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THE IMPACT OF STUDENTIFICATION ON THE SUSTAINABLE PLANNING AND DEVELOPMENT OF AN ESTABLISHED CITY

Dane Phillip BUTTNER*
Maléne CAMPBELL*
Wessel KRUGER*

* Department of Urban and Regional Planning, University of the Free State, South Africa

Abstract

Kimberley was established in 1871 when the first diamond was found in the Kimberley region and then in 2013, the construction of Sol Plaatje University started, and in 2014, they enrolled their first students. Therefore, this study will determine the impact of studentification on Kimberley's sustainable planning and development. Studentification can be defined as transforming the university's surrounding neighbourhoods with the influx of students and university staff. Studentification refers to the increase in the number of students in the university areas, as these increases impact the socio-economic and physical aspects of the urban space. Thus, this study will focus on the physical infrastructure and land uses and determine the impact of studentification on Kimberley's urban social spaces and economic and environmental aspects. The study will also categorise different student housing needs and address these student accommodation needs.

This research will adopt a non-experimental approach, which will adopt a qualitative methodology consisting of interviews with specific individuals as a purposeful selection of these individuals who have a good understanding of the research and will be seen as an asset to the study. Nevertheless, the data will be collected through multiple sources and divided into primary and secondary data collection. The primary collection of data will consist of the interview process of 17 specific individuals, and the secondary collection of data will focus on pre-existing data as reviewing of literature and policies and analysing statistics of Kimberley. This is just a brief understanding of the methodology of the study.

As part of the secondary data collection, section 2 illustrates the existing literature on studentification reflection on sustainable planning and development and student housing. Reviewing these aspects will provide a broad understanding of the topics relevant to the study. Then, section 3 will review the existing national and provincial legislation, strategies, plans and programmes that govern studentification and student accommodation in South Africa. Reviewing these processes will focus on determining the effects of studentification on Kimberley's current land uses, infrastructure, Local Economic Development, property values, and the various housing needs of students and how these can be accommodated.

The empirical investigation will be divided into two sections to determine the impact of studentification on Kimberley's sustainable planning and development. Analysed the primary data collected through interviews with professional planners, SPU Senior Manager and Student Support and Physical Planning and Infrastructure Director, and residents in surrounding neighbourhoods. These personal interview questions will be formulated to answer the three research questions of the study. Nevertheless, analysing these interviews, they have identified challenges and recommendations for studentification in Kimberley.

Then, with the identified challenges and recommendations, two proposals will be formulated, planning policy frameworks and innovations for off-campus student housing. These two proposals would positively affect Kimberley's studentification and promote off-campus student accommodation.

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Correspondence | İletişim:
danebuttner@ymail.com
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INTRODUCTION

He and Lin (2015, 2765) define studentification as,

> "a particular type of urban socio-spatial restructuring resulting from university students' concentration in certain residential areas."

So, studentification can be defined as transforming the university's surrounding neighbourhoods with the influx of students; as Matamanda *et al.* (2021) stated that studentification refers to increased student numbers in university areas. These increases can impact the socio-economic and physical aspects of the urban space. Then, Smith and Hubbard (2014) explains that studentification has been concerned with the imbalance of neighbourhoods since 1990, as the tension between students residing in the area and established long-term households. Therefore, studentification should not create an imbalance between students and existing residents in a neighbourhood. The main problem of this paper is to investigate the imbalances of the socio-economic and physical aspects of studentification that can contribute to the tension between students and residents residing in the surrounding neighbourhoods of the universities. The primary question is what impact studentification will have on an established city's sustainable planning and development, with the following secondary research questions:

1. How will studentification impact the city's land use and infrastructure?
2. Does studentification comply with policies and legislation?
3. How will studentification of the city affect Local Economic Development (LED) and property values?
4. What are the various housing needs of students, and how can these be accommodated?

