 118, p. 102253

Dunton, G.F., Do, B. & Wang, S.D. (2020). Early effects of the COVID-19 pandemic on physical activity and sedentary behaviour in children living in the U.S. *BMC Public Health*, vol. 20 (1), p. 1351

Facts and figures English website. Available on: https://www.bonn.de/microsite/en/services/information-for-media/facts-and-figures.php [2020-12-19]

Financial Times. Germany set for hard lockdown as coronavirus surges Available on: https://www.ft.com/content/99327e7b-4d58-40c4-9957-dd8fd92a6da7.
 [2020-12-24]

Ganzleben, C. & Kazmierczak, A. (2020). Leaving no one behind – understanding environmental inequality in Europe. *Environmental Health*, vol. 19 (1), p. 57

Germany: WHO Coronavirus Disease (COVID-19) Dashboard. Available on: https://covid19.who.int [2020-12-19]

Green refuges for enabling cities' preparedness for future pandemics and global change. (2020-10-23). *IUCN*. Available on: https://www.iucn.org/news/europe/202010/green-refuges-enabling-cities-preparedness-future-pandemics-and-global-change [2020-12-19]

Google Maps (2021) Map illustration of Bonn City center and surroundings, Germany. Bonn. ©2021 Geobasis-DE/BKG (©2009) & Soer, 2021)

Hartig, T., Mitchell, R., de Vries, S. & Frumkin, H. (2014). Nature and Health. Annual Review of Public Health, 35 (1), 207–228. https://doi.org/10.1146/annurev-publhealth-032013-182443

https://plus.google.com/+UNESCO (2020-08-12). *COVID-19 Pandemic: Youth Engaged in the #NextNormal*. *UNESCO*. Accessible on: https://en.unesco.org/news/covid-19-pandemic-youth-engaged-nextnormal [2020-12-19]

Impacts of COVID-19 on children and young people who contact Kids Helpline (2020) | Australian Human Rights Commission. Available on: https://humanrights.gov.au/our-work/childrens-rights/publications/impacts-covid-19-children-and-young-people-who-contact-kids [2020-12-20]

Infographic on Germany's Pandemic Preparedness: A Timeline (2020). Exemplars Health. Available on: https://www.exemplars.health/-/media/infographics/epidemic-preparedness/germany/20201007covidgermanypolicy-timeline.png [2020-11-30]

Jaszczak, A., Vaznonienė, G. & Vaznonis, B. (2018). GREEN INFRASTRUCTURE SPACES AS AN INSTRUMENT PROMOTING YOUTH INTEGRATION AND PARTICIPATION IN LOCAL COMMUNITY. Management Theory and Studies for Rural Business and Infrastructure Development, vol. 40 (1), pp. 37–49

Jowett, P. & Associate, L. *An overview of Germany's response to Covid-19*. Available on: https://lgiu.org/an-overview-of-germanys-response-to-covid-19/ [2020-12-19]

Jugendstrategie. Available on: https://www.jugendhilfeportal.de/jugendstrategie/ [2020-12-19]

Nutsford, D., Pearson, A.L. & Kingham, S. (2013). An ecological study investigating the association between access to urban green space and mental health. *Public Health*, vol. 127 (11), pp. 1005–1011

Oliveira, A. (2020a-08-26). *COVID-19 — is everyone receiving the benefits of urban parks equally? The Hill*. [Text]. Available on: https://thehill.com/opinion/energy-environment/513744-covid-19-is-everyone-receiving-the-benefits-of-urban-parks-equally [2020-12-19]

Oliveira, A. (2020b-08-26). *COVID-19 — is everyone receiving the benefits of urban parks equally? The Hill*. [Text]. Available on: https://thehill.com/opinion/energy-environment/513744-covid-19-is-everyone-receiving-the-benefits-of-urban-parks-equally [2020-12-19]

Orben, A., Tomova, L. & Blakemore, S.-J. (2020). The effects of social deprivation on adolescent development and mental health. The Lancet Child & Adolescent Health, vol. 4 (8), pp. 634–640

