

MASTER THESIS

# Student Housing Satisfaction in Urban Development

**The case of international students at Leibniz University of Hannover  
and student housing development in the city of Hannover**

**LAURETTA KORANG NYARKO**

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Hannover**

By  
Lauretta Nyarko

(10041919)

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Author: Laretta Nyarko

Student ID: 10041919

Faculty: Faculty of Architecture and Landscape

Examiner 1: Dr. Lena Greinke

Examiner 2: Dr.-Ing. Falco Knaps

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## **Abstract**

Student housing satisfaction through research studies has been found to be influenced by many indicators. As more provisions are being put in place to increase the availability of student housing within the urban context, it is also important to understand the dynamics behind this phenomenon. In this way, significant contributions are made in both the practical and academic domains. The study therefore investigated the main predictors influencing housing satisfaction among international students in Leibniz University of Hannover, living in state managed accommodation. With a growing international student population in the city, understanding these factors is crucial for urban development planning and enhancing the quality of student life. The research study employed a combination of descriptive analysis, correlation and regression analyses to identify the housing attributes significantly impacting students' overall satisfaction. The findings from the correlation analysis revealed that 12 indicators (safety, infrastructure quality, environmentally friendly, staff performance, housing sustainability, recreational quality, amenities, management response, privacy level, air quality, recommendation and continue stay) were the most significant predictors of student housing satisfaction. The research contributes to existing literature by providing empirical evidence on the specific factors/variables that affect international students' housing satisfaction in Hannover. The results highlight the importance of safety, quality infrastructure, neighbourhood quality and recreational facilities in student housing policies. The study also highlights the need for environmentally sustainable practices in housing development. This thesis offers valuable insights for university authorities, urban planners, and housing providers, emphasizing the need to focus on key areas to improve international students' housing experiences. It also calls for the need to strategically investigate the housing experiences of students and to involve them in decision making processes. The findings inform targeted strategies and policy recommendations to enhance student housing satisfaction. This ultimately contributes to the well-being of students, as well as improves urban living among residents in the city of Hannover.

## Table of Contents

### Introduction: Preparing the Scene for Student Housing Satisfaction Studies

1.1 Background, Context, and Problem Statement.....	1
1.2 Research Aims, Questions, and Significance of the Study.....	4
1.3 Organization of the Thesis.....	4

### The Literature Review: Investigating the Dimensions of Housing Satisfaction and Student Housing

2.1 Theoretical Perspectives on Student Housing Satisfaction.....	5
2.2 Factors Influencing Student Housing Satisfaction.....	7
2.3 Student Housing and Urban Development.....	11
2.3.1 The Interlinkages between Student Housing and Urban Development.....	14
2.3.2 Challenges and Barriers in Student Housing within the Urban Context.....	17
2.4 Conceptual Framework.....	20

### Methodology: Approaches to Examining Housing Satisfaction

3.1 Research Design.....	22
3.2 Study Area.....	22
3.2.1 Housing in Hannover.....	25
3.2.2 Leibniz University of Hannover.....	27
3.3 Data Sampling and Analysis Techniques.....	28
3.3.1 Quantitative Survey with Students from Hannover.....	28
3.3.2 Qualitative Interviews with Experts on Student Housing in Hannover.....	30
3.4 Ethical Considerations.....	33

### Data Analysis: Revealing Insights on Housing Satisfaction

4.1 Data Description and Sample Characteristics.....	34
4.2 Descriptive Statistics of Student Housing Satisfaction Indicators.....	40
4.3 Analysis of Indicators Influencing Overall Housing Satisfaction.....	46
4.4 Interconnection between Housing Management and Student Housing Satisfaction.....	51
4.5 Interconnection between Urban Planning and Student Housing.....	57

### Integrating Insights: Discussions and Strategic Approaches

5.1 Indicators Influencing Housing Satisfaction Levels.....	61
5.2 Housing Preferences and Contributing Factors.....	64
5.3 Implications for Student Housing Development in Hannover.....	65

### Conclusion: Reflections and Way Forward

6.1 Summary of Findings.....	68
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6.2 Limitations of the Study.....	69
6.3 Future Research Directions.....	70
List of Figures.....	I
List of Tables.....	II
List of Abbreviations.....	III
<b>References.....</b>	<b>73</b>
<b>APPENDICES</b>	
APPENDIX 1: International Students Facts and Figures at LUH.....	81
APPENDIX 2: Raw Data Sets Table A – Table X.....	82
APPENDIX 3: QUANTITATIVE SURVEY.....	88
APPENDIX 4: QUALITATIVE INTERVIEWS.....	101
APPENDIX 5: Suggestions for Practical Implications.....	109





## List of Figures

Figure 1. Germany International Student Statistics.....	2
Figure 2. Student Housing Satisfaction and Housing Development in Hannover.....	20
Figure 3: The Region of Hannover.....	24
Figure 4: Hannover City Districts and Neighbourhood Density.....	25
Figure 5 Spatial Distribution of the LUH in the City of Hannover.....	27
Figure 6. Educational Level of Respondents.....	35
Figure 7 Previous Student Housing Experience in Hannover.....	36
Figure 8. Current Stay Period and Intended Stay Period.....	37
Figure 9 Reasons why Respondents Moved from their Previous Student Housing.....	38
Figure 10 Preferable Indicators of Student Housing.....	39
Figure 11. Housing Style Choices of Students.....	39
Figure 12: Proximity of Housing to Services.....	43
Figure 13: Quality of Services.....	43
Figure 14: Overall Housing Satisfaction.....	46

## List of Tables

Table 1: Resident Increase in the City of Hannover.....	26
Table 2: Place of origin.....	34
Table 3. Gender and age of respondents.....	35
Table 4: Correlation results with housing satisfaction indicators and overall satisfaction.....	47
Table 5: Model Summary from Regression Analysis.....	49
Table 6: Analysis of Variance (ANOVA).....	50

## **List of Abbreviations**

LUH	Leibniz University of Hannover
EC	European Commission
EU	European Union
WS	Winter Semester
GTbPOE	Gap Theory-based Post-Occupancy Evaluation
PBSA	Purpose-Built Student Accommodation
HMOs	Houses in Multiple Occupation
HSV	Hauselbstverwaltung

## **Introduction: Preparing the Scene for Student Housing Satisfaction Studies**

### **1.1 Background, Context, and Problem Statement**

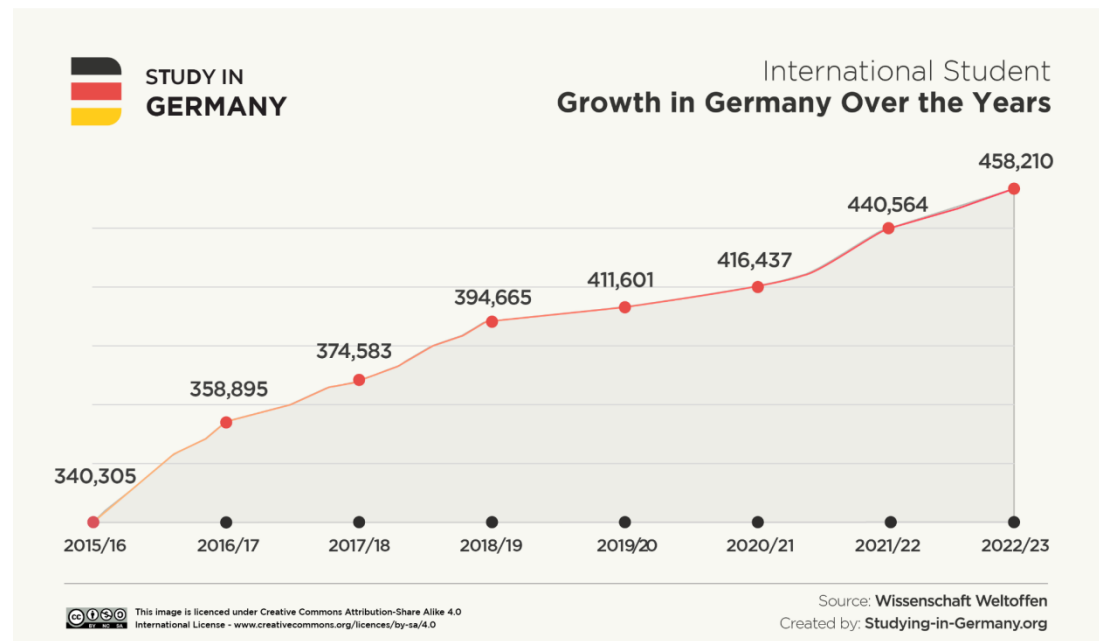
Housing is a fundamental human need, playing a crucial role in achieving a decent standard of living (Mikkola, 2008). It provides not just shelter, protection, and privacy, but also facilitates individual development and enhances overall living conditions. In the field of urban planning, housing is one of the oldest and major divisions, having a significant role in the pursuit of better public spaces and a balanced natural and built environment for people (Haghani et al., 2023: 7).

According to the European Commission report in 2023, about 446.7 million people were recorded to be living in the European Union (EU) in January 2022. In the report, Germany was identified as one of the most heavily populated EU Member States with 83.2 million, accounting for about 19% of the EU population. 60% of the working-age population which is from the ages of 20 to 64 live in urban regions as compared to the rural regions with a share of 57% in the EU (EC, 2023: www). Hence, more people tend to live in urban areas, leading to higher demands for housing in these areas. The housing supply for urban dwellers is therefore an important phenomenon to urban planners and housing developers who tend to contribute to positive environmental, social and health impacts (Haghani et al., 2023: 9).

International students to some extent influence their study destinations. In Education World (2023: www), international students are said to contribute positively to a country's scientific and technical research fields by bringing about different perspectives. This makes societies more liberal and tolerant. They form part of the basis of an interconnected, diverse, and globalized world. They contribute to the socio-cultural diversity in university campuses and gradually develop a growing and enhanced learning environment in their host countries (ibid.). Many international students in recent years have made countries such as Germany, the USA, the UK, Canada, and Australia a study destination. For Germany, this continues to be an increasing phenomenon since tuition-free education was made possible in 2014 (Studying in Germany 2023: www). In the winter semester of 2022 and 2023 in Germany's higher education institutions, about 458,210 international students were enrolled. From 2020 to 2023, there was a 10% increase in international students in the country (ibid.). In figure 1 below, it can be observed that the number of international students in Germany increased from 340,305 to 458,210 from the years of 2015 to 2023. In about a year, there was a 4%

increase in the number of international students from 2022 to 2023 (Studying in Germany 2023: [www](http://www)).

**Figure 1. Germany International Student Statistics**



Source: Studying in Germany (2023: [www](http://www))

The choice of a university as a study destination depends on many general factors. These include the cost of living, safety, transportation, racial discrimination, lifestyle, immigration potential, climate and culture as well as friends and family (Wang & Tseng, 2011: 439). Personal preferences on the part of the student may include study programs and courses, fees, facilities and support services, intellectual climate, teaching quality, teaching staff and methods, image and prestige of the university. The most commonly identified reasons accounting for students choosing Germany as their study destination include low tuition fees, affordable cost of living, educational quality, scholarship opportunities, English language courses and student diversity (Studying in Germany, 2023: [www](http://www)).

The analysis of housing satisfaction becomes relevant, particularly within the context of international students in the German educational system. Student housing is provided exclusively for a particular resident group in search of immediate and temporary housing, who are students and in most cases have limited sources of income (Franz & Gruber, 2022). As the number of international students consistently increases, the demand for housing among this group has likewise risen (Zasina & Antczak, 2023). At the same time, private providers, student

unions and other non-profit providers over the past few years have been providing more student accommodation (Franz & Gruber, 2022). Quality housing through many research studies has been shown to have some level of impact on the cooperation, involvement, school adaptation, inspiration, and personal character of students (Gong & Söderberg, 2023). Given its significance, housing satisfaction is a topic of interest for academic researchers, urban planners, housing developers, and other stakeholders involved in the provision of housing services. In Amole (2009: 76), satisfaction can be referred to as the evaluation of the gap between the actual and desired needs of consumers. The author identifies satisfaction as an important tool used to evaluate the performance of various aspects of residential and housing environments. Housing satisfaction and residential satisfaction are often used interchangeably in academic literature since both terms refer to the degree to which people are satisfied with their living conditions. This is evident in the works of Najib et al. (2011), Gong & Söderberg (2023), Eteng et al. (2022), Sadeghlou & Emami, (2023), and many others.

Teck-Hong (2012: 109) and Mekebo & Dong (2021: 228) define housing satisfaction as the degree of fulfilment experienced by either an individual or a household in relation to their current housing conditions. It implies a quality evaluation of housing units that integrates both objective and subjective elements, reflecting the complex nature of housing needs and experiences (Teck-Hong, 2012). Residential satisfaction often entails more than just the dwelling itself. In addition to the physical housing unit, it also includes satisfaction with the surrounding neighbourhood or community, with aspects such as safety, proximity to services and amenities, social interactions, and the overall quality of the living environment (Sadeghlou & Emami, 2023). Residential satisfaction may therefore be seen as a component of the broader concept of housing satisfaction (Najib et al. 2011: 54). For the purpose of this research study, the components of both residential and housing satisfaction are used to represent housing satisfaction as one concept. Many authors have also argued that residential satisfaction arises from the perception of the quality of housing facilities and the provision of services. Therefore, regular assessment of resident satisfaction is essential to effectively address the evolving housing needs of students (ibid.). Student housing satisfaction is an important component of the overall college experience, and it has a significant impact on both students' quality of life and academic performance (Xulu-Gama, 2019). Thus, understanding housing satisfaction among international students holds crucial importance for the German educational system,

urban planners, housing developers, investors, and other stakeholders involved in practical spatial planning.

Despite the rising demand and supply for student housing and the growing international student population, there is a notable research gap in current studies on student housing satisfaction in Europe (Gong & Söderberg, 2023). There remains a limited understanding of this concept within the German context as considerable research has been conducted in other regions such as Africa, Asia, and America.

## **1.2 Research Aims, Questions, and Significance of the Study**

This study seeks to address the gap by investigating the satisfaction level of international students with their housing conditions in university managed residences in Germany, specifically at the Leibniz University of Hannover. Moreover, it aims to explore the extent of involvement of housing providers and urban planners in the provision and development of student housing. It also aims to identify how their activities influence student housing satisfaction in the city of Hannover.

The research questions guiding this study are:

1. What indicators drive students' overall satisfaction with their current student housing?
2. How can the indicators influencing student housing satisfaction be used to assist planners in decision-making processes related to student housing development at Leibniz University of Hannover?

The significance of this research lies in its potential contributions to both academic and practical domains. Academically, it contributes to a detailed study of understanding student housing satisfaction among international students in the German educational system. Practically, the findings offer valuable insights to urban planners, school authorities, developers, and other key stakeholders involved in the provision of student housing. The gathered information enables them to make informed decisions and enhance the overall quality of urban living in the city of Hannover.

## **1.3 Organization of the Thesis**

The structure of the thesis includes a comprehensive review of the literature to analyze the current knowledge and theories relevant to student housing satisfaction. It also discusses the

role of urban development in student housing and their interlinkages. It then explores the many challenges that arise in student housing and introduces some planning strategies. This is then followed by the methodology section which describes the research design, data collection techniques, and analysis methods used in the study. The research study then presents and analyzes empirical findings, and discusses their implications for planners and policymakers in the field of student housing. The conclusion summarizes key findings and proposes future research directions.

## **The Literature Review: Investigating the Dimensions of Housing Satisfaction and Student Housing**

### **2.1 Theoretical Perspectives on Student Housing Satisfaction**

The quality of life and academic success of university students as stated earlier have been found in one way or another through research studies to be linked to their housing experiences (Xulu-Gama, 2019). This makes student housing satisfaction a crucial part of the student experience. In understanding student housing satisfaction, a number of complex issues are said to play significant roles in the phenomenon (Amole, 2009; Gbadegesin et al., 2022). Housing satisfaction research has benefited from numerous theoretical frameworks. Different theoretical frameworks have been utilized to delve into this multifaceted concept and shed light on the many possible variables that affect students' satisfaction in their dormitories and student halls (Abidin et al., 2019).

Three theories with similar concepts are the Housing Needs, the Housing Deficit, and the Housing Adjustment Theories. The Housing Needs Theory emphasizes the significance of housing that satisfies the fundamental needs of the residents, including aspects such as cost-effectiveness, location, and quality of life (Rossi, 1955). Rossi (1955), argues that as a household moves through various life phases, their wants and needs also change. The Housing Adjustment Theory examines how a household's level of contentment with their living arrangements changes over the course of their lives (Morris & Winter, 1975). The theory has been used in many housing satisfaction studies. In relation to student housing, when students spend more time in their assigned home, they either learn to adapt to the conditions of the accommodation or modify their expectations. This in turn influences their overall level of satisfaction. This process of adjusting to a new housing environment can be affected by a variety of subjective and objective elements and yields different outcomes (Gong & Söderberg,



2023). When there is dissatisfaction, the household or resident may consider ways of adjusting to housing needs or moving into a new house (Mekebo & Dong, 2021: 229). The Housing Deficit Theory concentrates on locating and measuring the disparity between the existing housing conditions and the already established family and societal norms of residents that involves physical, social, economic, and psychological factors that influence life quality (Ibem et al., 2019: 79). Collectively, these hypotheses offer a holistic viewpoint on the housing requirements of the students by not only identifying what is sought but also the obstacles that prevent those wants from being achieved.

Although Maslow's Hierarchy of Needs theory does not relate directly to residential/housing satisfaction, it has been applied in many publications as seen in Mekebo & Dong (2021) and Gong & Söderberg (2023). In relation to this theory, a resident or a household's housing needs can be arranged in a hierarchical order, beginning with satisfying basic needs such as safety and comfort first, to social needs such as a sense of community, and finally reaching self-actualization needs such as the possibilities for personal growth (Maslow, 1943). Therefore, in housing satisfaction, it is important to satisfy these basic needs first (Mekebo & Dong, 2021).

The Psychological Construct Theory according to Galster (1985) encompasses a variety of subjective experiences and feelings about one's housing. The mental construct of people functions as a 'reference' to evaluate their residential conditions based on their own personally developed criteria. The expectation of housing is to assist in achieving specific life goals. In the case of students, quality of life and academic success. Satisfaction occurs when their current housing conditions meet their 'reference'. Dissatisfaction occurs if housing conditions do not meet their 'reference' (Galster, 1985).

The Gap Theory-based Post-Occupancy Evaluation (GTbPOE) theory can be traced back to Lai (2013) after he employed the Post-Occupancy Evaluation (POE) based on the gap theory and the adaptation of the SERVQUAL model in his research study. The idea places an emphasis on the connection that exists between the pre-occupancy expectations and the post-occupancy experiences of housing users (Lai, 2013). The SERVQUAL model is used to analyse attributes of service quality (Lai, 2013; Hou et al., 2020). Hou et al., (2020), conducted a study to validate the application of the GTbPOE. They concluded that the theory does not only evaluate the expectations and satisfaction levels of users but also provides a better understanding of the

needs of users. The GTbPOE is predicated on the theory that user dissatisfaction might result from a discrepancy between the performance that the user anticipates from their housing and the performance that they actually receive (Hou et al., 2020). In other words, if a student's expectations from their accommodation (such as facilities, privacy, cleanliness, and services, etc.) are not realized once they move in, it may lead to decreasing levels of satisfaction with their living situation. The theory takes into account both the concrete and the intangible parts of a student's experience, ranging from the housing amenities to the general living environment, and it provides a comprehensive examination of the level of satisfaction residents have with their living arrangements (Hou et al., 2020).

Residential/housing satisfaction theories reveal the complexity of the concept and show the need for a comprehensive strategy. They have the potential of great assistance in presenting readers with a complete examination of student satisfaction by highlighting the key indicators in which student housing may require room for improvement. When the gaps are understood, one can provide suggestions for modifications that would better align student expectations with their housing experiences, leading to an increase in overall housing satisfaction. This is particularly significant for international students who find themselves in different cultures and environments. All above mentioned theories offer unique perspectives on the concept and help readers understand that there are many underlying factors that are likely to influence housing satisfaction.

## **2.2 Factors Influencing Student Housing Satisfaction**

Many theoretical frameworks, each with a unique point of view, have been used to investigate the concept of housing satisfaction, revealing its complex nature and providing insights into possible factors that contribute to housing satisfaction. Student housing is a crucial component of the higher education system, often influencing students' academic performance, retention rates, and overall satisfaction with their university experience (Ibem et al., 2019; Hou et al., 2020). There are a wide variety of factors that can affect the satisfaction of students with their housing situations. This section aims to review and consolidate existing literature, revealing some factors and their indicators/variables.

The physical characteristics of the building and features such as size, layout, rooms, common spaces, bathrooms, toilets and the location of the kitchen and bathroom play an important

role in determining satisfaction levels (Biswas et al., 2021: 10). Through many research studies, the physical attributes such as the size of the room has been demonstrated to have a significant impact on students level of satisfaction (Abidin et al., 2019). Over the years, personal space and privacy has increased among students' preferences in accommodation. Privacy, associated with the physical and social features of housing affects the level of comfort and general living experience of residents. In the study by Sadeghlou & Emami (2023) in Iran, it was discovered that due to cultural reasons, most residents value their privacy in their places of residence. This was therefore ranked as one of the most important prerequisites to achieving housing satisfaction. According to the findings of Khozaei et al. (2014), the availability of private areas in student housing was a significant factor in the overall comfort and satisfaction of the students.

Security, safety and comfort are all important factors when it comes to housing satisfaction studies (Ibem et al., 2019). As discovered by Eteng et al., (2022) in their study of hostel accommodation among students in tertiary education in Nigeria, security was most likely to be predominant in privately owned hostels as compared to the university-owned hostels. This resulted in lower levels of satisfaction among students in university-owned hostels. According to the findings of Gbadegesin et al. (2022: 13), there is a strong correlation between students' reports of how safe their living conditions are and their overall levels of satisfaction. Their research indicated that safety and security are primary considerations in the assessment of the quality of student accommodation in South Africa. The security and safety of the lives and the property of residents is very important as it influences their contentment levels in their housing and neighbourhood (Ibem et al., 2019: 93). Najib et al., (2011) also stressed on the need for safety and security measures as students were generally dissatisfied with the condition of this variable in a prominent university in Malaysia.

Affordability also influences the level of contentment a student feels with their living situation as shown in many studies. Housing costs are one of the key factors used by a student in selecting suitable accommodation (Zasina & Antczak, 2023). Community Commons, (2015: 12) argued that affordable and sufficient housing systems among American colleges have the likelihood of improving the success of American students. According to Fang & van Liempt (2021), the burden of financial responsibility caused by housing expenditures is likely to have a negative impact on the housing experiences of students. Through interviews with

international students in the Netherlands, they discovered that due to high rent costs, students experienced more pressure and stress in finding suitable places to live. This lowered their satisfaction levels with housing in their host country.