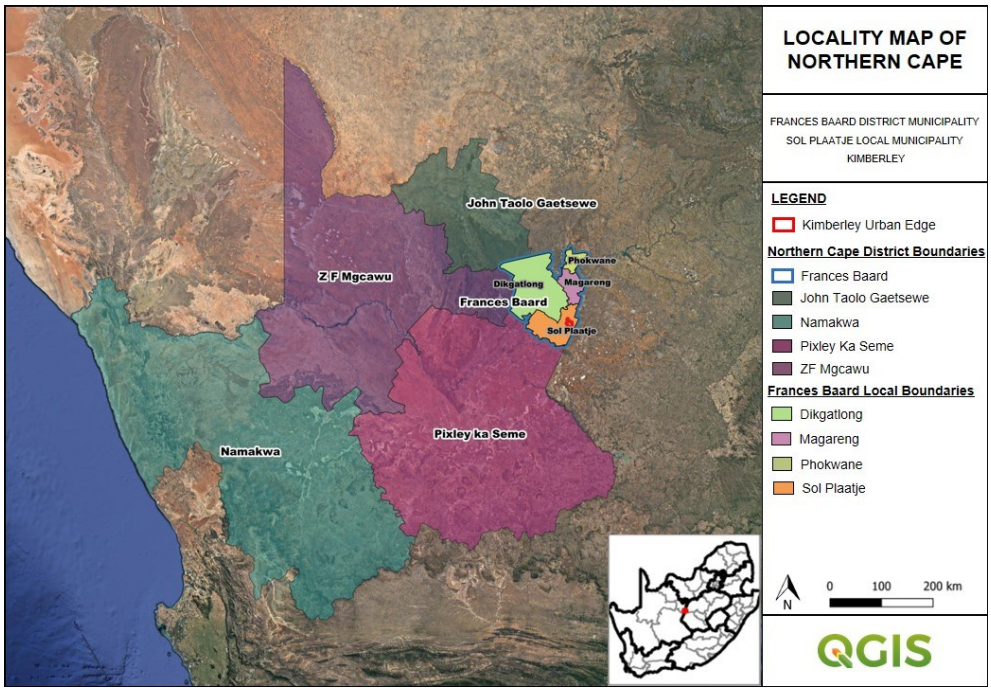

Figure 1. Locality map of Northern Cape
Source: own elaboration, 2022

The impact of studentification on the sustainable planning and development of an established city, namely Kimberley in the Northern Cape Province of South Africa (Figure 1), was established in 1871 when diamonds were discovered on Colesberg Kopje on the farm Vooruitzicht (John, 2012). From 1871 to 1888, thousands of prospective diggers flocked to Kimberley due to the opportunities associated with the diamond industry (Sol Plaatje SDF, 2008). The establishment

of the De Beers diamond mining company in Kimberley (Figure 2) in 1881 and the Anglo-Boer War outbreak greatly contributed to the rich history of Kimberley. Over a century later, in 2012, the South African Council of Higher Education (CHE) identified the need for a university in the vast Northern Cape Province (Department of Higher Education, 2013). International and national trends showed that the newly established university in Kimberley would contribute to studentification.

Figure 2. Historical landmarks of Kimberley: Former De Beers Head Offices and the Big Hole-a hand-dug excavation
Source: own elaboration, 2022

Studentification is the transformation of an urban space with the influx of students and academic staff to an urban setting, and this can impact several aspects of the surrounding neighbourhoods, including the city as a whole (Ackermann and Visser, 2016). This research focuses on how studentification may affect Kimberley and how the local authority can intervene to promote sustainable off-campus student accommodation for students the university cannot accommodate or prefer to reside off-campus. The university in Kimberley will challenge the local authority and private developers to be imaginative. Figure 3 illustrates a geological overview of the Sol Plaatje University (SPU) location in Kimberley as an integrated university into Kimberley's Central Business District (CBD), and demonstrates some of the social amenities to cater for the need of the students.