Pages, T.S. Environmental Inequalities - The Society Pages. Available on: https://thesocietypages.org/papers/environmental-inequalities/ [2020-12-19]

Perovic, B. (unknown). *DEFINING YOUTH IN CONTEMPORARY NATIONAL LEGAL AND POLICY FRAMEWORKS ACROSS EUROPE*. Youth Partnership between the European Commission and the Council of Europe. Available on: https://pjp-eu.coe.int/documents/42128013/47261653/Analytical+paper+Youth+Age+Bojana+Perovic+4.4.16.pdf/eb59c5e2-45d8-4e70-b672-f8de0a5ca08c [2020-10-04]

Plagg, Barbara, e.a. 'We're in This Together: Intergenerational Health Policies as an Emerging Public Health Necessity'. Frontiers in Human Dynamics, vol. 2, december 2020, p. 566705. DOI.org (Crossref), doi:10.3389/fhumd.2020.566705.

Policy Responses to COVID19 IMF. Available on: https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19 [2020-12-19]

Seeland, K., Dübendorfer, S. & Hansmann, R. (2009). Making friends in Zurich's urban forests and parks: The role of public green space for social inclusion of youths from different cultures. *Forest Policy and Economics*, vol. 11 (1), pp. 10–17

de Sousa Silva, C., Viegas, I., Panagopoulos, T. & Bell, S. (2018). Environmental Justice in Accessibility to Green Infrastructure in Two European Cities. *Land*, vol. 7 (4), p. 134

The Federal Government informs about the Corona crisis (2020-03-18). *deutschland.de*. Available on: https://www.deutschland.de/en/news/german-federal-government-informs-about-the-corona-crisis [2020-12-19]

UNESCO (2020). COVID-19 Educational Disruption and Response. Available on: https://en.unesco.org/covid19/educationresponse [2021-02-03].

UNESCO (2020). Adverse Consequences of School Closures. Available on: https://en.unesco.org/covid19/educationresponse/consequences [2021-02-03].

Vanaken, G.-J. & Danckaerts, M. (2018). Impact of Green Space Exposure on Children's and Adolescents' Mental Health: A Systematic Review. *International Journal of Environmental Research and Public Health*, vol. 15 (12), p. 2668

Vaznonienė, G. & Vaznonis, B. (2020). STRENGTHENING YOUTH WELLBEING THROUGH GREEN SPACES: CASE STUDY OF A SMALL TOWN. *Management Theory and Studies for Rural Business and Infrastructure Development*, vol. 42 (2), pp. 178–192

Veen, E.J., Ekkel, E.D., Hansma, M.R. & de Vrieze, A.G.M. (2020). Designing Urban Green Space (UGS) to Enhance Health: A Methodology. *International Journal of Environmental Research and Public Health*, vol. 17 (14). DOI: https://doi.org/10.3390/ijerph17145205

Welle (www.dw.com), D. *How coronavirus pandemic has spurred change in Germany | DW | 09.08.2020. DW.COM*. Available on: https://www.dw.com/en/how-coronavirus-pandemic-has-spurred-change-in-germany/a-54500973 [2020-12-19]

Westby, C., Burda, A. & Mehta, Z. (2018-12-28). *Asking the Right Questions in the Right Ways. The ASHA Leader*. [review-article]. DOI: https://doi.org/10.1044/leader.FTR3.08082003.4

WHO COVID-19 Explorer. Available on: https://worldhealthorg.shinyapps.io/covid/ [2020-12-19]

WHO & US-EPA (2016). *Urban green spaces and health. Copenhagen: WHO Regional Office for Europe*. Copenhagen: WHO. Available on: https://www.euro.who.int/__data/assets/pdf_file/0005/321971/Urban-green-spaces-and-health-review-evidence.pdf?ua=1#:~:text=A%20WHO%20report%20on%20urban,of%20injury%20due%20to%20increased [2020-10-09]