The location and accessibility of student housing to university campuses and basic public services are significant indicators. According to Kowalski (2022), the location of living quarters has an impact on student lifestyles. The study highlighted the convenience of proximity to the university campus as a significant contributor to student behaviour outcomes. Zasina & Antczak (2023) in their studies, found a direct link to accessibility and satisfaction. It was stated that the easier it was for students to access public transport, the higher their overall residential satisfaction levels. As Ibem et al., (2019: 92) discovered, housing dissatisfaction levels of residents were high in areas of poor access to neighbourhood facilities and an adverse economic environment. In a study by Chen (2023: www), it was discovered that students who commute longer to their schools are more likely to face academic and general health challenges. The study found that students who commuted shorter got more exercise than the students commuting longer. Students with longer commute times are also more likely to have less sleep time, be absent and have lower test scores as compared to students with shorter commute times (ibid.). The ability of students to access university buildings as well as essential goods and services such as markets, shopping and city centres, healthcare, recreational facilities and public transport from their places of residence can impact satisfaction levels (Gbadegesin et al., 2022: 4).

The quality of housing amenities/facilities and services provided by a student housing complex has a direct influence on the level of satisfaction (Najib et al., 2011: 54). Amole (2009) discovered a substantial connection between the quality of the facilities and the level of contentment experienced by students living in on-campus housing. Such facilities include bathrooms, toilets, laundry rooms, kitchen facilities, heating, electricity, internet services, parking spaces and many more. The maintenance and management of these facilities coupled with the attitude of the management of housing providers toward residents can also impact satisfaction levels (Gong & Söderberg, 2023). In their study, the authors found that variables such as maintenance, management responsiveness, and general living conditions were significant drivers of satisfaction.

The social environment and the neighbourhood environment both play a vital role in determining the success of student housing because of the enormous influence of social interaction and community. Abidin et al. (2019), proposed that an individual's social environment might have an effect on both their personal growth and overall satisfaction. Students often consider the social and neighbouring environments where recreation and leisure are available as a vital component in accommodation selection (Eteng et al., 2022). Students also tend to live in places where they easily identify with their social groups. This group of younger people are more active and tends to be more involved in the cultural and social activities of the city in which they reside (Thomsen & Eikemo, 2010: 275). Fang & van Liempt (2021: 823) also mentioned that as compared to domestic students, international students often lack the social networks and language skills that they can rely on during their stay in host countries. It is therefore not surprising that some students living in university-provided accommodations expect the housing to facilitate socialization among them (Gbadegesin et al., 2022).

One of the most rapidly expanding subfields of research in housing is sustainability and green spaces. In sustainable housing development, or “green design” as Yip et al. (2017: 309) put it, focuses on the use of resources and materials that are able to reduce negative environmental impacts. Sustainable houses enable equal distribution and affordability for users. They also save interior space, create comfortable temperatures, have a physically safe and healthy environment, and promote general mental well-being as well (ibid.). One of the benefits of introducing environmentally friendly designs into student accommodation is an improvement in overall student well-being and lifestyle choices. These designs include modern energy-efficient facilities, and improved interior and exterior conditions. Housing needs can be easily achieved when these features exist (Galster, 1985; Najib et al., 2011). Some studies have associated green spaces with recreational areas (Zasina & Antczak, 2023; Sadeghlou & Emami, 2023). This variable is likely to also affect housing satisfaction. Gong & Söderberg (2023) made a connection between natural elements and green spaces and the satisfaction levels of student housing. The authors discovered that the presence of green spaces can improve residents' feelings of well-being and contentment in their living spaces. Students in this case expressed disappointment when the housing management removed an existing green space and replaced it with a padel court (Gong & Söderberg, 2023). Liu et al., (2022) also found that the presence of green spaces in campus facilities results in a high level of academic achievement

among students. This growing body of research shows that the integration of sustainable and green features in student housing design may be an effective strategy to improve satisfaction levels.

In conclusion, the extensive review of available literature has revealed that student housing satisfaction is influenced by a diverse range of indicators.

### **2.3. Student Housing and Urban Development**

According to Avis (2016: 3), urban development refers to the social, cultural, economic and physical development of cities, and the primary causes of these processes. Over the years, study and research have emphasized the role of universities in urban development, often through the lens of town-and-gown relationships. Zasina & Antczak (2023) define the 'town and gown' concept as the spatial division of students who are considered to be part of the 'gown' from the other part of the population who are considered as the 'town' in an urban population.

Much past literature has argued that the concept of town and gown creates urban division among students and local residents. However, in recent publications, there is more focus on ways in which university institutions can employ their existing resources to enhance urban areas and limit the issues related to town and gown concepts (Ehlenz, 2019). As O'Mara (2012) puts it, universities can act as key actors in the economic and social growth of urban and regional economies. Through the international relations universities have, they tend to become global actors who have the ability in relevant ways to impact regional and urban development (Sotomayor et al., 2022).

University-based development has become a major part of urban development processes (Franz & Gruber, 2022: 459f). Ehlenz (2019) argues that universities can act as anchor institutions in cities, using their economic, human, and cultural capital to promote urban development. One of the central principles of many university institutions' development and planning includes a sense of place. This has enabled them to pay more attention to the social, economic and demographic changes in the university as well as their surrounding societies. Through place-based concepts, anchor universities have shifted focus more on social engagements, local impact and social embeddedness which has added new length to the town

and gown phenomenon (Ehlenz, 2019: 777f).

According to Reynolds (2020: 2), Purpose Built Student Accommodation (PBSA) is gradually taking control of urban residences. PBSA can be in the form of a self-contained studio or flats with private bathrooms and kitchens, as well as a shared communal space for residents. They can also take the form of shared living in a hall of residence that is made up of double bedrooms and facilities that are shared among all residents. PBSA is purposely developed with modern facilities and designs (ibid.). Interestingly, research has also revealed that students have grown more fond of this type of student accommodation that is equipped with high-quality modern facilities (Kinton et al., 2018). PBSA offers a variety of living arrangements that have the ability to cater to the different needs of students. As students come from different socio-economic and cultural backgrounds, their demands and housing choices are likely to be different (Franz & Gruber, 2022). The nature of PBSA is versatile and comes with different price ranges and housing types which fulfils the varying student housing preferences (ibid.).

In most university areas, dense on-campus and off-campus accommodation is likely to result in studentification. Studentification is when a high concentration of students can be found to be living in a specific geographical area (Thomsen, & Eikemo, 2010: 286). Studentification has the potential of positively impacting urban areas and cities. It is said to play an important role in city centre rejuvenation by making these areas more attractive for the working-class population to work, live and socialize (Chatterton, 2010). It can also be viewed as a remodelling tool that impacts both developed and vacant neighbourhoods. Franz & Gruber (2022) identified PBSA as a contributing factor for promoting socialisation because students are not confined to university campuses but also other areas of the city. Many local authorities together with private, public and university stakeholders have identified off-campus PBSA as a tool to effectively integrate student housing into already developed residential areas (Kinton et al., 2018). Traditional on-campus accommodations are also gradually being renovated to attract equal attention just as off-campus student accommodations (ibid.). This strategy is also improving overall housing infrastructures in impacted areas.

Studies also highlight the impact of student housing on the housing market in cities. The majority of student housing providers in many European countries have diversified as a result of the increasing involvement of commercial housing developers. Welfare non-profit

organizations and public stakeholders have been the original providers of accommodation for students, either on-campus or off-campus (Franz & Gruber, 2022). However, there is an undeniable shift in the provision of student housing to a capital-motivated development on the part of private investors as compared to non-profit providers who are more concerned with the provision of accommodation as a basic necessity for students. This is evident in cities like Vienna which are governed by social housing schemes (Franz & Gruber, 2022).

The role of student housing is very interesting as it can both influence and be influenced by urban development dynamics (Smith & Holt, 2007). Students are also identified as important players and agents of change. Students through the use of PBSA can serve as users who are capable of enabling urban regeneration (Kinton et al., 2018). Students bring vibrancy and diversity into urban neighbourhoods, which can foster a unique social and cultural environment (Chatterton, 2010). Student housing also stimulates economic growth among local and private businesses. For instance, the inclusion of new university campuses throughout the city of Vienna has attracted housing developers to build new housing units that are in close proximity to the university campuses (Franz & Gruber, 2022).

Another important aspect is the impact of student housing on urban sustainability. Student housing in secondary cities and towns has the capability of improving urban landscapes (Heslop et al., 2023: 935). For instance, some major parts of locations with a high concentration of student accommodation in the UK are fully committed to providing services that meet the needs of students (Chatterton, 2010). Services include retail, entertainment and leisure. With time, small-sized cities are enticed to improve their services as well. More younger people are then attracted into these areas and subsequently promote urban sustainability through denser, and walkable neighbourhoods. There is also a higher use in public transport and a reduction in private car ownership (Chatterton, 2010).

There have been a number of case studies examining the intersection of student housing and urban development in specific contexts. For instance, a case study by Wiewel & Perry (2015) explored the role of universities in the revitalization of cities and towns across countries from different parts of the world. They show how the many universities' housing policies contributed to neighbourhood regeneration and the creation of a more vibrant urban environment. For many years, the universities have been part of their cities and towns, and



have acted as important contributors to the city centres. Significant changes included social, cultural, and economic growth in their resident cities (ibid.). The introduction of new student campuses in the suburban areas of Helsinki and Oporto also improved the aesthetic reputation of the areas.

In an attempt to understand how universities engage in revitalization strategies, Ehlenz (2019) analyzed the case of about 22 universities in 19 cities in the USA between the period of 1990 and 2010. It was discovered that university revitalization strategies corresponded with neighbourhood change. First of all, university revitalization investments resulted in lower housing costs. Secondly, university revitalization in cities with either strong housing and population trends or highly diverse university engagement strategies exhibited a significant amount of growth. This was different as compared to universities in cities with weaker housing and population trends or without physical university investment (Ehlenz, 2019: 777). Student housing therefore with the right stakeholders, resources and strategies helps in revitalizing certain urban areas and contributes to their economic and social growth as well.

The literature and case studies reviewed above underscore the opportunities student housing and urban development have with each other through the activities of key players involved. As universities, students, planners and housing providers continue to play an integral role in cities, there is a need to better understand and manage the relationship between student housing and urban development.

### **2.3.1. The Interlinkages between Student Housing and Urban Development**

According to Zasina & Antczak (2023), student accommodation is broadly explored due to its multifaceted effects on urban neighbourhoods and its intra-urban dimensions. While student housing can contribute to urban growth and sustainability, it can also pose challenges, particularly around housing availability and neighbourhood dynamics. This section provides an expanded and academic exploration of urban development and student housing, drawing on a range of studies, case studies, and literature reviews.

Gentrification often corresponds with urban development, leading to the displacement of vulnerable groups, including students, due to rising housing costs (Haghani et al., 2023). Sotomayor et al. (2020: 3) argue that university towns cause early gentrification or

studentification that results in the downgrade and displacement of surrounding neighbourhoods. The high demand for student housing in certain areas can result in higher rent charges that limit access to low-income residents (Sotomayor et al., 2020). Reynolds, (2020) in their study of PBSA in the UK and Ireland observed that students were particularly affected by rising rents and property prices that drove them out of traditionally affordable neighbourhoods. There is therefore an effect on both students and local residents in changing areas.

Changes in housing typology and infrastructure is often associated with urban development processes. More compact, modern housing such as apartment complexes may become the norm, potentially displacing traditional, single-family homes (Kinton et al., 2018). The modern types of student housing that have emerged in recent times also tend to create a social divide between students who can afford to live in these buildings and those who are unable to (Reynolds, 2020). Students may find themselves adjusting to different living arrangements, such as low-quality and illegally overcrowded homes in shared flats serving as student accommodation as these changes unfold (Sotomayor et al., 2022).

As Heslop et al., (2023) state, the concentration of students in specific urban areas can sometimes lead to conflicts and social disparities such as tensions between students and local residents, neighbourhood disruption, noise, and litter (Chatterton, 2010; Reynolds, 2020). The housing market in cities like Loughborough, UK for example, has been significantly impacted by a large influx of students, leading to overcrowding, noise and car parking issues among students and other residents (Kinton et al., 2018). There is also a decline in traditional residential areas as students move into these areas for accommodation (Thomsen & Eikemo, 2010). For instance, the conversion of family houses in middle-class areas in Loughborough into Houses in Multiple Occupations (HMOs) to accommodate students eventually forced some local residents to relocate (Kinton et al., 2018).

Changes in urban development policies and zoning regulations can have a direct impact on the availability and location of student housing, as well as property owners. For instance, in an attempt to control the spread of student housing and its associated nuisances, the UK implemented Article 4 Directions to limit the conversion of family houses into HMOs often rented by students (Kinton et al., 2018). This has reduced the density of students in highly

studentified areas. However, some property owners are at a loss because they feel the introduction of the Article 4 Direction in their areas has deflated their property prices and they are unable to achieve significant profits after property conversions (Kinton et al., 2018).

Rapid urban development can sometimes lead to a compromise in housing quality and management. Student housing geographies have resulted in the promotion of a private rental market that is sometimes insecure, unaffordable and undersupplied (Reynolds, 2020: 10). When landlords seek to maximize profits from a booming student rental market, neglect of property maintenance may occur, affecting the quality of student housing (Sotomayor et al., 2022). Sotomayor et al. (2022) reported cases where landlords and housing companies were found to be involved in illegal and predatory practices toward students, especially international students in Toronto. They renovate buildings that fall out of the legal building standards in order to generate more interest from rent in a competitive housing market. These practices result in low housing quality with cheap materials, lack of privacy and communal spaces, poor heating, cooling and ventilation, and unsafe housing conditions in accommodating students. The housing owners sometimes collected illegal and non-repayable application fees and made requests for large amounts of deposits as opposed to the legal first and last months of rent. They also collected private information such as passports and health insurance from international students (Sotomayor et al., 2022). This has been identified in a similar study by Franz & Gruber (2022) in the Netherlands where profit-seeking landlords and housing companies subject international students to illegal low-quality accommodation. They charge large amounts of rent but are unable to provide rental contracts to the students.

As already mentioned, when the demand for student housing increases, there is a trend towards developing PBSA. These on-campus and off-campus accommodations are often high-density, centrally located and offer potential solutions to housing shortages in university cities (Franz & Gruber, 2022). The most important aspect of PBSA in current urban development studies is the recognition of these specialized forms of buildings as a significant implementation tool (ibid.: 461). It helps to limit the excessive conversion of family homes into HMOs in residential areas. It promotes development in vacant residential areas as well as the growth of local businesses (Heslop et al., 2023: 930).

From the above mentioned points, the interlinkages between student housing and urban

development can either be perceived as an advantage or a disadvantage. Rising housing costs and gentrification can price both students and local residents out of the housing market. Increasing housing demand and overcrowding can put a strain on housing availability. Changes in housing typology and declining housing quality further shape the student housing and urban experience. Moreover, shifts in neighbourhood composition and changes in urban policies and zoning regulations can influence land owners either positively or negatively. The rise of PBSA reflects the dynamic interplay between urban development and student accommodation as some studies have shown its significance to urban revitalization and economic growth.

As cities undergo development and transformation, the impacts on student housing can be significant, shaping the accessibility, affordability, and quality of housing options available to students. It is therefore very important to pay attention to the advantages that come with developing student accommodation while mitigating the negative impacts as well.

### **2.3.2 Challenges and Barriers in Student Housing within the Urban Context**

In the urban context, student housing faces numerous challenges in the social, economic and environmental realms. This section offers a general overview of the significance of student housing in the context of urban environments and the imperative nature of addressing the difficulties that it presents.

Affordability is a key concern of student housing in urban regions due to the competing demands for limited housing resources with locals in competitive housing markets. Rising rents and housing expenses disproportionately affect students, exposing them to financial strain (Sotomayor et al., 2022). Student housing can be affected by planning practices and local economic demands and not just demand and supply conditions. The implementation of rent control legislation, the promotion of partnerships with affordable housing providers, and the exploration of non-financial and financial contributors are all strategies that can be used to solve this situation (Heslop et al., 2023).

The quality and the general condition of student housing can be impacted by several urban dynamics as earlier discussed. This can lead to a considerable impact on the overall experience and well-being of the students who live there. Problems such as inadequate maintenance, poor living situations, and low-quality facilities/amenities can negatively impact the

livelihoods of residents (Ibem et al., 2019). According to Sotomayor et al. (2022), some of the strategies that can be utilized to improve housing conditions include the implementation of firm housing regulations, the performance of routine inspections, and the promotion of partnerships with respectable housing providers. University authorities can assist students in finding suitable quality housing by connecting them with reliable landlords and supporting them in case they face unexpected challenges in their rented homes (Sotomayor et al., 2022).

A fundamental barrier that leads to housing scarcity and limited access to suitable accommodations for students is inadequate supply and availability in urban areas (O'Mara, 2012). The rate of competition for limited housing can increase as a result of urban expansion, making it more difficult for students to find affordable suitable housing. Students in cities with high housing demands frequently experience such difficulties. According to Thomsen & Eikemo (2010), a competitive housing market leads to increasing rents as well as a limited availability of quality and affordable housing for both students and local residents. Locations with higher demands for student accommodation in the private rental markets can be characterized by low supply, unaffordable and less secured housing (Reynolds, 2020). International students may also be at a disadvantage since they are not familiar with the housing market systems as compared to domestic students (Zasina & Antczak, 2023). Initiatives such as public-private partnerships, the development of purpose-built student housing, and the repurposing of underutilized buildings can be used to solve this issue. An example is the National Student Accommodation Strategy, which was introduced in Ireland in 2017 to increase the availability of student accommodation by building more bed spaces by 2024 for both domestic and international students (Reynolds, 2020). The initiative aims to address the shortage of student housing in universities and to limit the demand for student accommodation in the private sector (ibid.).

The lack of opportunities for students to interact and engage with one another can inhibit the formation of a community that is cohesive and welcoming to all. Students have often expressed high satisfaction levels in housing units that enable them to socialize and interact easily with one another (Najib et al., 2011). According to Sotomayor et al., (2022), the high turnover rate of students in some neighbourhoods and the busy academic schedules of students account for the lack of community cohesion in their neighbourhoods. Higher-level education students hardly have time to socialize since most of their time is spent studying,

commuting or working. According to Chatterton (2010), the inclusivity of student housing in metropolitan settings might be hindered by difficulties associated with social dynamics, cultural diversity, and social integration. International students may face difficulties in integrating into their host countries as a result of cultural differences and language obstacles (Fang & van Liempt, 2021). In their case study, some students experienced discrimination from house owners and local Dutch students that reduced their chances of getting a place to stay. This makes it more difficult for students, especially international students, to partake in social engagement outside their university and living environments. It is essential to promote student well-being and establish a sense of belonging within student housing by developing an atmosphere that is socially inclusive and welcoming to all students. To address these problems, it is necessary to encourage student engagement activities, diversity programs, and supportive services that make it easier for students to communicate and socialize with one another in a comfortable living environment (Kinton et al., 2018).

As indicated by Haghani et al. (2023), sustainable and resilient cities are becoming increasingly crucial in housing matters. Students have been identified as one of the groups of people who are faced with inadequate energy services in their homes (Reynolds, 2020). It is necessary to address issues concerning the use of energy, waste management, and the development of sustainable designs within student housing environments (Heslop et al., 2023). Implementing green building certifications, integrating renewable energy sources, and encouraging sustainable mobility options are all examples of strategies that can be used to promote sustainability in student housing (Yip et al., 2017).

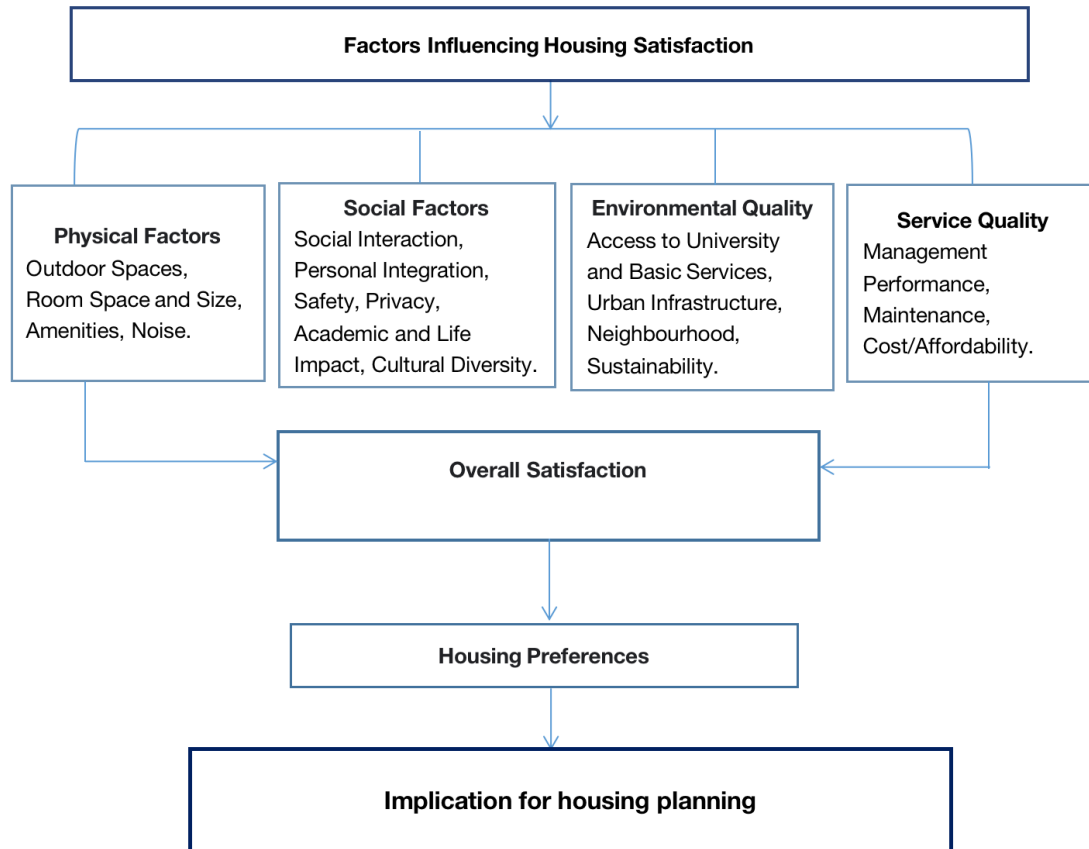
Due to some urban development initiatives such as the building of high-end apartments or large commercial complexes, students may be forced to relocate from where they live. For instance, according to Sotomayor et al., (2022) in areas where landlords or housing providers renovate or upgrade their building units, students who live in these housing units may be compelled to relocate as a result of rising rents and redevelopment issues. In a similar vein, according to Reynolds (2020), the transformation of rental properties into more expensive lodgings can result in the eviction of students who were previously living in those units to less desirable areas.

The provision of student accommodation in an urban setting presents a number of physical,

economic, social, and environmental issues. Hence, creating sustainable and suitable student housing environments in metropolitan areas to effectively address these issues is through the concerted efforts of universities, government officials, private investors and housing providers working together.

## 2.4 Conceptual Framework

Figure 2. Student Housing Satisfaction and Housing Development in Hannover



Source: Author's own construct based on Gbadegehin et al. (2022: 8)

The framework above illustrates the interlinkages between the determining factors that can be used to measure housing satisfaction levels among international students living in university-managed housing and the possible implications for housing development in the city of Hannover. This framework is partly based on the research conducted by Gbadegehin et al. (2022). The authors' aim was to provide a better understanding of the factors that affect student housing satisfaction in South Africa among students living in both on-campus and off-campus housing units. Providing a comprehensive overview of the predicting variables that drive students' overall satisfaction, gives a clearer view of the main influencing factors. These

include the Physical Factors, Social Factors, Service Quality and Environmental Quality. The indicators of these factors have been briefly discussed below.