Kimberley has several vacant buildings that could become off-campus student accommodation (Interviewee No 1, personal communication, April 21, 2021). The main aim of this research is to formulate a plan – which incorporates the existing infrastructure – for the university that addresses student accommodation and

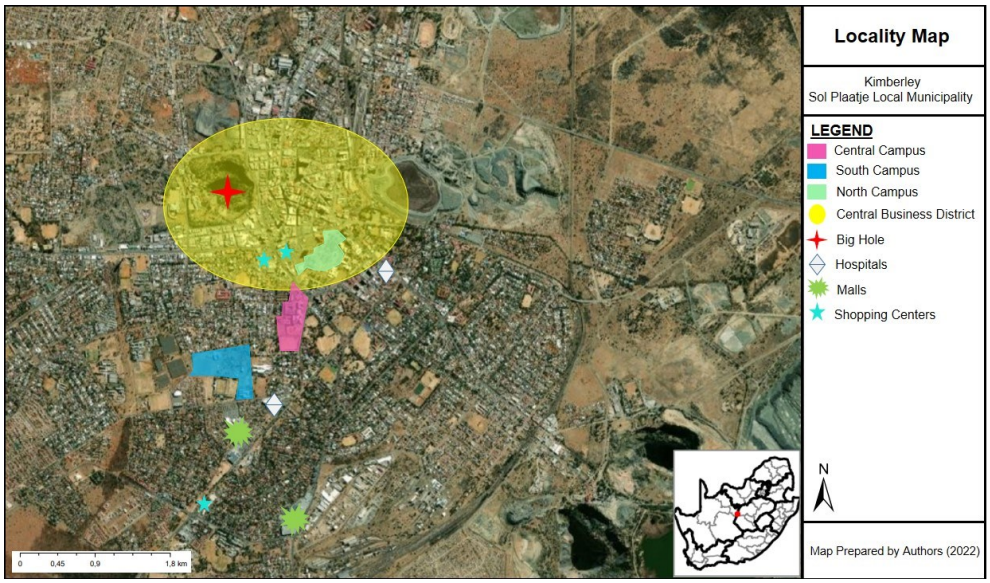

Figure 3. Kimberley locality map
Source: own elaboration, 2022

enhances LED without harming the historical element of the city or the environment as a student-led development. After considering the findings, two proposals will be presented to optimally provide for the influx of students and staff to surrounding neighbourhoods. The relevant findings from the purposefully selected interviewees will be prefaced on each proposal.

LITERATURE REVIEW

Studentification Reflection on Sustainable Planning and Development

Studentification can be identified as a universal concept – of urban transformation – that emerged in the 1990s due to the significant growth of higher educational facilities globally (Ackermann and Visser, 2016). Studentification has been demarcated as urban changes occurring when meaningful number of students are concentrated in an urban space (Orum, 2019). Thus, studentification occurs when many students migrate to a specific urban area, mainly impacting the areas (neighbourhoods) surrounding the higher educational facilities. One of the questions is how increasing number of students in an urban space reflects on the urban area's sustainable planning and development as student-led development. Sustainability determines if something can be maintained or is feasible for the future (Romero-Lankao *et al.,* 2016; Weele and Maree, 2016). Sustainable development ensures that the current needs are met without affecting the future generations' ability to meet their needs (Elliott, 2012). So student-led development is focused on urban planning due to the influx of students into urban areas for higher education.

Urban planning mainly focuses on the social, economic and environmental aspects of the urban space, and if planned correctly, these aspects can significantly contribute to sustainable urban planning (Huxley and Inch, 2020; DiNapoli and Jull, 2020). The significance of social, economic, cultural, physical and environmental changes give rise to a new sense of place and a distinctive ambience in the "studentified" neighbourhood (Smith *et al.,* 2014, 118). The transformation of the urban space affects several different role-players, such as local authorities, the local community and the private sector. These role-players will play their part in transforming the university host city (Donaldson *et al.*, 2014). Social, economic and physical aspects are some of the aspects that will give rise to a new sense of place in the urban area. So, what impacts do these three aspects have on studentification?