Wolff, M. & Haase, D. (2019). Mediating Sustainability and Liveability—Turning Points of Green Space Supply in European Cities. *Frontiers in Environmental Science*, vol. 7. DOI: https://doi.org/10.3389/fenvs.2019.00061

Wüstemann, H., Kalisch, D. & Kolbe, J. (2017). Access to urban green space and environmental inequalities in Germany. *Landscape and Urban Planning*, vol. 164, pp. 124–131

Wyn, J. & White, R.D. (1997). Rethinking youth. London: SAGE. http://site.ebrary.com/id/10715712 [2021-02-06]

Youth (2019-07-10). Available on: https://www.un.org/en/sections/issues-depth/youth-0/ [2020-12-19]

Young Minds (2020). Coronavirus: Impact on Young People With Mental Health Needs. Available on: https://youngminds.org.uk/media/3708/coronavirus-report_march2020.pdf [2021-02-03].

Acknowledgements

I want to thank Patrik Oskarsson for the critical reflections on the social research aspect on this thesis, recommending analysis methods and literature, for excellent guidance - on distance. A big thank you to all interviewees that agreed meeting online for the interviews and taking some time to support the research. I would also like to thank my parents, sister and friends in supporting my process. Freddi, thank you for motivating me, keeping me grounded and for the wonderful moments spent together during lockdown in Bonn in 2020.

Appendix 1: Interview Questions

The following questions have been used for all respondents:
General questions:

6. Welcome! Please state your name, age and occupation.

7. Where do you live in Bonn, and since when?

8. Can you describe your living environment, neighbourhood?

9. Generally, do you like going out to visit parks and green spaces?

10. Why did you choose the spaces you mentioned?

11. What feelings do these locations evoke?

12. Would you say that the places you just mentioned are easily accessible for you with whatever transportation method you use?

Questions related to the time during COVID-19 (with potential lockdown or mobility restrictions):

1. Can you tell me what happened to you, or how you felt, when you got restricted related to your personal life? What were these restrictions?

2. Would you generally say that you feel comfortable in these UGS spaces?

3. Could you tell me how you like to spend your time in the city of Bonn during Covid-19?

4. Did you feel restricted in your movements during the COVID-19 period?

5. Did you start visiting UGS more, during this COVID-19 period?

6. Were you visiting the same UGS as before COVID-19?

7. During the COVID-19 pandemic, did you feel an increased need to go and relax in UGS?

8. Were you aware of any measures taken by the municipality to control/inform visits to UGS during COVID-19, such as restricting of access?

9. What personal difference does it make to you when you are being restricted in going outside, how does it make you feel?

Additionally, more questions were posed when felt necessary by the interviewer.

Appendix 2: Respondents' background

#	Age	Identifies as	Occupation	Country of Origin	Living in Bonn since	Residential area
1	26	Female	Youth Assistant Coordinator at the Global Landscapes Forum	Greece	May 2020	Südstadt
2	29	Female	Communications and Advocacy Officer in a program for humanitarian help	Italy	2017	Bertha von Suttner Platz, Nordstadt
3	29	Female	PhD program coordinator at the International Max Planck Research School (IMPRS) for Brain and Behavior	Turkey	2018	Hochkreuz
4	21	Female	Unemployed	New York, US	2010, has recently returned after 4yrs of Berlin residency	Just outside Rheinaue (Hochkreuz)
5	29	Male	Lab assistant in DNA sampling lab	Florida, US	September 2019	Siegburg
6	29	Male	IT-specialist at Fraunhofer Institute for Applied Information Technology	India	2017	Nordstadt