The physical factors in this study refer to the building features, as well as the accessibility, location and availability of facilities within the building (Gbadegesin et al., 2022). Noise is also included in this section because it is associated with the sound proof ability of the building materials to curb excess noise from residents and the surrounding neighbourhood (Gong & Söderberg, 2023). Amole (2009) identified social/psychological factors as social interactions, privacy, and safety. For international students, personal integration and cultural diversity is of importance to them as they try to develop their social networks in their living environments and university campuses (Abidin et al 2019). The service quality relates to the management system of the house and the maintenance of the available facilities (Eteng et al., 2022). As these kind of services are provided for residents of the building, the cost/affordability of the housing unit is included in this factor section to examine if the accommodation is worth the price students are willing to pay (Thomsen & Eikemo, 2010; Fang & van Liempt 2021). Gbadegesin et al. (2022) discovered through intensive literature review that environmental quality sometimes coincides with physical factors and service quality indicators. However, the most common indicators of environmental quality include proximity to university, access and quality of urban infrastructure such as shopping centers, healthcare, recreational facilities and public transport, neighbourhood behaviour, sustainable interior and exterior conditions, surrounding landscapes/outdoor recreational spaces.

First of all, the indicating factors influencing overall satisfaction of international students living in student housing are identified by measuring their performance levels based on a survey. The housing choices/preferences of these group of people can then be determined using the gathered results. According to Morris & Winter (1975: 83) housing preferences emerge from the combination of factors, the values, the current housing conditions, and the limitations associated with individuals. Housing preferences are therefore made decisions that involve compromising one's values in light of the limitations (ibid.). The results put together provide some suggestions for housing stakeholders (Zasina & Antczak, 2023; Sadeghlou & Emami, 2023). The most important indicators that affect student housing satisfaction and their housing preferences provide useful insights for the housing market and urban developers in Hannover. It enables them to pay attention to the areas that require improvement and changes.



This framework therefore highlights how the indicators influencing student housing satisfaction can be of importance for future housing plans and development in the city of Hannover. The framework is therefore relevant in this study because it serves as a guide to achieving the outlined research questions.

## **Methodology: Approaches to Examining Housing Satisfaction**

### **3.1 Research Design**

This research study used the mixed-methods research approach, blending qualitative and quantitative methodologies, to investigate student housing satisfaction and how findings can be used in urban planning and development. In-depth interviews and a survey were the main methods employed in the study. A research approach comprises the plans and procedures for conducting research, the theoretical assumptions supporting the study, and the research methods employed (Creswell, 2014). While the qualitative research method provides a detailed perspective from a few people, the quantitative research method allows for the collection of information from a larger number of people (ibid.). Quantitative research approach is largely researcher driven and enables an abstract interpretation but the qualitative approach reduces the influence of the researcher since it enables high description levels based on the views of participants (McGrath et al., 2019; Vaismoradi & Snelgrove, 2019). Using the mixed methods research approach allows for a thorough understanding of the research topic, balancing the strengths and limitations of both quantitative and qualitative data collection and analysis (Bulsara, 2015).

Based on the above general presentation of methods, the reason for this choice of research approach is the complex nature of housing satisfaction that requires different perspectives in unraveling its dynamics in the urban context. This method approach is also widely recognized as an effective way to conduct research in the social sciences (Mukumbang, 2023). Data collection was done by adopting a questionnaire survey and qualitative expert interviews. The two forms of data were separately analyzed and then put together to give a holistic view of student housing satisfaction in urban planning/development.

### **3.2 Study Area**

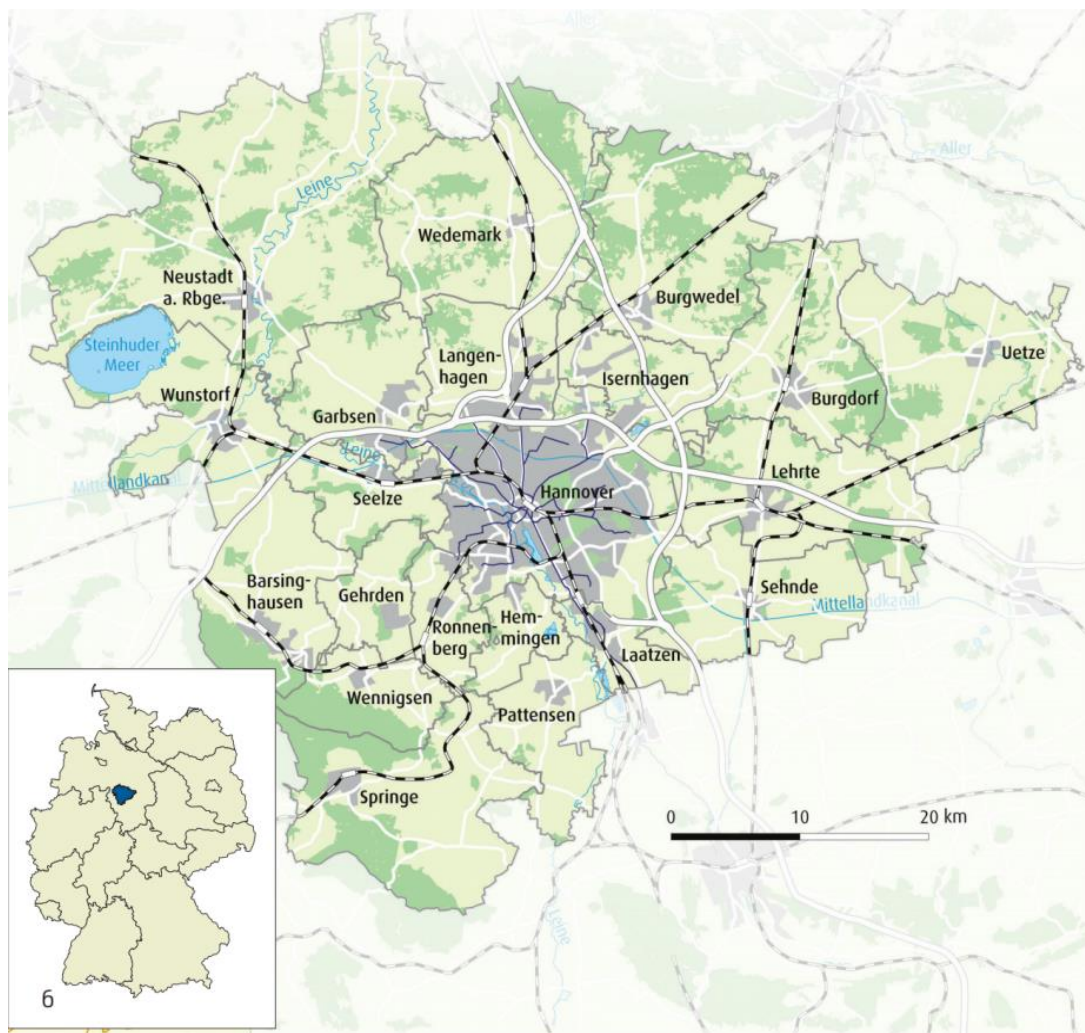
The choice of study area is largely based on the city's diverse and vibrant academic environment, and a multicultural atmosphere that is attractive to international students, making the city of Hannover ideal for this research. Hannover is located in the agricultural

landscape of north-western Germany. Hanover is home to financial, administrative, and commercial functions with a variety of industries such as motor vehicles, machinery, synthetic rubber, electrical engineering equipment, electronic products, chemicals, and foodstuffs (Britannica 2023: [www](#)). The Hannover Fair which was previously known as the German Industries Fair has contributed significantly to the city's development after the war. In northern Germany, Hannover can be identified as one of the most important traffic junctions which is connected to Berlin by express way, air and rail (Britannica 2023: [www](#)).

Hannover has a wide range of scientific academic institutions in the region. These include Hochschule Hannover University of Applied Sciences and Arts, Hannover Medical School, University of Veterinary Medicine Hannover, Foundation, University of Music, Drama and Media Hannover, Leibniz School of Business and the Leibniz University of Hannover (LUH) (Hannover.de 2023c: [www](#)). With these many educational establishments, international students often choose a university as their most preferred institution in Germany due to affordable living costs and tuition free studies (Studying in Germany 2023: [www](#)). The universities in Hannover are spread across the city but the majority of student life can be found in the districts of Nordstadt and Linden which are well endowed with shops, bars and cafes (Zeit Online, 2023: [www](#)).

According to one of the official webpages of the city of Hannover (2023a: 7), the region is made up of 21 districts and towns, covering about 2,300 km<sup>2</sup> area of land with over 1.2 million people. The administration of the Hannover Region is in charge of the development, planning and protection of the area and residents as well (ibid.: 8). (See figure below).

**Figure 3: The Region of Hannover**

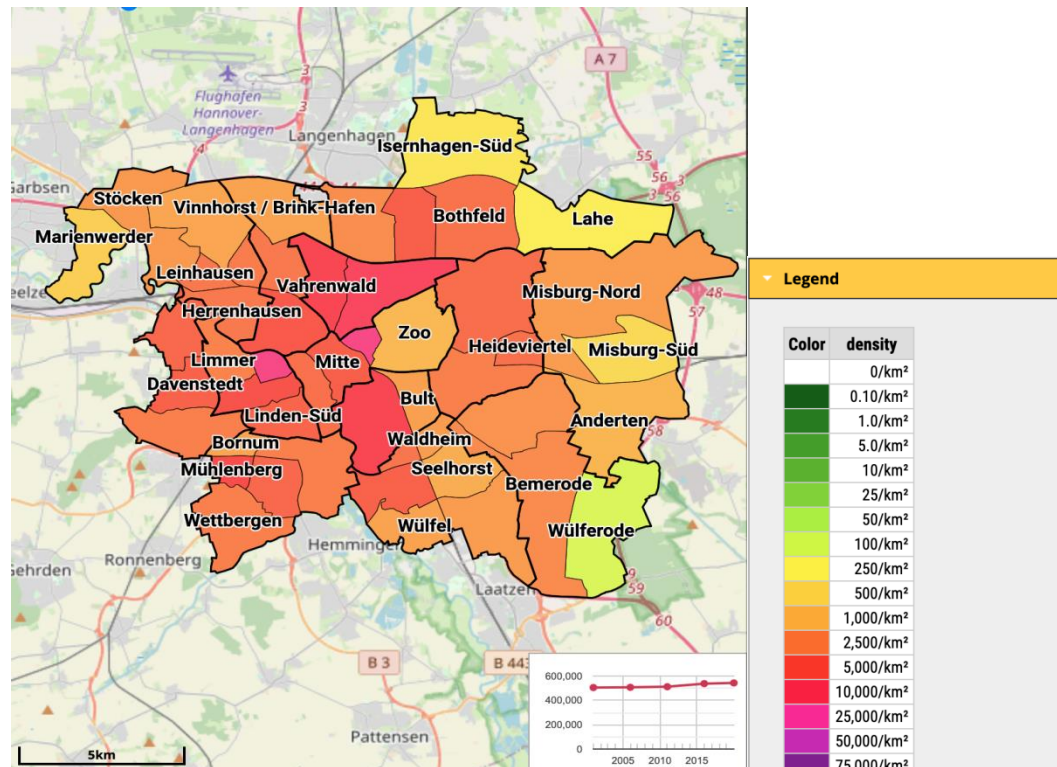


Source: Hannover.de (2023a: 6)

The city of Hannover is the capital of Lower Saxony State and lies on the Leine River and the Mittelland Canal. This is where the Harz Mountains meet the wide North German Plain. The Leine River flows through the middle of Hannover and provides a wide floodplain which lies north of the city center (Britannica 2023: www). In the state capital of Hannover, there are about 13 districts with unique functions and various recreational areas (Hannover.de 2023b: www). Although highly industrialized, the city is popularly known as the Garden City with preserved parks, public gardens, and woods. Popular areas in the city include the Great Garden in Herrenhausen, the great Hannover woods(Eilenriede), the Hermann-Löns Park, the Stadtpark, the zoological gardens and the artificial lake; Maschsee (Britannica 2023: www). The city is also known as an international city because every 1 in 8 students at the universities in Hannover comes from abroad, and the city has an international cultural offering

(Hannover.de 2023e: www). Hannover is endowed as well with a wide range of study options from the many educational institutions, attractive to both domestic and international students. The population of the city is about 545,000, and a third of them have a second nationality in addition to being German (ibid.). A map of the city of Hannover can be found below.

**Figure 4: Hannover City Districts and Neighbourhood Density**



Source: City Population (2020: www)

### 3.2.1 Housing in Hannover

Conditions on the housing markets in Hannover in recent years have become more complex. According to a report on the Hannover city official website, the housing market observation is done through vacancy analysis, migration motive studies and indicator systems such as buildings and apartments, population and households, social issues, real estate prices and rental apartments (Hannover.de 2023d: www). The demand for rented and purchased living space within the city is increasing as a result of increasing frequent moves into the city (ibid.). (See table below).

**Table 1: Resident Increase in the City of Hannover**

Year	New Residents	% increase
2011	51,800	9.2
2015	39,800	7.4
2019	34,800	6.4

Source: Hannover.de (2023d: www)

Small-scale and regional migration refers to the movement of a relatively small number of people within a country or region which results in changes in the access to resources and social services in the impacted area (Jensen et al., 2018). The concept of small-scale and regional migration has become more relevant for urban development. At the district level, there is an increased need for more information for planning and decision-making processes (Hannover.de 2023d: www). Small scale housing market monitoring is employed by the state capital of Hannover to be able to respond to changes at early stages, providing information for the stakeholders in the housing market. The living cost as compared to other cities in Hannover is relatively affordable (Studying in Germany 2023: www). Although this is true, the asking rents in rental apartments in Hannover are gradually increasing. About 72% of advertised rental apartments were less than €7/m<sup>2</sup> in 2011. In 2019, it dropped to 10%. Advertised rent above 10 €/m<sup>2</sup> in 2011 was about 6%. In 2019, it increased to about 31% (Hannover.de 2023d: www). These figures undoubtedly show the rise in the prices for living spaces in Hannover.

The NBank is one of many institutions that focuses on the housing market in all of Niedersachsen (Lower Saxony). In an informal interview prior to the analysis, an employee of the NBank in the Housing Market Monitoring Division explained that housing generally is becoming more expensive every day, especially for renting. There is limited availability of affordable accommodations in all the cities of Niedersachsen. People with low incomes, including students, often have difficulties finding an affordable place to live, which forces them to either live in shared apartments or move out of the city to the surrounding suburbs. Surprisingly, accommodation prices in the suburbs are increasing more than in the city. This is because, as people move to the surrounding areas of the city to find affordable housing, their prices rise in response to high demands. The employee concludes by stating that students are therefore more likely to find it difficult in Hannover because many of them depend on living closer to their universities in order to be able to use the public transport with their semester

tickets or bicycles to get to their university campuses.

### 3.2.2 Leibniz University of Hannover

The largest university in Hannover is the Leibniz University (Hannover.de 2023c: www). Also known as the Gottfried Wilhelm Leibniz University of Hanover, the university has 5 main locations in the city. The Welfengarten Campus is the main campus and is situated around the Welfenschloss historic building. The Garbsen campus is situated north-west of Hannover; the Conti campus is at Königsworther Platz. The Herrenhausen campus is about 9 minutes from the main campus by public transport. The Schneiderberg campus is about 11 minutes from the main campus by public transport (Zeit Online, 2023: www). All these locations are in close proximity to the central station (ibid.) (See figure 5).

As of 2023 summer semester, about 25,965 students were recorded to be enrolled in LUH (LUH 2023a: www). The university covers about 341,257 m<sup>2</sup> surface area with over 162 buildings dispersed over the city of Hannover (ibid.).

**Figure 5: Spatial Distribution of the LUH in the City of Hannover**



Source: LUH (2023a: www)

As already stated, a larger proportion of international students in Germany often seek education in the universities. With LUH being one of them, it can be observed in Appendix 1 that from the period of Winter Semester (WS) 2012/13 up until WS 2021/2022, the total number of enrolled international students has been increasing each academic year (LUH,

2023b). However, due to the COVID-19 pandemic and its accompanying travel restrictions, there was an interruption in the increasing trend from 15.3 % in WS 2019/2020 to 14.9% in WS 2020/21 (ibid.). Nonetheless, there has been an increase from 14.9% to 15.1% in WS 2021/22 as travel conditions returned to normal. Looking at the statistics, it can be seen that many students from different cultures and different backgrounds enroll at LUH. Students come from different parts of the world including Africa, America, Asia, Europe, and Australia.

### **3.3 Data Sampling and Analysis Techniques**

The research employed a mixed-method approach combining both qualitative and quantitative methods. This section covers a detailed overview of the techniques and strategies that were involved in selecting respondents for both the qualitative and the quantitative methods. It also gives a comprehensive description of the techniques involved in analyzing each method to provide results that answer the research questions.

#### **3.3.1 Quantitative Survey with Students from Hanover**

A survey is a quantitative research method involving the collection of information about the characteristics, actions, or opinions of a group of people that can be used to evaluate demand, needs and impact (Nardi, 2018; Vaske, 2019). A questionnaire survey was used as the main survey tool for data collection. The questionnaire contained mostly closed-ended questions with a few open-ended questions to enable precise answers and to prevent confusion during participation. The questionnaire in Appendix 3 includes a total of 47 questions. 5 questions on demographic information about the respondents and 6 questions about their housing status. 7 questions on overall satisfaction and future housing preferences and 29 questions on the indicators/determinants of housing satisfaction. Some questions were as follows:

- “How would you rate the adequacy of space and room size in your student housing on a scale of 1-5?”
- “How would you rate the quality of the infrastructure (e.g., buildings, roads, utilities) around your student housing on a scale of 1 -5?”
- “How satisfied are you with your overall experience in your current student housing on a scale of 1-5?”
- “What do you like most about your current student housing?”.

A 5-point Likert scale was employed in measuring the satisfaction levels on the indicators, with the score of 1, 2, 3, 4, 5. For instance 1=“very dissatisfied”, 2=“dissatisfied”,3=“neutral”,

4="satisfied", 5="very satisfied" and 1="very insufficient", 2="insufficient", 3="neutral", 4="sufficient", 5="very sufficient". A pilot test was conducted with 2 students to pretest the questionnaire to check for grammatical errors, time duration and vague questions that were difficult to answer.

In the quantitative research approach, the simple random sampling technique was adopted for target population selection. A target population refers to the total set of units that meet the criteria to be examined in a research study (Wilson, 2016). The sample size is therefore the number that is derived from the target population and included in the study (Willie, 2022). The simple random sampling technique was used to select the sample (respondents) for the survey. The approach ensured that any international student currently enrolled at LUH and living in a university managed residence could participate. The simple random sampling technique in Noor et al. (2022: 80) is identified as a fair and unbiased selection method that enables the selection of a sample characteristic of the entire target population. As the name suggests, this method is easy to use, does not require special skills and saves time (Seber & Salehi, 2012). Distribution was done electronically by creating a survey link via Google Forms with a short introduction and sending it to the international student social media platforms and student housing social platforms. Many students were initially contacted and a total of 82 international students completed the survey. Hence, the sample size for the survey is 82.

Results from the quantitative data gathered were analyzed by using the quantitative software package, Statistical Package for the Social Sciences (SPSS). Descriptive statistics was employed for analyzing the demographic features, housing status and housing preferences of respondents. The demographic features of the respondents included age, gender, level of education, and country of origin. A descriptive analysis of all the variables/indicators and overall housing satisfaction from the survey was also performed to determine their frequency and percentage score. Tables, graphs and charts were created using results from the descriptive analysis. For instance, a question was asked about respondents' country of origin and then groupings were done in a table to summarize findings based on the continents. Some of these charts also contain a compilation of the responses to multiple questions in order to have an illustrative overview of student behaviours and choices towards certain indicators. A Pearson correlation analysis was then performed between individual variables and overall housing satisfaction. Pearson correlation analysis is the most common type of correlation analysis. According to Turney (2023), it measures the linear relationship between two



continuous variables and provides a value between -1 and 1. When  $r$  is between 0 and 1, it indicates a positive correlation. This implies that as one variable changes, the other variable changes in the same direction. When  $r$  is between 0 and -1, it indicates a negative correlation. This implies that as one variable changes, the other variable changes in the opposite direction. When  $r = 0$ , it indicates no correlation. This implies that there is no relationship between the variables (ibid.). As Pearson correlation is only possible with two variables, an independent variable and a dependent variable was performed for each correlation. This form of analysis provides a comprehensive view of the different relationships between the indicators and overall satisfaction. Higher values indicate a stronger relationship (Schober et al., 2018). The overall housing satisfaction question was considered the dependent variable. The determinants/indicators of housing satisfaction were considered the independent variables. These include 29 questions from the survey. After identifying the variables that correlate significantly with overall housing satisfaction, a multiple regression analysis was used to examine the strength and nature of the relationships in more detail. This form of analysis is used when there are multiple independent variables that need to be considered simultaneously (Keith, 2019). It enables the assessment of the combined impact of several factors on housing satisfaction. Using both analyses provided a more detailed and a complete understanding of the extent to which various factors influence housing satisfaction among international students at LUH. It helps in the decision-making process of improving student housing and making predictions also about housing satisfaction based on the identified factors.

### **3.3.2 Qualitative Interviews with Experts on Student Housing in Hannover**

Interviews are qualitative research methods that are essential in research studies because they can be modified to suit the purpose and enable the collection of more detailed information (McGrath et al., 2019). As opposed to a researcher's strong pre-determination influence in quantitative methods, one significant advantage of interviews is that they focus on priorities and hierarchies of relevant topics of the interviewees. They can be in the form of structured, semi-structured, or unstructured interviews. They can also be conducted on the group or individual level (ibid.).

This research study employed individual in-depth expert interviews. The participants had direct information and expertise about student housing in Hannover. The interviews were conducted with semi-structured interview guides consisting of open-ended questions and

prompts that allowed for flexibility and exploration of emergent themes. Although respondents were from different offices (for more details, see below), all interview guides were between 10 and 12 questions, grouped into sub-headings to examine their roles and responsibilities collectively. The questions were grouped on categories such as technical processes and networking, engagement with students, and vision or future changes. Information was solicited from respondents with questions such as

- “What support services or resources do you offer to assist international students in their transition to living in student housing?”,
- “Can you tell me any partnerships or collaborations you have with external stakeholders in planning and management to enhance the student housing experience for international students?”,
- “Can you describe how student housing development fits within the overall urban development planning processes?”,
- “What values and considerations are important for you when planning for student housing in urban areas?” and many others.

These questions helped to understand management practices as well as planning expertise in student housing from the participants’ professional viewpoint, activities, and experiences. See Appendix 4.