Figure 14: Personal data of interviewee respondents

Appendix 3 – Design elements for social interaction

It was clear that international youth is specifically suffering from lack of social interaction, while green spaces, provided that distance is being maintained, could offer a space for these needs during the pandemic. Using vegetation or elevation to create a meeting space with distancing in between visitors can make parks a place to have social interactions, even on distance. Examples of what these seating solutions can spatially look like are given below. Additionally, markings and adjustments to pathways can make a visit to a UGS safer. Below, some examples of what these solutions can look like are given.
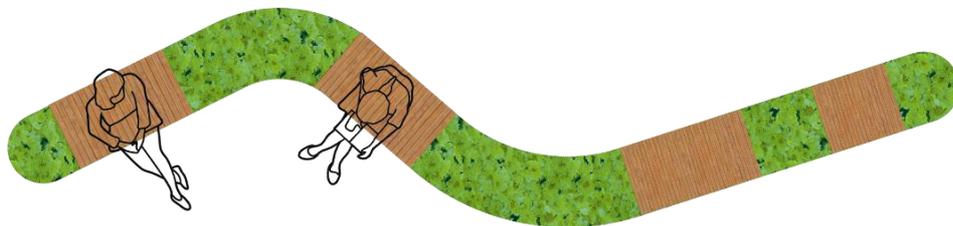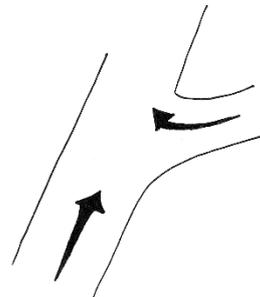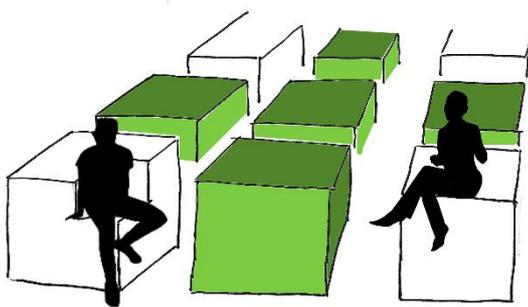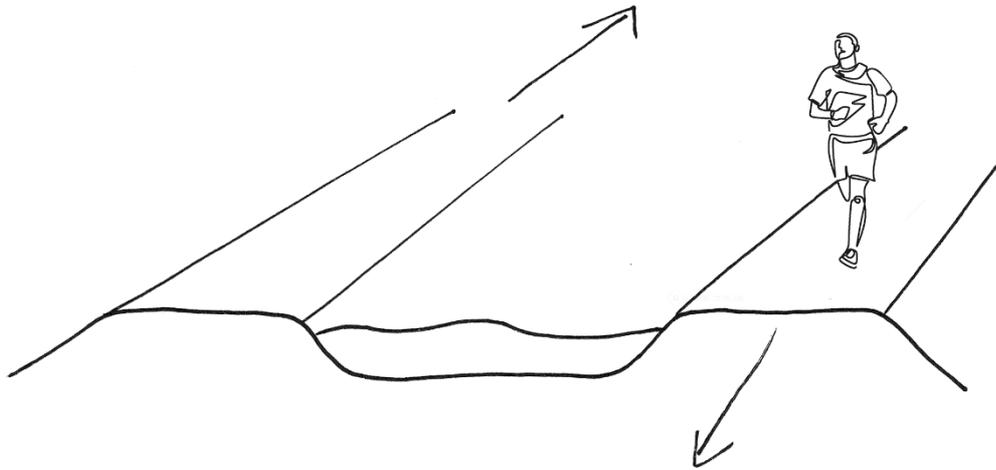
Figure 15-18: Clockwise: Seating object with vegetation, creating distance in between visitors and enhancing social interaction - vegetation and material blocks indicating distanced seating and allowing meet-ups and social events - double pathways divided by waterway allowing physical activity while keeping distance - marked pathways indicating contact-free walking directions.

Rheinaue is a spatially open park with many open green spaces where these seating arrangements for international youth can be implemented. Vegetation blocks offering seating arrangements can also function as a memorial of the pandemic. Moreover, considerations can be made to add markings in UGS, on pathways indicating visitors walking patterns in order to maintain safe distance. Given that it might be possible a pandemic or similar situation happens again, these are smart and sustainable considerations to promote healthy mobility patterns. This is an idea that could be considered for all the UGS in Bonn, and that could be developed into policy so that in the future, Bonn´s parks are resilient during pandemics while considering the needs of international youth.