The purposive sampling technique was used for the sample selection of respondents here. According to Campbell et al. (2020: 654) the purposive sampling technique is a non-random technique that ensures the deliberate choice of specific groups of people who possess certain qualities and experiences that are necessary for information gathering in research. A major significance of purposive sampling is that it focuses on specific characteristics of a particular group that are relevant to the study. The snowball sampling technique is a form of purposive sampling technique. It is achieved when a respondent suggests someone who can provide information relevant for the study (Atkinson & Flint, 2001). To acquire the necessary information with the right respondents, the snowball sampling technique under purposive sampling technique was used. With this technique, the researcher managed to get participants for the interviews during interactions with other respondents. E-mails were sent initially to a few people identified as possible interview candidates and experts on the topic. After a first contact with them, some made recommendations to contact other experts via e-mail.

The sample size for the interview was a total of 4 people which included a student hall tutor

from Studentenwerk Hannover, a student representative from the Hausselfbstverwaltung(HSV) or the house self-management in student housing management, an international office representative, and an official from the Department of Urban Planning in Hannover.

The Studentenwerk Hannover (2023: [www](#)) describes the Studentenwerk (Student union) as a non-profit state-run organization responsible for students' social affairs at German universities. It provides social infrastructure and services to students at subsidized prices. These include university canteens and cafeterias, advisory services, healthcare, counselling, financial assistance and student residences (*ibid.*). The union is partially funded through various means. These are financial aid from the Lower Saxony State (20%), a quarter of the semester fees paid by students and the profit from the canteens, cafeterias and student residential buildings (*ibid.*). In Hannover, the Studentenwerk is in charge of about 20 halls of residence that offer a variety of affordable accommodation with about 2,774 places for all students (*Zeit Online, 2023: www*). The dormitories are in close proximity to the university although spread throughout the city (*ibid.*). The rooms are partially furnished, have fast internet accessibility and are affordable to all students (LUH, 2023c: [www](#)). The monthly rent ranges between 200 and 400 euros depending on the housing type. Common dormitory types are single room apartments, shared room or flat shared apartments and single rooms in a shared corridor. A few other student apartments have monthly rent ranging between 500 and 650 euros (*ibid.*). Just as any other Studentenwerk in Germany, Studentenwerk Hannover plays a vital role in improving the overall well-being and academic experience of students in terms of tutoring programs and house self-management (Studentenwerk Hannover 2023: [www](#)). The house self-management or Hausselfbstverwaltung (HSV) is a Studentenwerk Hannover initiative that consists of a group of student residents elected by the residents in a student housing unit. They are also known as house speakers who consult with the Studentenwerk in terms of planning, management and other projects within the student building. They aid students when they encounter challenges or problems within their dormitories (*Wissen.Hannover.de 2023: www*).

The international office offers information and services to international students about their studies or research stay at LUH. They provide information also about opportunities to either study or research abroad, exchange programs available, scholarships and other support services (finance and counselling) (LUH 2023d: [www](#)).

The office of the Department of Urban Planning in Hannover is responsible for the planning of the city of Hannover.

The main focus of the interviews was to understand the role of each respondent on student housing satisfaction in their professional routines and gain insights on how results from the survey can be integrated into their professional fields to improve the concept.

The interview was conducted in different ways to suit the respondent due to time and place constraints. Three interviews were conducted face-to-face in the office or residence of respondents and one was conducted virtually. All the interviews were captured on audio and transcribed manually after the interview. The data obtained from the semi-structured interviews was analyzed through a thematic analysis technique. The process involved coding the data, identifying patterns and themes, and organizing them into meaningful categories (Vaismoradi & Snelgrove, 2019). This form of analysis uses both inductive and deductive approaches, guided by the research questions and the conceptual framework developed from the literature review. Coding was done manually with the help of a computer. It involved highlighting the main themes presented by the participants during the interviews, grouping them into key points and drawing conclusions from the results. Categorizing the research questions beforehand also made the process easier.

### **3.4 Ethical Considerations**

In research, ethics is considered a crucial requirement because it helps researchers to protect the dignity of their respondents as well as to produce genuine information on the research topic (Brittain et al., 2020). Research ethics is a branch of applied ethics that has well set up guidelines and principles specifying the behaviour of researchers in the field (ibid.).

Ethical considerations included informed consent and confidentiality. During the data collection process, a brief formal introduction of myself as a master student at LUH was given. The goal and significance of my research and that of the participants was made clear. The interviews were recorded with the consent of participants. I gave participants an assurance of the use of the information gathered and anonymity to protect those who did not wish to have their names mentioned in the final work. I informed participants that their participation in the study was completely voluntary and that they could discontinue the interview at any time in case the questions made them feel uncomfortable. I avoided questions that are considered leading and withheld giving personal impressions during the survey and interviews.

## Data Analysis: Revealing Insights on Housing Satisfaction

This chapter presents the sample characteristics, the results of the various indicators influencing housing satisfaction as well as the interconnections between housing management, urban planning and student housing of LUH in the city of Hannover. The results from the indicators and factors influencing students' housing choices are also discussed.

### 4.1 Data Description and Sample Characteristics

The study focused on a survey that involved 82 international students from the Leibniz University of Hannover, living in student housing, as well as interviews with experts and representatives involved in student housing development and provision. Table 2 below shows a summary of the continents respondents come from. Majority of them originate from countries such as India (14.6%), Iran (4.9%), and China (7.3%) making Asia (45.1%) the continent with the biggest proportion of respondents. Other notable countries include Turkey (3.7%), Spain (4.9%), Cameroon (4.9%), and Russia (3.7%).

**Table 2: Place of origin**

Continent	Frequency	Percent
Africa	11	13.4
Asia	37	45.1
Europe	19	23.2
North America	2	2.4
Prefer not to say	11	13.4
South America	2	2.4
Total	82	100

Source: Author's own construct (2023)

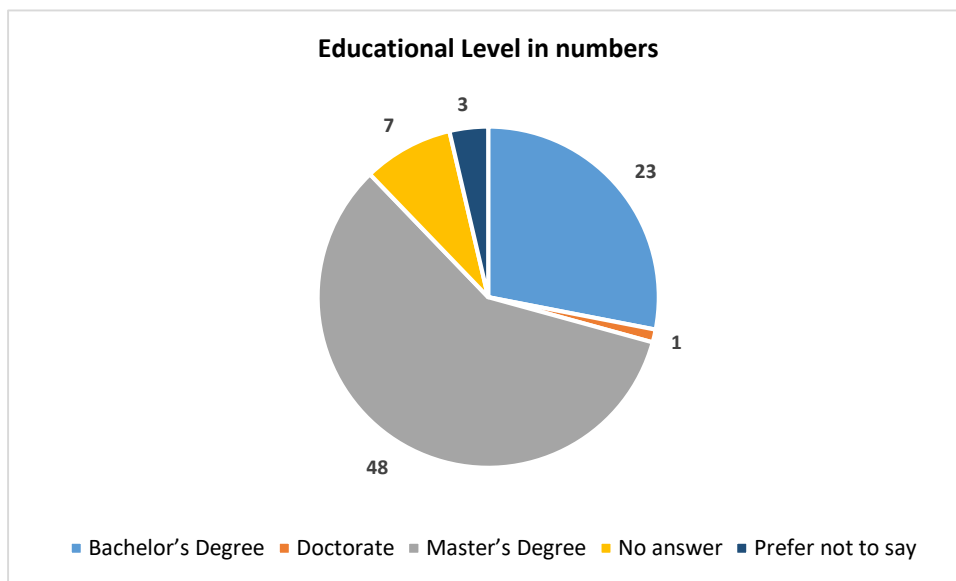
**Table 3. Gender and age of respondents**

Gender	Age Range				Total
	18-24	25-34	35-44	Prefer not to say	
No answer	0	0	0	1	1
Female	14	21	1	0	36
Male	13	26	3	1	43
Prefer not to say	0	0	0	2	2
Total	27	47	4	4	82

Source: Author’s own construct (2023)

From table 3, 36 (43.9%) of respondents are females, 43 (52.4%) are males, 2 (2.4%) selected prefer not to say, and 1 (1.2%) did not answer. For age, 27 (32.9%) are in the ranges of 18-24 years, 47 (57.3%) are in the ranges of 25-34 years, 4 (4.9%) are in the ranges of 35-44 years, and 4 (4.9%) selected prefer not to say.

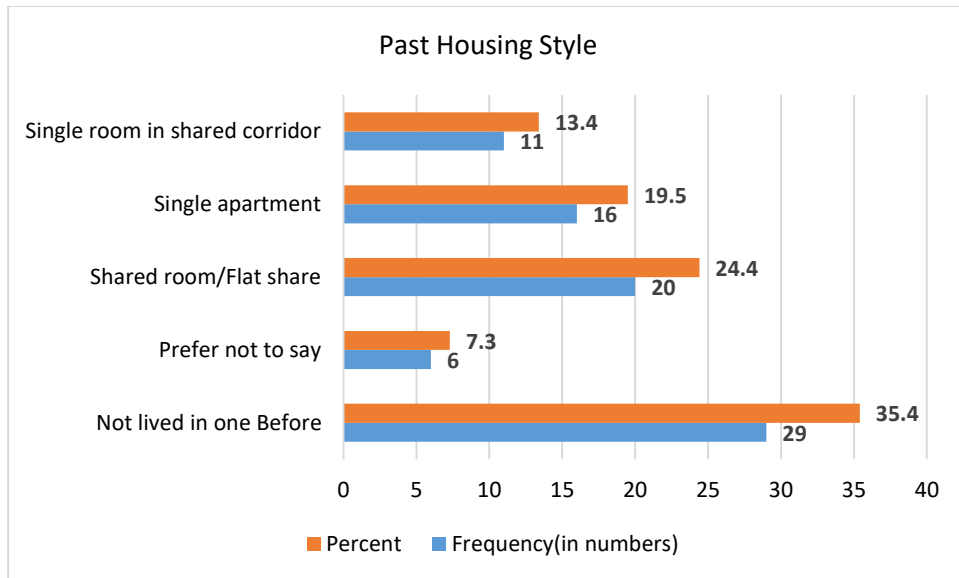
**Figure 6. Educational Level of Respondents**



Source: Author’s own construct (2023)

For the educational levels of respondents, 23 (28%) are pursuing a Bachelor’s Degree, 1 (1.2%) are pursuing a Doctorate Degree, 48 (58.5%) are pursuing a Master’s Degree, 7 (8.5%) did not answer, and 3 (3.7%) selected prefer not to say. (See figure 6). This shows that the majority of international students in LUH are pursuing a Master’s Degree 48 (58.5%).

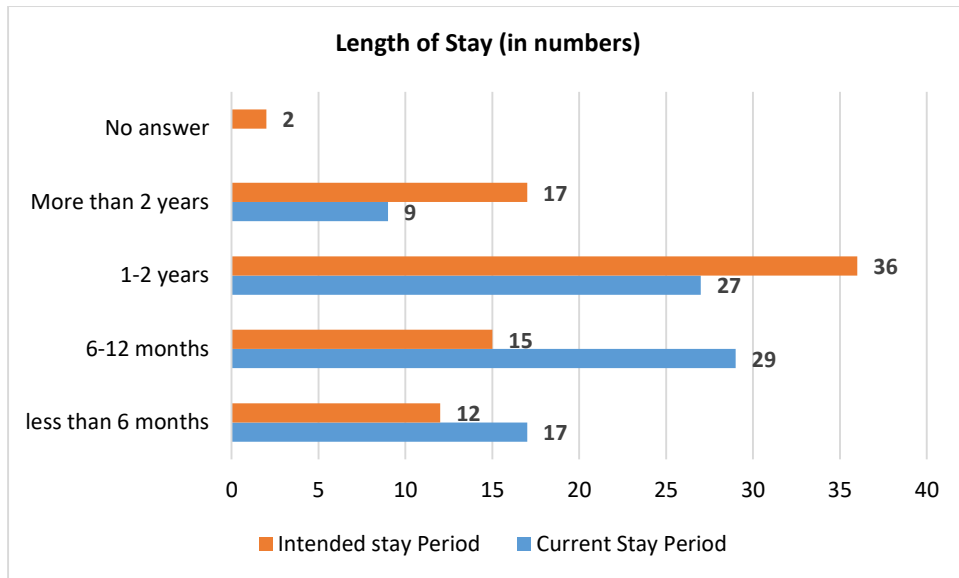
**Figure 7: Previous Student Housing Experience in Hannover**



Source: Author's own construct (2023)

In Gong & Söderberg (2023), the most common types of student accommodation include studio/single apartment, single room in a shared corridor and a flatshare/shared apartment. Regarding the housing experiences of respondents, 29 (35.4%) have not lived in student housing before living in their current student housing in Hannover and 6 (7.3%) selected prefer not to say (See Table A in Appendix 2). In figure 7, 20 (24.4%) students who have lived in student housing before their present place of residence lived in a Shared room/Flat share, 16 (19.5%) lived in Single apartments and 11 (13.4%) lived in a single room in a shared corridor. This shows a substantial number of respondents 47 (57.3%) have lived in student housing before moving into their current place of stay. Majority of them lived in either a flatshare or a single apartment.

**Figure 8: Current Stay Period and Intended Stay Period**



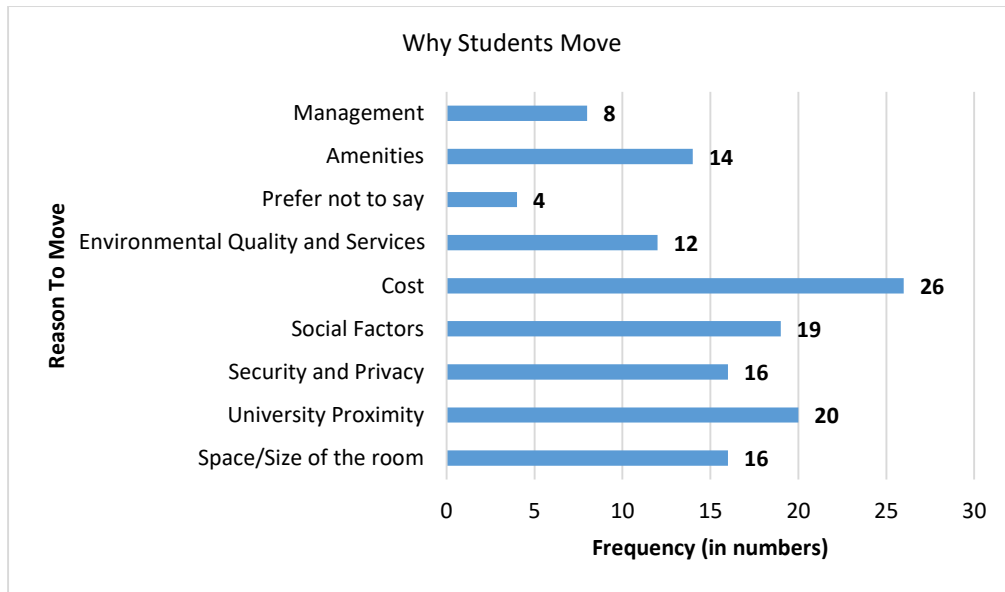
Source: Author's own construct (2023)

From figure 8 above, 27 (32.9%) of respondents have been living in student housing between 1 to 2 years now, 29 (35.4%) have been living there between 6 to 12 months, 17 (20.7%) have been living there for less than 6 months and about 9 (11.0%) have been living there for more than 2 years. For the intended stay period, 2 (2.4%) did not answer, 36 (43.9%) are planning to stay between 1-2 years, 12 (14.6%) are planning to stay for less than 6 months, and 17 (20.7%) intend to stay for more than 2 years. This attests to the fact that the duration of stay amongst students today in student housing has reduced from 4 to 5 years to currently a period of 2 years Franz & Gruber (2022).

In order to understand why respondents moved from their previous student housing type to their current student housing, a question was asked about the reason for making them move with multiple choice answers provided. The figure below shows the results.



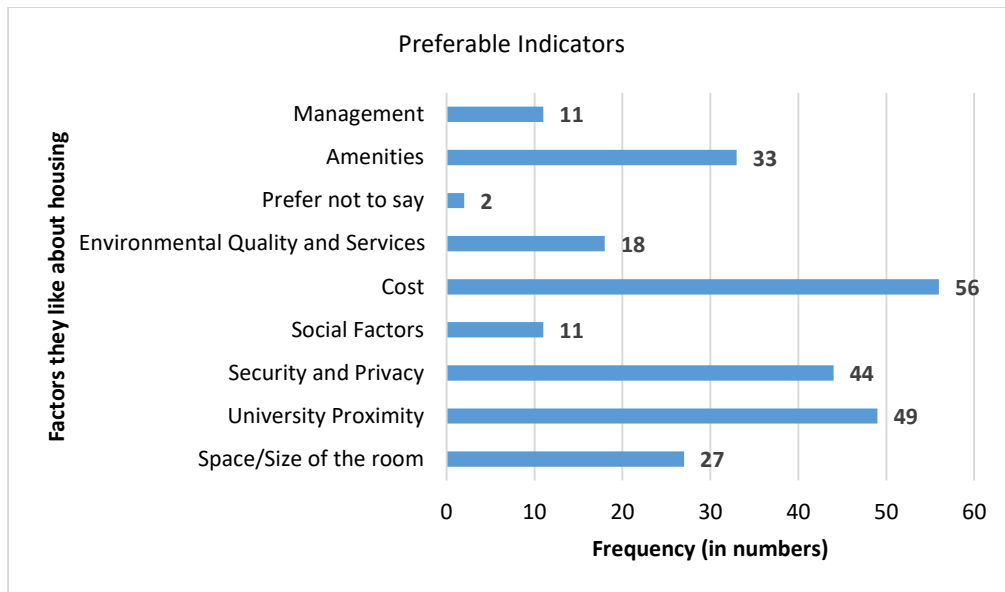
**Figure 9: Reasons why Respondents moved from their Previous Student Housing**



Source: Author's own construct (2023)

In Figure 9 above, it can be observed that *cost* (26), *university proximity* (20), *social and psychological* (19), *security and privacy* (16), and *space/size of room* (16) have higher frequency numbers. This is then followed by *amenities* (14) and *environmental quality and services* (12). Management (8) is the factor with the lowest frequency. Respondents were also asked about the factors they liked most about their current student housing (See figure 10). The highest selections were cost (56), university proximity (49), security and privacy (44), amenities (33) and space/size of the room (27).

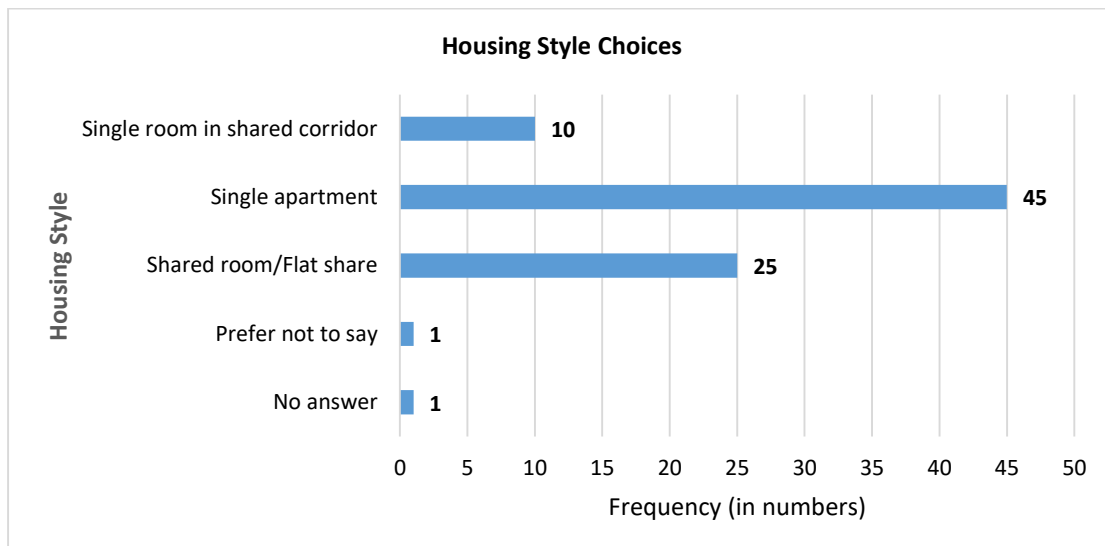
**Figure 10: Preferable Indicators of Student Housing**



Source: Author's own construct (2023)

Respondents were then asked the question, 'If given a choice what type of student housing would you prefer to live in the future?' (See Figure 11 below). The results show that about 1 (1.2%) did not answer, 1 (1.2%) selected prefer not to say, 25 (30.5%) selected shared room/flat share, 45 (54.9%) selected single apartment, and 10 (12.2%) selected single room in shared corridor.

**Figure 11: Housing Style Choices of Students**



Source: Author's own construct (2023)

## 4.2 Descriptive Statistics of Student Housing Satisfaction Indicators

This section explores the results from the various variables that are likely to influence satisfaction levels and vice versa from respondents' point of views. The indicators include a total of 29 variables. The overall housing satisfaction levels of respondents is also examined separately. Most of the results here have been put into tabular forms and can be found in Appendix 2. The tables have been numbered from Table B - Table X.

In relation to *communal spaces* in student housing in Table B, 1 (1.2%) did not answer, 3 (3.7%) selected very poor, 2 (2.4%) selected poor, 2 (2.4%) also selected non-existing, 23 (28%) selected fair, 28 (34.1%) selected good, and 23 (28%) selected excellent. From this, it can be deduced that about 51 (62.1%) believe the communal spaces in their student housing are good and excellent. 23 (28%) believe it is fair, and only 5 (6.1%) believe it is poor in condition.

For the *cleanliness and maintenance of outdoor spaces* Table C 17 (20.7%) selected excellent, 30 (36.6%) selected good, 28 (34.1%) selected fair, 6 (7.3%) selected poor and 1 (1.2%) selected very poor. From this, it can be seen that about 47 (57.3%) of respondents believe that the maintenance of the outdoor spaces in their student housing is in good and excellent condition. 28 (34.1%) believe it is fair and about 7 (8.5%) believe that their maintenance is poor.

For *adequacy of space and room size* from Table D, 21 (25.6%) selected very sufficient, 25 (30.5%) selected sufficient, 19 (23.2%) selected neutral, 16 (19.5%) selected insufficient, 1 (1.2%) selected very insufficient. From this, the proportion of respondents who believe that the space and room size of their student housing is sufficient is about 46 (56.1%), 19 (23.2%) selected neutral, and about 17 (20.7%) believe that they are insufficient.

In order to quantify the general view of respondents on the amenities provided by student housing such as internet, heating, water, electricity, Wi-Fi, laundry, bathroom and kitchen facilities, parking spaces, etc, a question was asked about how they would rate the *overall performance of the amenities*. For this, 19 (23.2%) selected excellent, 32 (39.0%) selected good, 25 (30.5%) selected fair, 3 (3.7%) selected poor and 3 (3.7%) selected very poor. See Table E. From this, it can be said that about 51 (62.2%) believe that it is good and excellent. 25 (30.5%) believe it is fair and only about 6 (7.4%) believe it is poor.

Analyzing the state of quietness in student housing, a question about *noise levels* was asked. In Table F, 9 (11%) selected very quiet, 29 (35.4%) selected quiet, 29 (35.4%) selected neutral,

13 (15.9%) selected noisy, and 2 (2.4%) selected very noisy. From this, it can be deduced that about 38 (46.4%) believe student housing is quiet, 29 (35.4%) believe it is neutral, and about 15 (18.3%) believe it to be noisy.

For the level of *social interaction* within student housing, 6 (7.3%) selected very high, 21 (25.6%) selected high, 23 (28%) selected neutral, 24 (29.3%) selected low and 8 (9.8%) selected very low. See Table G. This shows that about 27 (32.9%) of respondents have a high level of social interaction with other students living in the same building as them. 23 (28%) believe it to be neutral and about 32 (39.1%) believe their level of social interaction in their student housing to be low.

For *privacy and personal space* in Table H, 26 (31.7%) selected very high, 32 (39%) selected high, 14 (17.1%) selected neutral, 8 (9.8%) selected low and 2 (2.4%) selected very low. This implies that about 58 (70.7%) of respondents have a high level of privacy and personal space whereas about 10 (12.2%) have low levels, and 14 (17.1%) believe it to be neutral.

For *personal integration* in the student housing community from Table I, 9 (11.0%) selected very integrated, 16 (19.5%) selected integrated, 30 (36.6%) selected neutral, 13 (15.9%) selected not integrated, and 14 (17.1%) selected not integrated at all. From this, it can be observed that about 25 (30.5%) feel integrated, 30 (36.6%) feel it as being neutral, and about 27 (33%) feel not integrated in their student housing community.

Table J shows the *safety* of respondents in student housing. 36 (43.9%) selected very safe, 32 (39%) selected safe, 12 (14.6%) selected neutral, 2 (2.4%) selected unsafe and no respondent selected very unsafe. The results imply that about 68 (82.9%) feel safe within their student housing and surrounding areas, about 2 (2.4%) feel unsafe and 12 (14.6%) have a neutral perspective about it.

For the *impact of student housing on academic performance and university experience* in Table K, 33 (40.2%) selected extremely, 14 (17.1%) selected quite a bit, 15 (18.3%) selected moderately, 9 (11%) selected slightly, 5 (6.1%) selected not at all, and 6 (7.3%) selected not sure. This implies that about 47 (57.3%) believe that student housing has a considerable amount of impact on academic performance and overall university experience while 15 (18.3%) believe that it is of moderate impact, and 14 (17.1%) believe there is little to no level

of impact. 6 (7.3%) respondents are not sure about how student housing affects their academic performance and overall university experiences.

In Table L, about *cultural diversity* within student housing, 19 (23.2%) selected very diverse, 30 (36.6%) selected diverse, 23 (28%) selected neutral, 5 (6.1%) selected not diverse, 3 (3.7%) selected not diverse at all and 2 (2.4%) did not answer. From this, it can be said that about 49 (59.8%) believe that their student housing is diverse, 8 (9.8%) believe that it is not diverse, and 23 (28%) believe it is neutral.

For the *respect for cultural differences* in student housing, 4 (4.9%) did not answer. 9 (11%) selected very high, 22 (26.8%) selected high, 31 (37.8%) selected neutral, 11 (13.4%) selected low and 5 (6.1%) selected very low. See Table M. This implies that about 31 (37.8%) believe that the level of respect for cultural differences is high, 16 (19.5%) believe that it is low, and about 31 (37.8%) believe it is neutral.

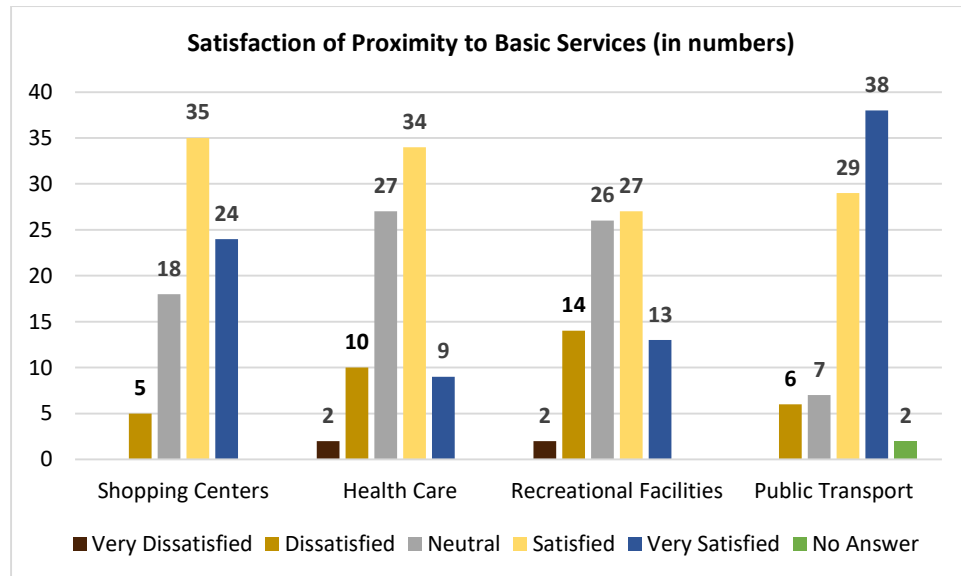
For the *performance of housing staff and management* in Table N, 12 (14.6%) selected excellent, 28 (34.1%) selected good, 32 (39%) selected fair, 6 (7.3%) selected poor and 4 (4.9%) selected very poor. This shows that about 40 (48.7%) of respondents believe that staff and management performance is excellent and good, 10 (12.2%) believe it is poor, and 32 (39.0%) believe it is fair.

In relation to *management responsiveness* about issues within student housing in Table O, 15 (18.3%) selected very responsive, 28 (34.1%) selected responsive, 23 (28%) selected neutral, 11 (13.4%) selected unresponsive, and 5 (6.1%) selected very unresponsive. This implies that 43 (52.4%) respondents believe that management is responsive, 16 (19.5%) believe management is not responsive and 23 (28%) believe the responsiveness of management is neutral.

About the *process of paying rent and bills* in Table P, 33 (40.2%) selected very easy, 24 (29.3%) selected easy, 22 (26.8%) selected neutral and 3 (3.7%) selected difficult. From this, it can be observed that about 57 (69.5%) believe paying rent and bills in student housing is an easy process. 22 (26.8%) believe it is a neutral process and 3 (3.7%) believe it is a difficult process.

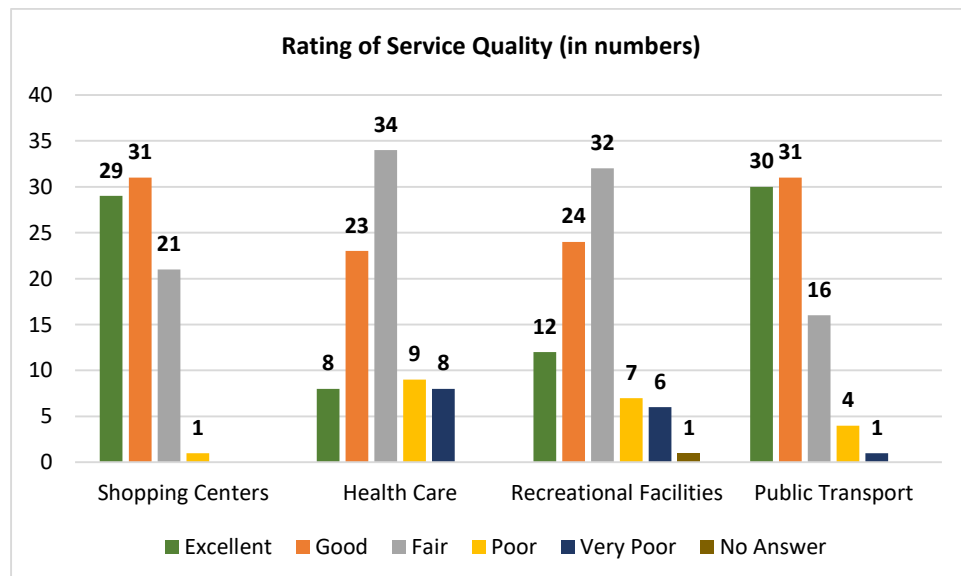
Figure 12 and 13 show *the proximity and quality of basic services* to student housing. These services include shopping centers/supermarkets, healthcare, recreational facilities, and public transport. The results of have been illustrated below.

**Figure 12: Proximity of Housing to Services**



Source: Author's own construct (2023)

**Figure 13: Quality of Services**



Source: Author's own construct (2023)

Figure 12 explores the results of responses to the *proximity of student housing units to the services*. In regards to *shopping centers*, 5 (6.1%) selected dissatisfied, 18 (22%) selected

neutral, 35(42.7%) selected satisfied, and 24(29.3%) selected very satisfied. For *healthcare services*, 9 (11%) selected very satisfied, 34 (41.5%) selected satisfied, 27 (32.9%) selected neutral, 10 (12.2%) selected dissatisfied, and 2 (2.4%) selected very dissatisfied. With the *proximity to recreational facilities*, 13 (15.9%) selected very satisfied, 27 (32.9%) selected satisfied, 26 (31.7%) selected neutral, 14 (17.1%) selected dissatisfied, and 2 (2.4%) selected very dissatisfied. With the *proximity to public transport*, 2 (2.4%) did not answer, 38 (46.3%) selected very satisfied, 29 (35.4%) selected satisfied, 7 (8.5%) selected neutral, and 6 (7.3%) selected dissatisfied.

Figure 13 shows the *quality of the services* based on respondents' responses. For *shopping centers*, 29 (35.4%) selected excellent, 31(37.8%) selected good, 21 (25.6%) selected fair, and 1 (1.2%) selected poor. For the *quality of healthcare services*, 8 (9.8%) selected excellent, 23 (28%) selected good, 34 (41.5%) selected fair, 9 (11%) selected poor, and 8 (9.8%) selected very poor. For the quality of recreational facilities, 1 (1.2%) did not answer, 12 (14.6%) selected excellent, 24 (29.3%) selected good, 32 (39%) selected fair, 7 (8.5%) selected poor, and 6 (7.3%) selected very poor. For the quality of public transport, 30 (36.6%) selected excellent, 31 (37.8%) selected good, 16 (19.5%) selected fair, 4 (4.9%) selected poor, and 1 (1.2%) selected very poor. Both figures above show high levels of satisfaction and ratings in the proximity and the quality of services respectively.

In relation to the quality of infrastructure found within the same area as the student housing, 26 (31.7%) selected excellent, 27 (32.9%) selected good, 25 (30.5%) selected fair, and 4 (4.9%) selected poor. No respondent selected very poor. See Table Q in Appendix 2. This implies that about 52 (63.4%) respondents believe that the quality of infrastructure is excellent and good, 25 (30.5%) believe it is fair, and only 4 (4.9%) believe the infrastructure quality is poor.

For the impact of the infrastructure found within the same area as the student housing on living experience in Table R, 31 (37.8%) selected very high, 15 (18.3%) selected high, 21 (25.6%) selected neutral, 3 (3.7%) selected low, 1 (1.2%) selected very low, and 11 (13.4%) selected not sure. This shows that about 11 (13.4%) respondents are not sure about the impact of the infrastructure on living experience in Hannover. 46 (56.1%) believe the impact is high, 4 (4.9%) believe it is low, and 21 (25.6%) believe the impact is neutral on living experience.

In examining the air quality of student housing areas, Table S shows that 36 (43.9%) selected good, 21 (25.6%) selected neutral, 1 (1.2%) selected poor, and 24 (29.3%) selected very good. This implies that about 60 (73.2%) respondents believe the quality of air is good, 21 (25.6%) believe it is neutral and 1 (1.2%) believe it is poor.

The overall environmental quality which includes nature, green spaces, noise levels, and air quality of the surrounding neighbourhoods was also examined. In Table T, 1 (1.2%) did not answer, 22 (26.8%) selected very good, 35 (42.7%) selected good, 22 (26.8%) selected neutral, and 2 (2.4%) selected poor. This shows that about 57 (69.5%) believe overall environmental quality is good, 22 (26.8%) believe it is neutral, and about 2 (2.4%) believe it is poor.

Respondents were asked to rate how environmentally friendly they considered their student housing and its neighbourhood. Components of this variable include social dynamics of the neighbourhood, and sustainable practices such as waste management, and sustainable mobility. 19 (23.2%) selected very high, 27 (32.9%) selected high, 29 (35.4%) selected neutral, 6 (7.3%) selected low, and 1 (1.2%) selected very low. See Table U. The results imply that about 46 (56.1%) believe it is highly environmentally friendly, 29 (35.4%) believe it is neutral, and 7 (8.5%) believe it is low.

The sustainability of the student housing units together with its facilities was examined. This variable comprises sustainable practices, sustainable building designs and renewable energy sources in student housing. In Table V, 21 (25.6%) selected excellent, 31 (37.8%) selected good, 23 (28%) selected fair, 6 (7.3%) selected poor, and 1 (1.2%) selected very poor. This shows that about 52 (63.4%) believe the sustainability of their student housing is good, 23 (28%) believe it is fair, and 7 (8.5%) believe it is poor in sustainability.

Variables that are likely influenced by satisfaction levels in housing include Recommendation and Continuous Stay. Students who are willing to stay in their given accommodation often exhibit high satisfaction levels as they learn to adjust and modify their expectations (Morris & Winter, 1976).

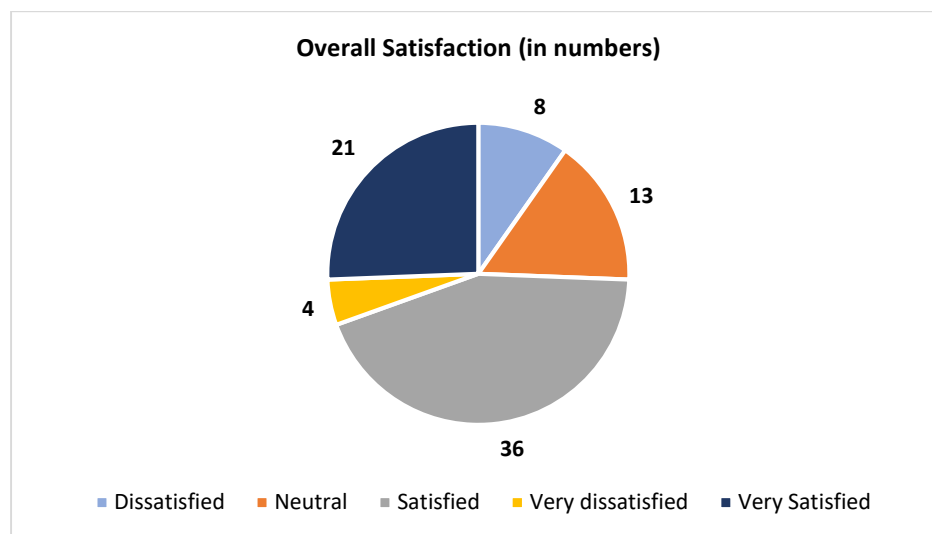
The results from the likelihood of respondents to continue living in their student housing until completion of their studies is shown in Table W. 32 (39%) selected very likely, 26 (31.7%) selected likely, 11 (13.4%) selected neutral, 6 (7.3%) selected unlikely, and 7 (8.5%) selected very unlikely. From this, it can be observed that about 58 (70.7%) respondents are likely to



continue living in their student housing. 13 (15.8%) are not likely to continue their stay, and 11 (13.4%) have neutral responses.

Table X shows the likelihood of respondents to recommend their student housing to other students. 28 (34.1%) selected very likely, 28 (34.1%) selected likely, 15 (18.3%) selected neutral, 7 (8.5%) selected unlikely, and 4 (4.9%) selected very unlikely. This implies that about 56 (68.2%) respondents are likely to recommend student housing to others, 11 (13.4%) are unlikely to recommend their students housing and 15 (18.3%) have neutral likelihoods.

**Figure 14: Overall Housing Satisfaction**



Source: Author's own construct (2023)

The overall housing satisfaction of respondents is shown in the figure 14 above. 21 (25.6%) selected very satisfied, 36 (43.9%) selected satisfied, 13 (15.9%) selected neutral, 8 (9.8%) selected dissatisfied, and 4 (4.9%) selected very dissatisfied. This shows that about 57 (69.5%) of respondents are satisfied with their student housing, 12 (14.7%) are dissatisfied and 13 (15.9%) have neutral satisfaction levels. The mean score for overall housing satisfaction on a scale of 0 to 10 is 7.51, higher than satisfaction levels found in Gong & Söderberg (2023) which was 6.57.

### 4.3 Analysis of Indicators Influencing Overall Housing Satisfaction

In this section, a more detailed analysis of the various indicators is conducted. A Person Correlation was performed between 29 indicators and overall housing satisfaction. Their values indicate the strength of the linear relationship between each indicator and overall

housing satisfaction. As previously mentioned, *Recommendation* and *Continuous Stay* are influenced by housing satisfaction. They have also been included in the here to examine their relationship with overall satisfaction. The results have been tabulated below.

**Table 4: Correlation results with housing satisfaction indicators and overall satisfaction**

Indicators	Correlation Values
Recommendation	0.742
Continuous Stay	0.595
Safety	0.624
Infrastructure Quality	0.558
Environmentally Friendly	0.555
Staff Performance	0.543
Housing Sustainability	0.521
Recreational Quality	0.517
Amenities	0.503
Management Response	0.503
Privacy Level	0.495
Air Quality	0.477
Environmental Quality	0.448
Transport Quality	0.446
Space & Size	0.432
Bill Process	0.416
Transport Proximity	0.405
Shopping Proximity	0.359
Infrastructure Impact	0.345
Noise Level (Quietness)	0.34
Cleanliness Maintenance	0.336
Shopping Quality	0.315
Recreational Proximity	0.292
Communal Spaces	0.232
Healthcare Proximity	0.201
Healthcare Quality	0.196
Cultural Diversity	0.164
University Experience	0.095
Personal Integration	0.093
Cultural Respect	0.077
Social Interaction	0.015

Source: Author's own construct (2023)

From the above results in table 4, it can be seen that all the values are positive, implying that as the value of one variable changes, overall housing satisfaction changes in the same direction (Turney, 2023). For instance, when infrastructure quality is high, satisfaction levels increase. However, the values vary as some are closer to 1 and others closer to 0. The values closest to 1 indicate a stronger positive relationship (Schober et al., 2018). Meaning, while some indicators have higher influences on overall satisfaction, some have lower influences and may not have equal relevance for student housing satisfaction studies. The results allow for 3 different levels of positive correlations which are strong, moderate and low positive correlations.

*Safety* (0.624) shows the strongest positive correlation amongst the 29 indicators. This is followed by *Infrastructure Quality* (0.558), *Environmentally Friendly* (0.555), *Staff Performance* (0.543), *Housing sustainability* (0.521), *Recreational Quality* (0.517), *Amenities* (0.503), *Management Response* (0.503), *Privacy Level* (0.496) and *Air Quality* (0.477). *Safety* is also strongly correlated with other factors such as *Environmentally Friendly* and *Housing Sustainability*, indicating its central role in the overall student housing experience. *Amenities*, *Infrastructure Quality*, and *Environmentally Friendly* also show strong inter-correlations, indicating that these variables often go hand-in-hand in quality student housing. The likelihood of respondents to recommend their student housing to their friends and to continue living in their current student housing also produced high correlation scores. *Recommendation* (0.742) and *Continuous Stay* (0.595) are therefore highly correlated with overall satisfaction, indicating that the willingness of students to recommend their housing or continue staying there is strongly influenced by their satisfaction levels.

Variables with moderate positive correlations include *Environmental Quality* (0.448), *Transport Quality* (0.446), *Space and Size* (0.432), *Bill Process* (0.416), *Transport Proximity* (0.405), *Shopping Proximity* (0.359), *Infrastructure Impact* (0.345), *noise level* (0.340), *Cleanliness and Maintenance* (0.336), *Shopping quality* (0.315), *Recreational Proximity* (0.292), *Communal Spaces* (0.232), *Healthcare Proximity*, (0.201), *Healthcare Quality* (0.196), and *Cultural Diversity* (0.164).

Variables such as *University Experience* (0.095), *Personal Integration* (0.093), *Cultural Respect* (0.077) and *Social Interaction* (0.015) show lower correlations with overall satisfaction.

Although these are also important for the overall student living experience, they are less significant to housing satisfaction compared to the other indicators in this study.

A multiple Linear regression analysis was then conducted based on the results from the correlation values but only with the variables which were identified to have high/strong positive correlations with overall satisfaction. These are *Safety, Infrastructure Quality, Environmentally Friendly, Staff Performance, Amenities, Management Response, Privacy Level, Air Quality, Housing Sustainability, Recreational Quality, Recommendation* and *Continuous Stay*. These variables were selected because, when their correlation values are rounded to the nearest tenth, they range from 0.7 to 0.5 which are closer to 1 in comparison to the other variables. A summary of the key results from the multiple Linear regression analysis have been explained below.

**Table 5: Model Summary From Regression Analysis**

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.877 <sup>a</sup>	.769	.728	.5751

a.Predictors: Safety, Infrastructure Quality, Environmentally Friendly, Staff Performance, Amenities, Management Response, Privacy Level, Air Quality, Housing Sustainability, Recreational Quality, Recommendation and Continuous Stay

Source: Author’s own construct (2023)

From the table above, the Multiple Correlation Coefficient represented by R is 0.877, which indicates a strong positive correlation between the combined independent variables (housing attributes) and the dependent variable (overall housing satisfaction). This value is a measure of the strength of the linear relationship at 87.7%. The value of R Square, which is the Coefficient of Determination is 0.769, suggesting that approximately 76.9% of the variance in the overall housing satisfaction can be explained by the independent variables in the model. This is a substantial proportion, indicating a good competence of the analysis to the data. The Adjusted R Square is 0.728 (72.8%). This is a more accurate measure of model fit, as it adjusts for the number of predictors in the model. This implies that with the total number of variables, about 72.8% of the variance in overall housing satisfaction is explained by the model, which is

still a high value. Through the use of a linear regression model, Gong & Söderberg (2023) discovered that overall residential satisfaction can be explained by 7 predictors at a value of 54.5%, indicating the importance of applying regression analysis in housing/residential studies. The standard error of the estimate is 0.5751. This value indicates the average distance that the observed values fall from the regression line. Essentially, it's a measure of the accuracy of predictions made with the model.

**Table 6: Analysis of Variance (ANOVA)**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	74.944	12	6.245	18.884	.000 <sup>b</sup>
	Residual	22.488	68	.331		
	Total	97.432	80			

a. Dependent Variable: Overall Satisfaction

Source: Author's own construct (2023)

In table 6 above, the p-value (Significance or (Sig.)) is .000 which is less than 0.05. This indicates that the regression model fits the data better than a model with no predictors as seen in (Biswas et al., 2021). From the results of tables 5 and 6 above, there is a strong relationship between the indicators and overall housing satisfaction, with a Multiple Correlation Coefficient value of 0.877 in table 5. This implies that overall housing satisfaction of international students at LUH can be determined by Safety, Infrastructure Quality, Environmentally Friendly, Staff Performance, Amenities, Management Response, Privacy Level, Air Quality, Housing Sustainability, Recreational Quality, Recommendation and Continuous Stay at a value of 87.7%. From the ANOVA table, (table 6) the regression model is statistically significant. The independent variables, as a group, significantly predict the overall housing satisfaction, with a very high degree of certainty ( $p < .001$ ). This proves that the multiple linear regression analysis technique is efficient in understanding further the extent to which the combined indicators influence overall housing satisfaction.

#### **4.4 Interconnection between Housing Management and Student Housing Satisfaction**

The interviews provided an overview of some management bodies that are responsible for student housing at the Leibniz University of Hannover.

The first respondent is a tutor from the Jägerstrasse dormitory in Hannover. She works for the tutoring program of the Studentenwerk. This is a program where every dormitory has at least one tutor managing the dorm and its residents. She serves as a representative in addition to the dorm management. The dormitories at Jägerstrasse in Hannover include single rooms in a shared corridor (10 - 16 m<sup>2</sup>) and single apartments (21m<sup>2</sup> - 26m<sup>2</sup>).

The second respondent serves as a House Speaker in the HSV for the Hufelandstrasse dormitory building. The HSV acts as spokespersons between residents and the Studentenwerk. There are about 14 HSV members with different responsibilities who live in the dormitory and provide assistance to students. The tutor at the same dormitory building is also a member of the HSV. He assisted the HSV representative during the interview. Majority of the student dorms here are single apartments (16 m<sup>2</sup>) with a kitchen and a bathroom and only a few shared apartments (78 m<sup>2</sup>).

The third respondent works in the international office and assists exchange students coming to Leibniz University with accommodation in Hannover. He also receives a significant amount of requests from international students about accommodation and assists them as much as he can. The results from the interviews help to further understand how the roles of the respondents influence the housing satisfaction of students in various ways.

When asked about their general responsibilities, the second respondent described the primary role of the HSV as being responsible for managing common shared spaces such as the music room, the study room and the Pinte (common room), which is one of the most expensive common rooms in the Studentenwerk Hannover. They also organize events such as parties and club (cooking and baking club) events, game nights such as table tennis, billiard, ping pong, and also oversee the well-being of residents. The first respondent as a tutor helps international students with paperwork, translations, and also organizes cultural events and field trips. She assists students outside of her regular office hours in the Studentenwerk. Both respondents are not involved in the distribution of rooms for students. The third respondent on the other hand is involved in the distribution of student housing to exchange students from partner

universities. He gets only a quota of rooms from the Studentenwerk and allocates them. Allocation is done based on students' acceptance status into exchange programs, the waiting list and the timing of applications. Aside from these responsibilities, he encounters regularly with international students who are stranded or did not receive a room allocation from the Studentenwerk.

In terms of the housing management role in maintenance and upkeep, the HSV representative discussed how maintenance issues are addressed, both within individual apartments and in common areas. She stated:

*'Every resident has to talk to the Studentwerk on their own by filling a damage report form when it's at their own apartment but when we have something damaged which is for common use and we don't know who did it, we try to fix it.'*

She therefore ensures that items for resident use in the shared spaces are regularly maintained and managed. This fact highlights the contribution of *staff performance* and their influence on housing satisfaction.

A question was asked about the security and safety measures housing management put in place for residents. She explained that only registered students with a key can access the building and its facilities such as the hallways, the study room, laundry room and the bicycle parking spaces. She also mentioned a strategy that contributes to the comfort of students in the official group chat.

*'One thing we did last week was not really safety but for more comfort. We closed the WhatsApp group due to lots of racism and disturbing comments. When someone asks to join the group, I talk to the Studentwerk, our tutor or the guy responsible for the internet in the dorm. They have a list with names and room numbers and are able to tell if the person is registered in the dorm.'*

She expressed her own personal experience with her previous housing which was a shared apartment:

*'For my case, I'm living here because my flat mate in my previous dormitory was a little bit touchy with my things so I changed my dormitory. It's pretty good that no one can come into my building when I don't want to, so I feel much safer here than I did at the other dormitory.'*

The tutor from the Jägerstrasse dormitory discussed safety and security measures put in place to prevent theft and safe kitchen practices against potential fire hazards. She stated that there have been some theft incidents when people left their windows open. Fire alarms also go off regularly when students leave their pots in the kitchen unattended. She constantly engages with residents against these practices via messages and face to face confrontations. According to her, student housing is one of the safest areas in Hannover. In connection to overall housing satisfaction, *safety* was identified as one of the important contributors influencing total satisfaction levels, indicating how safe and secured students feel within their student housing. Hence, housing management bodies through their operations contribute to the overall safety of students.

The tutor and the HSV representative mentioned that there are many internal collaborations with Studentenwerk and other hall tutors but none are external. They receive an annual budget from the Studentenwerk to support internal social clubs and organize events. The international office representative also mentioned partnership between his office and the Studentenwerk. He stated:

*'Our cooperation with Studentenwerk is very good. I know that they try their best to find a way to handle these floods of requests.'*

He collaborates with students who are going a semester or year abroad to give out their rooms during their time to other students seeking accommodation. He also collaborates with some locals who are willing to rent out spaces and rooms to students. This shows that all the management bodies collaborate efficiently with Studentenwerk, the main stakeholders who manage state provided student housing in Hannover, highlighting another positive *staff performance* indicator.

Interviewees were asked about the support services or resources they offer to assist international students in their transition to living in student housing. The tutor at Hufelandstrasse discussed the support services available for international students, including dedicated offices, tutors, and cultural integration activities. According to him:

*'We offer essential support on matters ranging from legal requirements, immigration law and dealing with authorities, to practical challenges like financial issues and communication barriers. The Tutor also offers weekly office hours in the dorm. Moreover, the tutoring program*



*extends its reach beyond problem-solving, occasionally organizing events and cultural integration activities that foster a sense of community and belonging among international students.'*

The tutor from the Jägerstrasse dormitory mentioned providing them with information about how to contact her for assistance. She also provides information about available student jobs, doctors and therapy, as well as nearby shopping centers. She stated that they do not organize anything study related. The events organized are mostly for socializing, fun and leisure activities. Examples include hiking, boat riding on the Steinhuder Meer, board game nights, barbecues, mini golf and cultural night events. Most of them are free due to the annual budget from the Studentenwerk. However, expensive activities are partially covered.

The representative from the international office believes that the availability of affordable housing contributes positively to the lives of international students since it reduces the stress that comes with moving from one country to another and makes their stay better. He contributes to this effortlessly by assisting them in finding accommodation when they cannot find one at the beginning of their studies in Hannover. He offers support services to international students by connecting them with landlords. He checks the conditions and reliability of the place before giving them out. He stated:

*'There's a landlord outside Hannover who is a very nice lady offering two rooms each year for the first months because she knows about the situation of limited spaces here. She's had very good experiences with international students she placed in her house. It is important to know about the conditions so I talk to the landlords. Then I give their contact to any student reaching out for accommodation. Some landlords have requirements such as female students or people who are able to speak German because they cannot speak English. If a student fulfills these criteria after sending in a request to me, I forward the landlord's contact to them.'*

He also provides information about other accommodation options in private dormitory companies, websites such as WG Gesucht, temporary accommodation and cheap hostels. The above shows how through student housing, international students are supported in various ways, supporting the research findings of Franz & Gruber, (2022). In their research, Sotomayor et al., (2022) discovered that international students who lived outside of university provided housing suffered micro-aggressions, discrimination and unpleasant living experiences.

When asked about their approaches to handling the challenges that arise in student housing, the second respondent mentioned occasional racism that occurs on the dormitory's WhatsApp platform and frequent noise complaints as common problems. The first and second respondents pointed out that the challenges among international students are similar to those of domestic students in the dormitory. Listed concerns included the "Rundfunkbeitrag von ARD, ZDF" (broadcasting fee) and issues related to shared facilities like the laundry room and kitchen as common problems. There are sometimes a few arguments in the dormitory and although they rarely occur, the hall tutor mentioned how she addresses disputes between neighbors. In extreme cases, she seeks help from the office of the Studentenwerk. She stated:

*'If two people have arguments, I try to calm them down. If it's too bad, and there is no other option, one person gets the offer from Studentenwerk to change their dorm.'*

For the international office representative, he believes that student housing availability in Hannover is low. He discussed the increasing demand for student housing and the challenges posed by rising prices and limited availability.

*'In former times, they were more flexible. 20 years ago when I started university, it was pretty easy to find a place outside Studentenwerk. The city was full of apartments and running as WG. You paid less than €200 for a room. In general, it's a bit frustrating to work on things which you cannot really influence because there is a structural lack.'*

He also discussed a strategy employed by the Studentenwerk:

*'One of the most expensive factors for building is the ground and that's why the Studentenwerk put in more floors instead, to gain more spaces for students. This is only possible if it is allowed to put several floors on the top of a building in an area.'*

In the answer to available methods for engaging with international students to understand their living experiences, the tutor mentioned that she engages with students via group chats and face to face communications. The HSV representative emphasized on frequent communication with students and insights from other HSV members:

*'Students use their room phones to call the phones in our rooms when they need something. I also receive around five/six messages from residents a day.'*

According to the tutor at Hufelandstrasse:

*'The HSV and online platforms of the Studentenwerk foster ongoing communication. Feedback is analyzed for common themes, and improvements are prioritized based on impact. A continuous feedback loop sustains improvement efforts. With these methods, housing services evolve to better serve international students' needs.'*

The third respondent mentioned that he interacts with international students via emails. Although most of them are very grateful and happy about the options he refers them to, he hardly gets feedback from students. In response to future changes and adaptations, the second respondent envisions a well-functioning student housing unit characterized by respect, inclusivity, and a sense of community. She hopes for a shift towards greater acceptance and understanding among residents. She stressed on the importance of residents feeling safe and at home.

*'We hope that everyone who lives here feels good, feels safe and feels at home. If you don't feel safe, you can switch your dormitory. Someone lost a family member some weeks ago and the person said it was nice to have a place in the evening where you can go and play table tennis and billiard just to not think about the loss. We feel safe and more comfortable when the others are around.'*

The interviews have shown how housing management bodies influence the *performance* and *response* of the services provided within student housing. Based on the HSV representative's response, management bodies in student housing are pushing towards student housing that promotes *safety, personal integration, cultural respect* and *social interaction* that will improve the overall *university experience* of international students. This attests to the argument of Sotomayor et al., (2022). It is worth noting that all of these variables except *safety* were found to have weaker relationships with overall satisfaction. In Table G and Table I of Appendix 2, low levels of social interaction and personal integration were recorded. However, an improvement in them is more likely to improve total satisfaction levels (Biswas et al., 2021).

According to the international office representative, investment is being put into renovating existing dorms and exploring opportunities for expanding student housing. He mentioned that student housing units in Hannover are constantly being renovated to adapt to the changing needs and preferences of students. He stated:

*‘Studentenwerk renovated almost all of the buildings step by step year by year, which is important as well because a lot of dorms were built in the 60s and in some you felt like in the 60s.’*

This shows that student housing providers try as much as possible to improve the *infrastructural quality* and the *housing sustainability* variables of student housing, contributing positively to overall housing satisfaction. This supports the findings of Biswas et al., (2021) and Franz & Gruber (2022).

#### **4.5 Interconnection between Urban Planning and Student Housing**

A fourth interview was conducted with a representative from the Department of Urban Planning in Hannover and his office deals with Land Use Planning. He is the deputy chief of the Urban Planning Department in Hannover and addresses housing programs and issues. The interview with him provides insights into the role of urban planning in student housing development.

According to the respondent, student housing is integrated into the broader housing planning scope for Hannover, which supports special housing demands such as housing for students and elderly people. He mentioned that the primary factor influencing decisions related to student housing is the proximity and ease of access to educational institutions, with cycling and public transportation.

*‘All the student homes are very close to the campus. Even if it's not the case, for instance, the new one in Garbsen for the technical department, it is reachable by the railroad, the U-Bahn, and the so-called Stadtbahn in Hanover. We try to see that all these student homes are very easily connected to the places where the university has buildings.’*

The assessment of student housing demand is also largely based on information from the daily press, newspapers, and constant communication with organizations like Studentenwerk to analyze the demand and occupancy rates. For urban planners in Hannover, the key consideration in student housing development is location and proximity. This finding corresponds with that of Haghani et al., (2023) where location is seen as a crucial element in housing planning. The respondent mentioned cost as a major challenge for student housing development in Hanover. He stated:

*'The biggest problem is the price of the land right now and the funds to develop it.'*

A strategy used by urban planners in Hannover according to him is to acquire land when possible and then use a concept of Vergabe (allocation) to determine the best use of the land, considering what is beneficial for the city.

*'If we have a piece of land, for instance, and then we say it might be a good idea for a student home combined with private homes or whatever, we write it down and describe the project. Investors can apply to get this piece of land to develop it. Our aim is giving the land away to develop it.'*

An important observation from here is that urban planners as well as housing providers try as much as possible to ensure the quality of life through housing planning, proving the point of Haghani et al. (2023) and Franz & Gruber (2022).

A number of documents were also provided by him prior to the interview to support the interview and research study. In one of these documents is a report on a council meeting on the issue of housing for students and trainees in 2023. The planning administration of the city of Hannover in the report stated that they regularly proactively advise investors who want to build affordable housing for students. In the report, there was a question which stated:

*Are there efforts on the part of the state capital of Hanover to work with housing providers such as youth hostels, private property owners or other municipalities in the Hanover region on concepts for inexpensive housing (such as temporary free living, apartment swaps or other models)?*

The answer provided was as follows:

*The youth hostels between Harz, Heide and Weser offer such options with the "Long-Stay Rent for Students" project. The association "Haus & Immobilien Hannover e. V." offers its members the opportunity to take advantage of the Studentenwerk's free brokerage service. We are in constant contact with our neighboring communities on urban planning issues. However, no concrete project-related collaboration has yet taken place.*

According to the Hannover Department of Urban Planning representative, the quality aspects of student housing in planning include architectural considerations like the facade, windows, and integration into the neighborhood. An example is the projects from companies such as Hanova; a municipal subsidiary and the largest housing company in Hanover. He stated:

*'With the Nano project developed by Hanova, we transported the idea of how this building has to be in the city or in the neighborhood. It's quite well integrated, I think. It is in the center of the city, easily reachable, and has the format of the neighbouring houses, such as height, and the material. The architecture is quite good.'*

He also stated that it is the task of the investors and the housing company to ensure a successful contribution of the housing project to the neighbourhood, but planners are involved in intensive advice and support of the projects. The report mentioned earlier also listed a number of projects aimed at supporting student accommodation. There are 6 projects in planning in Hannover. These are: -

Am Papehof (for densification), Bodestraße, Gellertstraße 51, Haltenhoffstraße 24, Hufelandstraße new building, and Lavesstraße 76.

There are also 3 projects under construction: -

*Am Holländischen Pavillon, Bömelburgstraße 5, and Körnerplatz Hanova Nano.*

Hence, the Nano project and other similar developments are seen as successful examples of integrating student housing into urban development projects.

Student housing stakeholders such as planners and housing developers therefore contribute to the location, infrastructure quality and environmental friendliness of student housing. Similar findings were discovered in Kshetrimayum et al., (2020) who noted that, in enhancing residential satisfaction to ensure sustainable development in housing, relevant housing stakeholders including planners and designers must be involved. In doing so, they contribute to the overall urban fabric of the locality, improving the social infrastructure in these areas (Fanz & Gruber, 2022).

Evaluation of student housing success is carried out through interactions with housing companies like Hanova and the Studentenwerk to understand occupancy and feedback. However, there is no direct contact with students for feedback. He stated:

*'We talk to the administration of the company Hanova, and ask questions such as: what's going on with your Nano projects? do they run very well; what kind of people live there? and what is your experience? We are quite often in contact with Hanova. I go there with students to check how a new student building is running. We are also in contact with the Studentenwerk and they tell us how it is going with student homes right now. But we don't have any direct contact with students and ask them how they feel and how it is going with their housing in the city of Hanover.'*

Urban planners are very much involved in the development of student housing. They place priority in this field. However, the voices of the main users - students - is equally important for improving their quality of life and overall housing conditions. As shown in Sotomayor et al., (2022), research was conducted in order to understand the viewpoints of students on housing, enabling them to make suggestions that help to mitigate problems they constantly face. When asked about the role of student housing future trends in the activities of urban planners, he mentioned a trend toward micro apartments:

*'There is more investment in building micro apartments. I mean, they are expensive, but they give the chance to offer a place to stay as long as people can afford. Our own housing company, Hanova in the city of Hannover, opened 3 micro apartment buildings called Nanos in Klagesmarkt, Kopernikusstraße and Könerplatz. The prices are reasonable in comparison to private projects such as HYLIVE.'*

Similar trends were discovered in Kinton et al., (2018) and Reynolds, (2020). He further expressed concern towards the increasing trend in micro apartments. He highlights the need for mixed housing types, including shared apartments to combat loneliness and provide networking opportunities for students.

*'We are a little bit afraid of having a lot of such one room apartments like the Hanova Nano projects. There are too many one person apartments and so it might be a good idea to support common shared apartments which are cheaper for students. Two apartments in one storey at the Nano buildings are nearly the same size as one common apartment which can house 3-4*

*students. Some companies and investors who build micro apartments told us residents had problems with loneliness in their apartments. There is no meeting point or a common kitchen and the most used room is the washing room. This is not very helpful especially for foreign students who come from abroad and have no family here. The Germans can maybe use their network at home with their friends and families but foreigners couldn't do this and it's important to network. It's easier by living together and not apart. That's something we would like to see more.'*

According to the interviewee, students would benefit socially when sufficient common spaces are made available in their housing units. This supports the findings of Gbadegesin et al., (2022). He also mentioned future plans with the aid of the Hamburg planning office for a Hannover housing program by 2033. This involves about 1,300 new homes each year, a total of about 12,000 new homes. This project is beneficial to students as well. Although a bit challenging, it is very possible. He then made reference to the housing project at Kronsberg, which is the biggest housing construction in Lower Saxony with about 4,000 new homes, also very useful for students.

## **Integrating Insights: Discussions and Strategic Approaches**

### **5.1 Indicators Influencing Housing Satisfaction Levels**

The first research question, *“What indicators drive students' overall satisfaction with their current student housing?”* is answered from the discussions in this section. Applying a multiple linear correlation on the 12 indicators that correlate strongly with overall housing satisfaction shows that after accounting for the number of variables, 72.8% of the variance in overall housing satisfaction is explained by the model. All of these variables have a strong positive relationship with overall satisfaction.

*Safety* is identified as the highest contributing indicator amongst them. The following comes after *safety* in order of arrangement: *infrastructure quality, environmentally friendly, staff performance, housing sustainability, recreational quality, amenities, management response, privacy level* and *air quality*. *Recommendation* and *continuous stay* correlates strongly with overall satisfaction. The mean score for overall housing satisfaction on a scale of 0 to 10 was 7.51, indicating a high level of total satisfaction.



*Safety* and *privacy level* identified as strong indicators influencing housing satisfaction can be found in the works of Sadeghlou & Emami (2023), Ibem et al. (2019) and many others. These are components of social factors (Amole, 2009). The interviews made obvious that, housing management bodies such as the HSV and tutors through their operations enforce safety and security measures that contribute to making students feel as comfortable as possible. Common spaces and communication platforms within student housing are not accessible to non-residents. Although from the interviews it was registered that students occasionally complained of food and clothing theft, it was noted that overall, student housing areas are one of the safe places to be in Hannover. This finding supports Gbadegesin et al. (2022). In Sadeghlou & Emami (2023), studies revealed that *privacy* and the provision of private spaces is a factor which is highly prioritized among residents.

Ibem et al. (2019) identified *infrastructure quality* - such as the buildings, facilities and structures as well as the neighbourhood environment that supports quality of life - plays an important role in determining housing satisfaction levels. Lower quality in this variable resulted in lower satisfaction levels indicating a positive relationship (ibid). The same can be found in this study as *infrastructure quality* has been identified as one of the important contributing indicators. *Environmentally friendly, air quality, and housing sustainability* are all environmental and housing qualities. They include sustainable practices and green spaces within and surrounding student housing. These indicators have been found to have high influences on housing satisfaction (Biswas et al., 2021). Improving these variables do not only enhance satisfaction levels but also the quality of life through safe and healthy lifestyle choices (ibid.). *Recreational quality* associating the quality of recreational areas within and surrounding student housing also significantly influences housing satisfaction. The findings from here support that of Franz & Gruber (2022) and Sadeghlou & Emami (2023) who discovered that students and residents often prefer to stay in areas where outdoor green spaces and recreational facilities are available to encourage leisure time and relaxation purposes. A lower quality in these indicators results in dissatisfaction (Biswas et al., 2021). All of these indicators belong to the environmental quality factors (Biswas, 2021; Gbadegesin et al., 2022).

Physical factors such as the *quality and performance of the amenities/facilities* provided within student housing highly influences satisfaction levels among students. This finding is consistent with Najib et al. (2011) where students' satisfaction with building facilities in Malaysia

accounted for high levels in total satisfaction. Dissatisfaction levels were also very high amongst students who had insufficient access to quality housing facilities in Nigeria (Eteng et al., 2022).

*Staff Performance* and *Management response* in student housing also have strong impacts on satisfaction levels. Gong & Söderberg (2023) discovered similar findings. These variables are indicators of service quality. Ibem et al. (2019) reported high levels of dissatisfaction among residents due to poor management services such as delay in maintenance and poor work quality. This signifies the importance of these variables in student housing satisfaction studies.

The level of *Recommendation* and *Continuous stay* determines whether students find their housing conditions satisfying or not. A strong positive relationship with overall housing satisfaction implies that students are more willing to recommend and choose their student housing when they are very content with their accommodations. This supports the findings of Morris & Winter (1975) that, when residents are dissatisfied with their dwelling places, they are compelled to relocate or change their accommodation. Amole (2009) also discovered that students become more satisfied with their housing the longer they stay due to the adaptations of coping mechanisms they learn with time. This can also mean that students learn to adapt to their living conditions the longer they stay, according to the theory of housing adjustment in Morris & Winter (1975).

Physical factors such as *space/size of rooms*, *communal spaces*, *cleanliness and maintenance of outdoor spaces* as well as *noise levels* from the survey were found to have a moderate relationship with overall satisfaction. This finding contradicts that of Thomsen & Eikemo (2010) and Amole (2009) who found these indicators to have a strong influence on satisfaction levels.

Interestingly, indicators such as *university experience*, *personal integration*, *cultural respect* and *social interaction* showed a weaker relationship with overall satisfaction, opposing the findings of other studies. As stated by Franz & Gruber (2022), student housing is capable of enhancing social interactions and networking for new students in urban spheres. Gbadegesin et al. (2022) proved that these social factors are major influencers of housing satisfaction, emphasizing the role of student housing as an efficient instrument for socialization amongst students. Teng-Hong (2012) discovered that housing satisfaction depends largely on social interactions amongst households, signifying the importance of social factors.

## 5.2 Housing Preferences and Contributing Factors

From the conceptual framework, it was established that the housing preferences and choices of students are based on many indicators. Since these predicting variables of housing satisfaction have been identified in section 4.1, it is also important to discuss the housing choices and behaviors of students, using findings from other publications.

It can be observed from results in figure 11 that the majority of the students have higher preferences in single apartments and shared room/flat share. This finding supports that of Fang & van Liempt (2021) in their study about international students and their housing experiences in the Netherlands. Gong & Söderberg (2023) in their also study discovered residents living in studio apartments (single apartments with a private kitchen and bathroom) in Stockholm expressed higher levels of satisfaction. In Franz and Gruber (2022), it was also discovered that modern day students in Vienna, especially international students are more attracted to single apartment student housing that is characterized by privacy and well-equipped bathrooms and kitchens.

Students are most likely to change their student housing when the cost, university proximity, social factors, space/size of room, amenities, and environmental quality as well as service quality of the student housing does not meet their expectations (see figure 9). Fang & van Liempt (2021) made interesting discoveries where international students, due to cost, had to quit their studies and return to their home country. Other students had to do part time job to fund their accommodation, which impacted their social and academic life negatively (ibid.). This signifies the importance of student housing affordability for international students. Location and university access is also an important factor. In Sotomayor et al. (2022), students who experienced longer commute times to their university campus expressed disappointment and dissatisfaction. They complained about not having enough time for their studies and social live. Although space/size of room, service quality and environmental quality in this study are indicators that are found to have a moderate relationship with overall housing satisfaction (see table 4), other studies have found them to be strong determinants of total satisfaction levels. Examples include Biswas et al., (2021) and Abidin et al., (2019) who identified space/room size to strongly influence overall satisfaction. Sadeghlou & Emami (2023), Gong & Söderberg (2023) and Liu et al., (2022) made a connection between various elements of the environment and the satisfaction levels among students and residents.

The discussions from the above section provide a detailed overview of the housing choices and behaviours of respondents. Students undoubtedly prefer affordable housing that is easily accessible from their university campuses, has high levels of privacy and safety, and sufficient spaces. They are also attracted to accommodation that is well furnished with housing amenities such as internet, heating, water, electricity, Wi-Fi, laundry, kitchen facilities and bathrooms. The finding also supports results in the discussions from section 5.1.

### **5.3 Implications for Student Housing Development in Hannover**

This section aims to answer the second research question; *'How can the indicators influencing student housing satisfaction be used to assist planners in decision-making processes related to student housing at Leibniz University of Hannover?'*

This research study provides insightful information for both planners and student housing management teams in Hannover. Urban planners have the responsibility of making crucial decisions concerning the development of social infrastructures such as student housing in cities. Although they may not be the only key players, they influence decisions greatly in the initial stages. According to Ehlenz (2019: 792), planners are able to positively impact a university's revitalization process in urban areas, by engaging relevant stakeholders to build strong partnerships in the most cost efficient way possible. Figure 14 shows that while 57 (69.5%) respondents are satisfied with their student housing, 12 (14.7%) are dissatisfied. Although a good number of respondents are content, it is still possible to achieve higher satisfaction levels while reducing dissatisfaction in many ways.

It was discovered in the study that planners have no strategy in place to examine the housing experiences of students but there are many projects aimed at increasing student housing numbers in the city of Hannover. Assessing student housing from the perspective of students can serve as a valuable strategy in student housing development. The Studentenwerk can implement a semester or yearly evaluation channel for students living in student housing to identify common challenges and patterns. An initiative such as the York Village Housing Association, founded by students in Toronto can be considered. Advocacy groups and online networks have been introduced to provide support by sharing information that aims to protect new students and international students who are not familiar with renters' rights (Sotomayor et al., 2022: 8). In the case of LUH, a similar group can use regular feedback from students to inform planners for future policies and planning. Just as planners visit the housing companies

for updates about their housing projects, they can have this network of communication with the Studentenwerk, and the student group to collect results of the evaluation. When students are involved, the problems, challenges and areas of opportunities in student housing improvements can be comprehensively understood. This strategy will ensure that the concerns of students are addressed efficiently, promoting institutional support at LUH.

The main problems identified in student housing development during the interviews included the cost of land and building, housing availability and affordability. According to the Hannover Department of Urban Planning representative, as compared to other cities in Germany, there are not many housing capacities within the Studentenwerk Hannover but there are many private homes which students are able to rent during their studies. Students are able to rent many private homes in Nordstadt and in Linden for accommodation. To address housing shortages within the Studentenwerk, the city and Studentenwerk can build partnerships with private house owners, landlords and affordable housing providers by implementing rent control policies or offering support to those willing to sublet rooms and spaces for student accommodation at affordable rates (Heslop et al., 2023, Sotomayor et al., 2022). The utilization of old buildings for student housing can also be explored. Another shortage of student housing can be addressed when Studentenwerk increases collaborations with students. Students going a year abroad can sublet their rooms to international students who normally do not stay longer as compared to regular students. These strategies can go a long way to tackle the issue of limited student housing availability, and affordability.

Information gathered from the hall tutors and the HSV in student housing provides valuable information for planners and other key players in student housing development such as Hanova and Studentenwerk. The major housing problems encountered by international students in Hannover include noise complaints, poor kitchen practices, arguments and petty thefts in the shared kitchen and laundry rooms, and some instances, racism. These can also be categorized within the scope of safety and security (Gbadegesin et al., 2022). Since safety was identified as one of the important influencing indicators of housing satisfaction, Studentenwerk as a housing management needs to develop strategies that would help curb these problems for good. Studentenwerk can explore more possible strategies such as implementing firm housing regulations, and performing routine inspections with the help of tutors and the HSV (Sotomayor et al., 2022). Kinton et al., (2018) mentioned the need to promote student engagement activities, diversity programs, and supportive services that

enable easy communication and socialization amongst students in a comfortable living environment. These policies and measures in student housing help build a safe, inclusive, and supportive environment for all students.

Flat shared/shared apartments and single apartments were identified as the two most preferred housing choices of students. These types of accommodation are often associated with high privacy levels, and quality housing amenities. Common spaces for recreation can be enhanced in these building units to foster meaningful socialization amongst students, combating loneliness found in single apartments, as discovered from the interviews. Urban planners can encourage housing projects such as purpose-built student accommodation (PBSA). PBSAs are characterized by different housing styles and different price ranges, fulfilling the varying student housing preferences and choices. Students with different backgrounds, including international students will benefit more from the diversified nature of PBSA since they have different resources and needs (Franz & Gruber, 2022). Aside from students, the diverse socio-economic demography of Hannover will benefit as well from these housing types since residents are presented with different housing options.

Environmentally Friendly and Recreational Quality belonging to environmental factors and service quality are all indicators that can be influenced through the decisions and policies implemented by urban planners. These variables should be given equal priority just as proximity, transport accessibility, and infrastructure quality. Policies should be enforced in already existing student accommodation areas to support practices that strengthen these indicators. This will not only benefit students but the entire vicinity, improve air quality and the lives of other occupants living in the same area. Strategies can be in the form of implementing green building certifications, integrating renewable energy sources, encouraging sustainable mobility, and promoting outdoor green spaces as well as recreational areas (Yip et al. 2017; Sadeghlou & Emami, 2023). The suggestions for different practical implications have been summarized in Appendix 5.

### **Conclusion: Reflections and Way Forward**

This chapter discusses the major findings of the results and talks about the significant aims achieved by the study with the help of the research questions. The chapter also uses works of other scholars to back the major findings as well as the conclusions and recommendations. The recommendations focus on how the most influential and the least influential indicators

can be enhanced to increase housing satisfaction levels amongst international students in Hannover. A few recommendations are also made to enhance the management practices of key players involved in student housing as well as the influence of urban planners in student housing satisfaction.

### **6.1 Summary of Findings**

The study fills the research gap on the studies of housing satisfaction of international students in the city of Hannover. The research questions guided the study in identifying the main indicators that drive students' overall housing satisfaction, and how the derived information can assist planners and housing management bodies in student housing development. The findings from the research provide a thorough understanding of student housing satisfaction in the city of Hannover. They also give relevant insights to urban planners, housing providers as well as housing management to make informed decisions for future developments.

The results showed that 10 indicators influence housing satisfaction among international students in LUH. These are safety, infrastructure quality, environmentally friendly, staff performance, housing sustainability, recreational quality, amenities, management response, privacy level and air quality. The high levels in the willingness of students to extend their stay and to recommend their student housing to other students exhibit signs of satisfaction. International students living in the city of Hannover are generally satisfied with their student housing conditions, with a mean score of 7.51. Although a good score, there is the need for some improvements within some indicators, to increase satisfaction levels. Partnerships should be enhanced amongst relevant stakeholders, including students to understand more their needs and demands. Majority of these indicators belong to environmental factors and the service quality of student housing, with only a few related to the physical and social factors. Despite their weaker relationships with overall satisfaction, the indicators of social factors have the tendency of influencing satisfaction levels. Future research should pay attention to this aspect of housing satisfaction to understand how their roles and impacts can be enhanced. Since students prefer to live in single apartments and flatshare/shared room, planners and involved stakeholders should pay more attention to these housing types as student housing generally serves as an important component in the social infrastructure and landscape of urban spaces (Franz & Gruber, 2022).

## 6.2 Limitations of the Study

The limitations in research refer to the hurdles and difficulties encountered by researchers throughout their study, which could potentially influence or impact the outcomes and subsequent interpretations (Price & Murnan, 2004). As Baron (2008) notes, these limitations encompass various factors that are typically beyond the researcher's control, potentially shaping the study's outcomes or how these outcomes are understood. Irrespective of meticulous planning and execution, all studies bear some form of limitation, whether stemming from theoretical or methodological choices made in the study or the challenges encountered in data collection procedures.

Particular to this study, is the reluctance of participants to engage because of information-sharing regulations and data constraints. During the research process, some obstacles were faced, mainly due to information-sharing regulations and data constraints in Germany. Privacy and Data Protection Laws in Germany have strict privacy laws that protect people's data, such as the General Data Protection Regulation (GDPR) (Li et al., 2019). These rules made it difficult to collect comprehensive housing data, particularly from key housing providers and students as well. Research projects are greatly hampered by people's reluctance to share personal information, especially regarding housing and living arrangements. In studies utilizing questionnaires, a frequent constraint involves the extent to which individuals are willing to participate, promptly respond and provide accurate information. This reluctance could be caused by worries about privacy violations, possible information misuse, or cultural norms around protecting personal information. Some participants left some questions unanswered because they preferred not to give information to those questions. However, these occurrences are minimal in the study and had no significant effect on the general results. The research considers this as a challenge which could have impacted the results of the study.

Successfully manoeuvring through the complexities brought about by data constraints and stringent information-sharing regulations was approached by the researcher through a comprehensive strategy. This encompassed ethical considerations, transparency, strict adherence to legal requirements, collaborative efforts, and personalized engagement tactics. These collective methods were instrumental in mitigating these challenges to a significant extent. The emphasis was on respecting participants' rights and privacy while showcasing the broader societal significance of the research. This approach aimed to stimulate increased



participation and make substantial contributions to knowledge advancement while upholding ethical standards.

Another major limitation encountered during this study is the lack of comprehensive data and statistics specifically related to student housing in Germany, in contrast to some other nations where such information is managed by institutions or centralized databases. It was difficult to get a comprehensive picture of the availability, trends, and preferences of student housing in the absence of a comprehensive repository. Accurate and current information on a range of aspects of student housing, such as occupancy rates, amenities, and preferred locations, can be difficult to come by due to the limited availability of data and dispersed sources. The lack of data and statistics has a direct bearing on the level of analysis that can be conducted in this study. It makes it more difficult to give a thorough picture, which impedes attempts to spot patterns, draw precise comparisons, or suggest specific fixes for problems that are frequently encountered in student housing.

Given that limitations are often unpredictable and unavoidable, researchers must effectively navigate and devise strategies to mitigate or eradicate their adverse effects. How these limitations are handled will ultimately dictate their influence on the research outcome. It is crucial for researchers not to simply accept limitations as insurmountable obstacles, but rather actively work towards overcoming them (Akanle et al., 2020). Recognizing these limitations sparked a deliberate endeavour to address it with a strategic approach. It became clear that solely depending on current data sources would not offer a comprehensive view. Traditional methods like statistical analysis and official reports were not providing adequate insights, prompting the research effort to embrace a more inventive strategy. The initial step in overcoming this challenge was centered on conducting targeted surveys and interviews, representing a fundamental aspect of the approach. Direct engagement with students, and housing administrators provided a grassroots viewpoint. These firsthand narratives, stories, and encounters provided indispensable qualitative information, enhancing comprehension of the complex dynamics within student housing.

### **6.3 Future Research Directions**

In the ever-changing realm of urban growth in Germany, the importance of student housing stands as a vital but frequently neglected element. As urban centers expand to cater to increasing population groups, it is essential to conduct more studies focusing on the

importance of student housing within this framework. Grasping its diverse influence on city landscapes is crucial for well-informed policymaking and the creation of sustainable urban plans.

The researcher suggests investigating the socio-economic effects of student housing in urban development, which reveals a complex web of connected elements. Future research might focus on the demographic makeup of these housing zones, examining how they impact nearby economies, job trends, and the dynamics within communities. Grasping the ways these areas either enhance or challenge a city's socio-economic framework offers valuable insights into nurturing more inclusive urban environments. A thorough grasp of the importance of student housing in urban development will steer the creation of impactful policies. Findings from research can educate policymakers on the distinct requirements of these communities, enabling the design of customized approaches for urban planning, affordable housing, and fostering community growth.

The research study was unable to make a direct connection between housing satisfaction and the academic success of students. Future research can also pay more attention in this area to explore more the impacts and opportunities of student housing satisfaction in the lives of students. Student accommodations frequently act as focal points for cultural interchange and diversity. Future studies might delve into the function of these locations in nurturing cultural engagements, integrating communities socially, and facilitating the exchange of thoughts. Comprehending the contribution of these settings to the cultural vibrancy of cities can guide the creation of policies advocating inclusiveness and the celebration of diversity in urban environments.

Another examination of satisfaction levels across different kinds of housing can also be considered. Housing types such as university-managed residences, privately rented spaces, shared accommodations, and alternative options offers a detailed comprehension of the distinct preferences and obstacles linked to each category.

The last area that future studies can focus on is the methodological approach; the researcher suggests future studies that extend over time to monitor shifts in satisfactory levels to offer a holistic view on how students' housing experiences evolve. Additionally, future studies can focus on comparing the satisfaction rates of student housing in Germany against those of other

European countries or international benchmarks. This aids in setting standards and pinpointing areas that require improvements.

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**APPENDICES**  
**APPENDIX 1**  
**International Students Facts and Figures at LUH**

	WS 2012/13	WS 2013/14	WS 2014/15	WS 2015/16	WS 2016/17	WS 2017/18	WS 2018/19	WS 2019/20	WS 2020/21	WS 2021/22	für WS 2021/22: darunter weiblich	nachrichtl. Bildungs- inländer/-innen
<b>Afrika</b>	220	218	231	276	397	510	556	612	628	636	130	16
darunter Tunesien	94	99	127	160	238	308	332	333	330	330	63	-
darunter Ägypten	22	16	10	14	27	50	57	82	90	95	14	1
darunter Kamerun	24	25	25	28	47	42	44	48	59	63	15	1
darunter Marokko	15	16	14	14	15	29	38	45	51	46	14	-
<b>Amerika</b>	135	120	176	195	167	170	170	198	167	194	90	10
darunter Mexiko	10	11	15	20	23	18	23	40	34	44	27	1
<b>Asien</b>	909	955	1.076	1.322	1.761	2.311	2.921	3.161	2.991	2.879	805	215
darunter China (VR)	312	320	410	504	714	969	1.192	1.184	1.070	970	277	24
darunter Indien	29	38	65	73	122	192	358	449	385	408	72	1
darunter Arabische Republ.Syrien	59	54	57	95	143	233	326	389	387	371	66	60
darunter Iran	111	116	115	146	195	237	312	340	352	353	158	14
darunter Indonesien	53	64	64	88	92	107	120	123	136	130	33	2
darunter Vietnam	106	101	106	124	127	144	141	150	147	129	51	20
darunter Libanon	34	35	39	45	46	47	44	49	57	51	5	5
darunter Nepal	12	17	13	14	19	25	31	38	45	48	13	1
darunter Irak	13	12	10	9	12	16	16	31	43	46	10	28
darunter Pakistan, Islamische Rep.	8	11	15	16	33	44	56	66	53	46	8	5
darunter Paläst. Gebiete	13	17	20	26	30	41	47	41	49	42	2	2
darunter Korea, Republik	24	24	23	27	37	36	42	39	39	41	18	3
<b>Australien/Ozeanien</b>	4	6	6	5	5	5	1	2	2	2	-	1
<b>Europa, EU*</b>	334	287	275	264	304	326	309	303	264	304	152	192
darunter Spanien	48	39	39	36	53	52	48	42	28	46	26	20
darunter Italien	28	34	25	29	30	52	42	45	45	45	24	27
<b>Europa, sonstige*</b>	393	340	324	313	316	330	333	332	327	332	157	322
darunter Türkei	142	116	102	98	94	100	92	94	96	106	27	181
darunter Russische Föderation	112	95	102	88	79	75	73	74	71	78	49	34
darunter Ukraine	75	68	55	60	72	73	74	73	70	59	41	21
darunter Albanien	11	10	13	20	22	27	48	51	54	58	24	4
<b>Summe Bildungsausländer/-innen</b>	<b>1.995</b>	<b>1.926</b>	<b>2.088</b>	<b>2.375</b>	<b>2.950</b>	<b>3.652</b>	<b>4.290</b>	<b>4.608</b>	<b>4.379</b>	<b>4.347</b>	1.334	
<b>in % von Studierenden insgesamt</b>	<b>8,9%</b>	<b>8,3%</b>	<b>8,3%</b>	<b>9,0%</b>	<b>10,7%</b>	<b>12,7%</b>	<b>14,4%</b>	<b>15,3%</b>	<b>14,9%</b>	<b>15,1%</b>	11,1%	
<b>Bildungsinländer/-innen</b>	753	774	831	882	790	813	803	794	749	756	316	
<b>Deutschland</b>	19.652	20.425	22.244	23.061	23.885	24.277	24.688	24.794	24.305	23.716	10.398	
<b>Summe insgesamt</b>	<b>22.400</b>	<b>23.125</b>	<b>25.163</b>	<b>26.318</b>	<b>27.625</b>	<b>28.742</b>	<b>29.781</b>	<b>30.196</b>	<b>29.433</b>	<b>28.819</b>	12.048	
<b>darunter Ausländer/-innen insg.</b>	<b>12,3%</b>	<b>11,7%</b>	<b>11,6%</b>	<b>12,4%</b>	<b>13,5%</b>	<b>15,5%</b>	<b>17,1%</b>	<b>17,9%</b>	<b>17,4%</b>	<b>17,7%</b>	13,7%	

Source: LUH 2023b: 42)

**APPENDIX 2**  
**Raw Data Sets (Table A – Table X)**

Table A: Previous Experience with Student History in Hannover

<b>Housing History</b>	<b>Frequency</b>	<b>Percent</b>
No	29	35.4
Prefer not to say	6	7.3
Yes	47	57.3
Total	82	100

Table B: Condition of communal spaces

<b>Communal Spaces</b>	<b>Frequency</b>	<b>Percent</b>
No answer	1	1.2
Excellent	23	28
Fair	23	28
Good	28	34.1
Non-existing	2	2.4
Poor	2	2.4
Very Poor	3	3.7
Total	82	100

Table C: Cleanliness and Maintenance of outdoor spaces.

<b>Outdoor spaces</b>	<b>Frequency</b>	<b>Percent</b>
Excellent	17	20.7
Fair	28	34.1
Good	30	36.6
Poor	6	7.3
Very Poor	1	1.2
Total	82	100

Table D: Adequacy of Space and Room Size

<b>Space and Room size</b>	<b>Frequency</b>	<b>Percent</b>
Insufficient	16	19.5
Neutral	19	23.2
Sufficient	25	30.5
Very insufficient	1	1.2
Very sufficient	21	25.6
Total	82	100

Table E: Overall performance of the amenities (internet, heating, water, electricity, Wi-Fi, laundry, kitchen facilities, etc.)

Performance of Amenities	Frequency	Percent
Excellent	19	23.2
Fair	25	30.5
Good	32	39
Poor	3	3.7
Very Poor	3	3.7
Total	82	100

Table F: Noise Levels in Student Housing

Noise Level	Frequency	Percent
Neutral	29	35.4
Noisy	13	15.9
Quiet	29	35.4
Very noisy	2	2.4
Very Quiet	9	11
Total	82	100

Table G: Level of Social Interaction

Social Interaction	Frequency	Percent
High	21	25.6
Low	24	29.3
Neutral	23	28
Very high	6	7.3
Very low	8	9.8
Total	82	100

Table H: Privacy and Personal Space

Privacy	Frequency	Percent
High	32	39
Low	8	9.8
Neutral	14	17.1
Very high	26	31.7
Very low	2	2.4
Total	82	100

Table I: Personal Integration in the student housing community

Integration	Frequency	Percent
Integrated	16	19.5
Neutral	30	36.6
Not integrated	13	15.9
Not integrated at all	14	17.1
Very integrated	9	11
Total	82	100

Table J: Safety

Safety	Frequency	Percent
Neutral	12	14.6
Safe	32	39
Unsafe	2	2.4
Very safe	36	43.9
Total	82	100

Table K: Impact on Academic Performance and University Experience

Academic Performance and University Experience	Frequency	Percent
Extremely	33	40.2
Moderately	15	18.3
Not at all	5	6.1
Not sure	6	7.3
Quite a bit	14	17.1
Slightly	9	11
Total	82	100

Table L: Cultural Diversity

Cultural Diversity	Frequency	Percent
Prefer not to say	2	2.4
Diverse	30	36.6
Neutral	23	28
Not diverse	5	6.1
Not diverse at all	3	3.7
Very Diverse	19	23.2
Total	82	100

Table M: Respect for Cultural Differences

Respect for Cultural Differences	Frequency	Percent
Prefer not to say	4	4.9
High	22	26.8
Low	11	13.4
Neutral	31	37.8
Very high	9	11
Very low	5	6.1
Total	82	100

Table N: Performance of Staff and Management

Performance of Staff and Management	Frequency	Percent
Excellent	12	14.6
Fair	32	39
Good	28	34.1
Poor	6	7.3
Very Poor	4	4.9
Total	82	100

Table O: Management Responsiveness

Management Response	Frequency	Percent
Neutral	23	28
Responsive	28	34.1
Unresponsive	11	13.4
Very responsive	15	18.3
Very unresponsive	5	6.1
Total	82	100

Table P: Process of Paying Rent and Bills

Process of Paying Rent and Bills	Frequency	Percent
Difficult	3	3.7
Easy	24	29.3
Neutral	22	26.8
Very Easy	33	40.2
Total	82	100

Table Q: Quality of the Infrastructure in Student Housing Neighbourhood

Quality of Infrastructure	Frequency	Percent
Excellent	26	31.7
Fair	25	30.5



Good	27	32.9
Poor	4	4.9
Total	82	100

Table R: Impact of Infrastructure on living experience

Impact of Infrastructure	Frequency	Percent
High	15	18.3
Low	3	3.7
Neutral	21	25.6
Not sure	11	13.4
Very high	31	37.8
Very low	1	1.2
Total	82	100

Table S: Quality of Air

Air quality	Frequency	Percent
Good	36	43.9
Neutral	21	25.6
Poor	1	1.2
Very good	24	29.3
Total	82	100

Table T: Overall environmental quality (including nature, green spaces, noise level, air quality, etc.)

Environmental Quality	Frequency	Percent
No Answer	1	1.2
Good	35	42.7
Neutral	22	26.8
Poor	2	2.4
Very good	22	26.8
Total	82	100

Table U: Environmentally friendly of student housing units and the neighbourhood

Environmentally friendly	Frequency	Percent
High	27	32.9
Low	6	7.3
Neutral	29	35.4
Very high	19	23.2
Very low	1	1.2
Total	82	100

Table V: Sustainability of housing units

Housing Sustainability	Frequency	Percent
Excellent	21	25.6
Fair	23	28
Good	31	37.8
Poor	6	7.3

Very Poor	1	1.2
Total	82	100

Table W: Extention of Stay

Extention of Stay	Frequency	Percent
Likely	26	31.7
Neutral	11	13.4
Unlikely	6	7.3
Very likely	32	39
Very unlikely	7	8.5
Total	82	100

Table X: Recommendation to other students

Recommendation	Frequency	Percent
Likely	28	34.1
Neutral	15	18.3
Unlikely	7	8.5
Very likely	28	34.1
Very unlikely	4	4.9
Total	82	100

### APPENDIX 3 QUANTITATIVE SURVEY

Hi Students, I am Laretta Nyarko, an MSc student at the Leibniz University of Hannover. I invite you to participate in a survey on "Student Housing Satisfaction in Urban Development." This is a survey for international students living in student housing currently. Your participation is voluntary. I will be analyzing the data for my thesis only. The data will be deleted after six months and will not be shared with any other parties. You will be contributing significantly towards the success of this study. The survey will take approximately 7 minutes to complete. Thank you for considering to participate in this survey!

#### **Housing Information**

This section covers the basis of your student housing in Hannover. Information is gathered by answering the following questions.

1. Have you lived in a student housing in Hannover before?

If yes, please answer question 2 and 3.

Yes

No

Prefer not to say

2. What type of student housing have you lived in Hannover before?

Single apartment

Shared room/Flat share

Single room in shared corridor

Prefer not to say

Other:

3. What was the reason for moving to your current student housing? (Select all that apply)

Space/Size of the room

Amenities

Proximity to University

Security and Privacy

Cost

Social and Psychological factors

Management responsiveness

Environmental quality and services

Prefer not to say

Other:

4. What is the type of student housing you currently reside in?

Single apartment

Shared room/Flat share

Single room in shared corridor

Prefer not to say

Other:

5. How long have you been residing in your current student housing?

Less than 6 months

6-12 months

1-2 years

More than 2 years

Other:

6. How long do you plan to stay in student housing?

Mark only one oval.

Less than 6 months

6-12 months

1-2 years

More than 2 years

Other:

### **Physical Attributes**

This section briefly attempts to gather information concerning spatial characteristics and certain facilities in your student housing.

7. If available, how would you rate the communal spaces in your student housing on a scale of 1-5? (1 being "Very Poor" and 5 being "Excellent". Please choose your option by ticking once). Indicate when non-existent.

Very Poor

Poor

Fair

Good

Excellent

Non-existing

8. How would you rate the cleanliness and maintenance of outdoor spaces on a scale of 1-5? (1 being "Very Poor" and 5 being "Excellent". Please choose your option by ticking once).

Very Poor

Poor

Fair

Good

Excellent

9. How would you rate the adequacy of space and room size in your student housing on a scale of 1-5? (1 being "Very insufficient" and 5 being "Very sufficient". Please choose your option by ticking once)

Very Insufficient

Insufficient

Neutral

Sufficient

Very Sufficient

10. How would you rate the overall performance of the amenities (internet, heating, water, electricity, Wi-Fi, laundry, kitchen facilities, etc.) provided in your student housing on a scale of 1-5? (1 being "Very Poor" and 5 being "Excellent". Please choose your option by ticking once).

Very Poor

Poor  
Fair  
Good  
Excellent

11. How would you rate the noise level in your student housing on a scale of 1-5?  
(1 being "Very noisy" and 5 being "Very quiet". Please choose your option by ticking once).

Very Noisy  
Noisy  
Neutral  
Quiet  
Very quiet

### **Social Factors**

This section involves questions that try to capture your sense of feeling at home, emotional and social perspectives on student housing evaluation.

12. How would you rate the level of social interaction within your student housing on a scale of 1-5? (1 being "Very low" and 5 being "Very high". Please choose your option by ticking once).

Very Low  
Low  
Neutral  
High  
Very High

13. How would you rate your personal integration into the student housing community on a scale of 1-5? (1 being "Not integrated at all" and 5 being "Very integrated". Please choose your option by ticking once).

Not integrated at all  
Not integrated  
Neutral  
Integrated  
Very Integrated

14. How would you rate the level of privacy and personal space in your student housing on a scale of 1-5? (1 being "Very low" and 5 being "Very high". Please choose your option by ticking once).

Very Low

Low

Neutral

High

Very High

15. How safe do you feel in your student housing on a scale of 1-5? (1 being "Very Unsafe" and 5 being "Very safe". Please choose your option by ticking once).

Very Unsafe

Unsafe

Neutral

Safe

Very Safe

16. How do you feel your student housing affects your academic performance and overall university experience on a scale of 1-5? (1 being "Not at all" and 5 being "Extremely". Please choose your option by ticking once). Indicate when unsure about this.

Not at all

Slightly

Moderately

Quite a bit

Extremely

Not sure

17. How would you describe the level of cultural diversity within your student housing on a scale of 1-5? (1 being "Not diverse at all" and 5 being "Very Diverse". Please choose your option by ticking once).

Not diverse at all

Not diverse

Neutral  
Diverse  
Very Diverse

18. How would you rate the level of respect for cultural differences within your student housing on a scale of 1-5? (1 being “Very low” and 5 being “Very high”. Please choose your option by ticking once).

Very Low  
Low  
Neutral  
High  
Very High

### **Service Quality and Environmental Quality**

This section is about assessing your opinion on management, maintenance and the housing units' environs. It also consists of questions that talk about neighbourhood quality, services and infrastructure available to residents.

19. How would you rate the overall performance of the staff/management of your student housing on a scale of 1-5? (1 being “Very Poor” and 5 being “Excellent”. Please choose your option by ticking once).

Very Poor  
Poor  
Fair  
Good  
Excellent

20. How responsive do you find the management in dealing with issues/problems in your student housing on a scale of 1-5? (1 being “Very unresponsive” and 5 being “Very responsive”). Please choose your option by ticking once).

Very Unresponsive  
Unresponsive  
Neutral  
Responsive



Very Responsive

21. How would you rate the process of paying rent and bills in your student housing on a scale of 1-5? (1 being "Very difficult" and 5 being "Very easy". Please choose your option by ticking once)

Very Difficult

Difficult

Neutral

Easy

Very Easy

22. How satisfied are you with the proximity of your housing to each of the following services on a scale of 1-5? (1 being "Very dissatisfied" and 5 being "Very satisfied". Please choose your option by ticking once). - Proximity to Shopping Centers

Very Dissatisfied

Dissatisfied

Neutral

Satisfied

Very Satisfied

23. Healthcare

Very Dissatisfied

Dissatisfied

Neutral

Satisfied

Very Satisfied

24. Recreational Facilities

Very Dissatisfied

Dissatisfied

Neutral

Satisfied

Very Satisfied

25. Public Transport

Very Dissatisfied

Dissatisfied

Neutral

Satisfied

Very Satisfied

26. How would you rate the quality of the infrastructure (e.g., buildings, roads, utilities) around your student housing on a scale of 1-5? (1 being "Very Poor" and 5 being "Excellent". Please choose your option by ticking once).

Very Poor

Poor

Fair

Good

Excellent

27. To what extent do you think the infrastructure in your neighbourhood impacts the quality of your experience with student housing on a scale of 1-5? (1 being "Very low" and 5 being "Very high". Please choose your option by ticking once). Indicate when unsure about this.

Very Low

Low

Neutral

High

Very High

Not sure

28. How would you rate the quality of the following services in your neighbourhood on a scale of 1-5? (1 being "Very Poor" and 5 being "Excellent". Please choose your option by ticking once). – Shopping Centers

Very Poor

Poor

Fair

Good

Excellent

29. Healthcare

Very Poor

Poor

Fair

Good

Excellent

30. Recreational Facilities

Very Poor

Poor

Fair

Good

Excellent

31. Public Transport

Very Poor

Poor

Fair

Good

Excellent

32. How would you rate the quality of the air in and around your student housing on a scale of 1-5? (1 being "Very Poor" and 5 being "Very good". Please choose your option by ticking once).

Very Poor

Poor

Neutral

Good

Very Good

33. How would you rate the overall environmental quality (including nature, green spaces, noise level, air quality, etc.) of your student housing and its surrounding neighbourhood

on a scale of 1-5? (1 being “Very Poor” and 5 being “Very good”. Please choose your option by ticking once).

Very Poor

Poor

Neutral

Good

Very Good

34. How would you rate the sustainability of the housing units and its facilities on a scale of 1-5? (1 being “Very Poor” and 5 being “Excellent”. Please choose your option by ticking once).

Very Poor

Poor

Fair

Good

Excellent

35. How environmentally friendly do you consider your student housing and its neighbourhood on a scale of 1-5? (1 being “Very low” and 5 being “Very high”. Please choose your option by ticking once)

Very Low

Low

Neutral

High

Very High

### **Overall Satisfaction and Housing Preferences**

This section summarizes the overall satisfaction with your current student housing and how it affects your future decisions and choices.

36. How satisfied are you with your overall experience in your current student housing on a scale of 1-5? (1 being “Very dissatisfied” and 5 being “Very satisfied”. Please choose your option by ticking once)

Very Dissatisfied

Dissatisfied

Neutral  
Satisfied  
Very Satisfied

37. How likely are you to recommend your student housing to other students on a scale of 1-5? (1 being "Very unlikely" and 5 being "Very likely". Please choose your option by ticking once).

Very Unlikely  
Unlikely  
Neutral  
Likely  
Very Likely

38. How likely are you to continue living in your current student housing in the future on a scale of 1-5? (1 being "Very unlikely" and 5 being "Very likely". Please choose your option by ticking once).

Very Unlikely  
Unlikely  
Neutral  
Likely  
Very Likely

39. If given a choice, what type of student housing would you prefer to live in the future?

Single apartment  
Shared room/Flat share  
Single room in shared corridor  
Prefer not to say  
Other:

40. What do you like most about your current student housing? (Select all that apply)

Space/Size of the room  
Amenities  
Proximity to University

Security and Privacy  
Cost  
Social and Psychological factors  
Management responsiveness  
Environmental quality and services  
Prefer not to say  
Other:

41. What do you dislike most about your current student housing? (Select all that apply)

Space/Size of the room  
Amenities  
Proximity to University  
Security and Privacy  
Cost  
Social and Psychological factors  
Management responsiveness  
Environmental quality and services  
Prefer not to say  
Other:

42. If you could change something about your student housing, what would it be? (Select all that apply)

Space/Size of the room  
Amenities  
Proximity to University  
Security and Privacy  
Cost  
Social and Psychological factors  
Management responsiveness  
Environmental quality and services  
Prefer not to say  
Other:

### **Demographic Information**

In this section, brief data is gathered about each respondent to make collective analysis. Some may require private information which is intended for the sole purpose of this research and would be deleted after 6 months. Feel free to answer as honest as possible.

43. Please indicate your gender

Male

Female

Non-binary

Prefer not to say

Other:

44. What is your age range?

Under 18

18-24

25-34

35-44

45 and above

Prefer not to say

Other:

45. What is your educational level at Leibniz University of Hannover?

Bachelor's Degree

Master's Degree

Doctorate

Prefer not to say

Other:

46. What is your country of origin?

47. What is your field of study?

End of Survey!

Thank you for your participation. Kindly share to other international friends who are eligible

to participate.

## **APPENDIX 4**

### **QUALITATIVE INTERVIEWS**

#### **Interview Guide with the Student Hall Tutor**

This interview is conducted by Laretta Nyarko, an MSc student at the Leibniz University of Hannover, on the research topic, "Student Housing Satisfaction in Urban Development." The purpose of this interview is to gather valuable insights and perspectives about your role in meeting the needs of international students living in student housing. Your participation in this interview is voluntary, and you have the right to decline answering any question or withdraw from the interview at any point. The information you provide will be used solely for the purpose of this research study. Your input will contribute to a deeper understanding of the role of your team in providing high-quality services to international students and inform future improvements in student housing satisfaction.

Thank you for your valuable participation.

#### **Technical processes and networking**

1. Can you tell me which organization you belong to?

Follow up: What are your responsibilities?

2. Are you involved in the distribution or redistribution of rooms to students?

Follow up: Can you describe the process in which you assign housing units to international students?

3. Can you describe any safety and security measures you have in place within student housing facilities for international students?

4. In your experience, what support services or resources do you offer to assist international students in their transition to living in student housing?

Follow-up: How do you help in the provision of these?

Follow-up: What are the other housing options available to students aside student housing apartments and halls?

5. Can you tell me any partnerships or collaborations you have with external stakeholders in planning and management to enhance the student housing experience for international



students?

Follow-up: Could you give an example of such a collaboration?

6. Can you tell me any initiatives or strategies that contribute to the lives of international students living in student housing both academically and non-academically?

Follow-up: Can you provide examples of how they have positively impacted students?

7. Can you share your approach to handling challenges that arise in among international students in student housing?

Follow-up: Could you give some examples of these challenges?

Follow up: Are there specific forms of challenges encountered by international students that are different from regular students?

### **How they are in touch with students' everyday life**

8. Can you tell me available methods for engaging with international students to understand their living experiences?

Follow up: How do you utilize their feedback to enhance your services?

Follow-up: Have there been any significant changes based on students' feedback?

Follow-up: What are the most common identified patterns?

Follow up: What differentiates these feedbacks from that of regular students?

### **Vision**

9. How do you envision a well-functioning student housing unit?

Follow-up: What steps do you take to make that vision a reality?

10. What kind of future changes do you anticipate in student housing among international students?

Follow-up: How do you plan to adapt considering these potential changes?

### **Interview Guide with the HSV**

This interview is conducted by Laretta Nyarko, an MSc student at the Leibniz University of Hannover, on the research topic, "Student Housing Satisfaction in Urban Development." The purpose of this interview is to gather valuable insights and perspectives from the representatives of the housing management and their role in meeting the housing needs of students. Your participation in this interview is voluntary, and you have the right to decline answering any question or withdraw from the interview at any point. The information you provide will be used solely for the purpose of this research study. Your input will contribute to a deeper understanding of the role of your team in providing high-quality housing services to international students and inform future improvements in student housing satisfaction.

Thank you for your valuable participation.

### **Technical processes and networking**

1. Can you tell me what your organization is about?

Follow up: What are your responsibilities?

2. Are you involved in the distribution or redistribution of rooms to students?

Follow up: Can you describe the process in which you assign housing units to international students?

3. How do you address the maintenance and upkeep of student housing facilities to ensure a comfortable living environment?

Follow-up: How are other key players involved?

4. Can you describe the safety and security measures you have in place within student housing facilities?

5. Can you tell me any partnerships or collaborations you have with external stakeholders in planning and management to enhance the student housing experience?

Follow-up: Could you give an example of such a collaboration?

6. In your experience, what support services or resources do you offer to assist international students in their transition to living in student housing?

Follow-up: How do you help in the provision of these?

Follow-up: What are the other housing options available to students aside student housing apartments and halls?

7. Can you tell me any initiatives or strategies that contribute to the lives of international students living in student housing both academically and non-academically?

Follow-up: Can you provide examples of how they have positively impacted students?

8. Can you share your approach to handling challenges that arise in student housing?

Follow-up: Could you give some examples of these challenges?

Follow up: Are there specific forms of challenges encountered by international students that are different from regular students?

### **How they are in touch with students' everyday life**

9. Can you tell me available methods for engaging with international students to understand their living experience?

Follow up: How do you utilize their feedback to enhance housing services?

Follow-up: Have there been any significant changes based on students' feedback?

Follow-up: What are the most common identified patterns?

Follow up: What differentiates these feedbacks from that of regular students?

### **Vision**

10. How do you envision a well-functioning student housing unit?

Follow-up: What steps do you take to make that vision a reality?

11. What kind of future changes do you anticipate in student housing?

Follow-up: How do you plan to adapt considering these potential changes?

### **Interview Guide with International Office Representative**

This interview is conducted by Laretta Nyarko, an MSc student at the Leibniz University of Hannover, on the research topic, "Student Housing Satisfaction in Urban Development." The purpose of this interview is to gather valuable insights and perspectives about your role in meeting the housing needs of international students living in student housing. Your participation in this interview is voluntary, and you have the right to decline answering any question or withdraw from the interview at any point. The information you provide will be used solely for the purpose of this research study. Your input will contribute to a deeper understanding of your role in providing high-quality housing services to international students and inform future improvements in student housing satisfaction.

Thank you for your valuable participation.

### **Technical processes and networking**

1. Can you tell me what your organization is about?

Follow up: What are your responsibilities?

2. Are you involved in the distribution or redistribution of student halls and dormitories to students?

Follow up: Can you describe the process in which you assign housing units to international students?

3. In your experience, what support services or resources do you offer to assist international students in their transition to living in student housing?

Follow-up: How do you help in the provision of these?

Follow-up: What are the other housing options available to students aside student housing apartments and halls?

4. Can you tell me any partnerships or collaborations you have with external stakeholders in planning and management to enhance the student housing experience?

Follow-up: Could you give an example of such a collaboration?

5. Can you tell me any initiatives or strategies that contribute to the lives of international students living in student housing both academically and non-academically?

Follow-up: Can you provide examples of how they have positively impacted students?

6. What challenges do you encounter in relation to student housing?

Follow-up: What strategies or approaches do you use to address the challenges and barriers in providing adequate student housing in Hannover?

Follow-up: How do you engage with various stakeholders?

Follow-up: Are there any other challenges in this field that you are aware of, e.g., from discussion with colleagues?

7. How do you assess the demand for student housing?

Follow-up: What data or information resources do you rely on for this assessment?

Follow-up: Do you consider future trends or scenarios in this assessment?

Follow-up: What are the most common housing types available for students?

### **How they are in touch with students' everyday life**

8. Can you tell me available methods for engaging with international students to understand their living experience?

Follow up: How do you utilize their feedback to enhance housing services?

Follow-up: Have there been any significant changes based on students' feedback?

Follow-up: What are the most common identified patterns?

Follow up: What differentiates these feedbacks from that of regular students?

### **Vision**

9. How do you envision a well-functioning student housing unit?

Follow-up: What steps do you take to make that vision a reality?

10. What kind of future changes do you anticipate in student housing?

Follow-up: How do you plan to adapt considering these potential changes?

### **Interview Guide for urban planning department**

This interview is conducted by Laretta Nyarko, an MSc student at the Leibniz University of Hannover researching on the topic, “Student Housing Satisfaction in Urban Development”. The purpose of this interview is to gather valuable insights and perspectives on the role of urban planning in student housing satisfaction. Your participation in this interview is voluntary, and you have the right to decline answering any question or withdraw from the interview at any point. The information you provide will be used solely for the purpose of this research study. Please feel free to share your professional thoughts, experiences, and perspectives openly and honestly. Your input will contribute to a deeper understanding of the role of urban planners in creating positive housing environments for students while contributing as well to the overall sustainable growth of their surrounding areas in Hannover. Thank you for your valuable participation.

### **Technical Processes and Networking**

1. Can you tell me about your office and your responsibilities?
2. Can you describe how student housing development fit within the overall urban development planning processes?

Follow-up: What factors influence your decisions in this regard?

3. How do you assess the demand for student housing in a particular area?

Follow-up: What data or information resources do you rely on for this assessment?

Follow-up: Do you consider future trends or scenarios in this assessment?

Follow-up: What support services or other stakeholders are involved in the planning of student housing in Hannover

### **Strategic Contributions to Student Housing Development**

4. What values and considerations are important for you when planning for student housing in urban areas?

Follow-up: What are the most common housing types developed for students in

Hannover?

Follow-up: What considerations do you take into account to ensure a positive contribution to their surrounding neighbourhood?

5. What challenges do you encounter in relation to student housing?

Follow-up: What strategies or approaches do you use to address the challenges and barriers in providing adequate student housing within the urban context?

Follow-up: How do you engage with various stakeholders?

Follow-up: Are there any other challenges in this field that you are aware of, e.g., from discussion with colleagues in other cities

6. How do you ensure the quality and security of student housing in urban areas?

Follow-up: Can you share any innovative designs or planning strategies?

Follow-up: What measures are implemented to promote safety of students in urban areas?

7. Can you reflect on any successful examples of integrating student housing within urban development projects in Hannover?

Follow-up: What factors contributed to their success?

Follow-up: How do you evaluate overall success and effectiveness among students?

### **Vision**

8. What role do future trends in student housing play in your activities as an urban planner?

**APPENDIX 5**  
**SUGGESTIONS FOR PRACTICAL IMPLICATIONS**

<b>PROBLEMS AND CHALLENGES</b>	<b>STRATEGIES</b>	
	<b>URBAN PLANNERS</b>	<b>HOUSING PROVIDERS (STUDENTENWERK AND PRIVATE ENTITIES)</b>
Lack of strategy to analyze student housing experiences	<ol style="list-style-type: none"> <li>1. Utilization of feedback from Student Lead groups</li> <li>2. Utilization of reports from Studentenwerk about housing evaluation results</li> </ol>	<ol style="list-style-type: none"> <li>1. Implementation of Student Lead groups</li> <li>2. Implementation of frequent evaluation exercises</li> </ol>
High cost of land and building	<ol style="list-style-type: none"> <li>1. Utilizing old buildings</li> <li>2. Promoting the construction of PBSAs</li> </ol>	
Housing availability and affordability	<ol style="list-style-type: none"> <li>1. Partnerships with private housing providers and landlords to provide student accommodation at affordable rates.</li> </ol>	<ol style="list-style-type: none"> <li>1. Collaboration with students going a year or semester abroad to utilize their vacant room when they are away</li> </ol>
Loneliness in student housing	<ol style="list-style-type: none"> <li>1. Promote housing projects where shared spaces are made available</li> </ol>	<ol style="list-style-type: none"> <li>1. Promoting diversity programmes and engagement activities</li> </ol>
Environmental And Service Quality	<ol style="list-style-type: none"> <li>1. Implementing green building certifications for housing providers</li> <li>2. Firm policies to integrate renewable energy sources in building projects</li> <li>3. Encouraging sustainable mobility</li> <li>4. Promoting outdoor green spaces and recreational areas within and around residential areas</li> </ol>	<ol style="list-style-type: none"> <li>1. Promoting outdoor green spaces and recreational areas within and around residential areas</li> </ol>
Noise Complaints, Poor Kitchen Practices, Arguments, Petty Thefts, and Racism		<ol style="list-style-type: none"> <li>1. Implementing firm housing regulations</li> <li>2. Routine housing inspections</li> </ol>