First, social changes due to studentification could affect the university's surrounding neighbourhoods because of students' short-term and recurrent in-migration (Orum, 2019). Studentification could contribute to the rise of different student cultures and lifestyles, and this can result in social changes in the surrounding neighbourhoods (Nakazawa, 2017). Due to studentification, social change in the urban area may create the displacement of existing residents (Nakazawa, 2017). Families and communities in the neighbourhoods may be negatively affected by the transformation of the urban area to accommodate students. Orum (2019) notes that residential neighbourhood changes could contribute to the rise of different lifestyles. This can cause conflicts between various social groups, leading to unstable communities. Students must adapt to different cultures (Orum, 2019). Therefore, this can harm the sustainable development of the neighbourhoods surrounding the university.

Second, the economic aspect of studentification refers to the change in the property market due to the influx of students. More businesses may be

established in the surrounding areas that primarily cater to students (Prada, 2019). One of the main economic aspects is the drastic change in the housing and property market in the neighbourhoods surrounding the university. Studentification restructures and significantly inflates rental prices. Students will also prefer to reside close to the university, limiting other residents' housing availability (Nakazawa, 2017). Homeowners could see the opportunity to sell their homes to developers at a high price and relocate elsewhere, or they could choose to convert their property into private student group housing for an additional means of income (Bondinuba *et al.*, 2013). Another means of earning an income in the Global South is backyard student accommodation (Revington *et al.* 2020). Looking for an economic aspect, studentification contributes to financially sustainable development for the property and business markets in the neighbourhoods surrounding the universities.

Third, the physical aspects of studentification could refer to all the physical changes in the neighbourhoods' infrastructure and the influence the urban transformation has on the natural environment (Prada, 2019). During the initial phase of studentification, the physical infrastructure and the upgrading of the properties would be visible (Orum, 2019). Physical aspects of studentification could be examined under two aspects, i.e. infrastructural and environmental (Prada, 2019). The infrastructural aspects of the urban transformation could refer to housing changes in the neighbourhood (i.e. student group housing, student single apartment blocks and various backyard accommodation), and the civil and electrical infrastructure that must be upgraded to accommodate the higher density of students in the neighbourhoods (Nakazawa, 2017; Orum, 2019). The environmental aspects could include providing public open spaces in the neighbourhood where students can communally meet and promoting the students' influence on the natural environment (Prada, 2019). On the other hand, Orum (2019) mentions the drawbacks of the high population denitrification of the neighbourhood, such as refuse, car parking and noise. It is important to note that the physical aspect of studentification, once planned correctly, can be classified as being sustainable, but it can also negatively influence the neighbourhoods' environmental aspect with the densification of urban areas.

Student Housing

Najib *et al.* (2011, 1071) define student housing as "a supervised living-learning hostel consisting of shared housing facilities and amenities for the community of residents who use it; they are built on-campus, are owned by the university, provide for inexpensive chargeable rooms and are administered to accommodate undergraduate or postgraduate students." Student housing could also refer to students renting accommodation in the neighbourhoods surrounding the university (Ackermann and Visser, 2016). There are two main categories of student housing: on-campus university resident halls and off-campus accommodation (Ackermann and Visser, 2016).

On-campus university resident halls are student housing that offer students "fully equipped amenities and facilities for a comfortable living experience, security, privacy and a serene study environment" (Sanni-Anibire and Hassanain, 2016, 367). Such on-campus student housing can include single-sex or co-ed dormitories, university apartments and other faculties (La Roche *et al.*, 2010). Generally, first-year students are not obligated to utilise on-campus student housing, but roughly 85 per cent of first-year enrolled students prefer the on-campus housing options (Soria and Taylor, 2016). Figure 4 illustrates the on-campus resident halls of the SPU Central Campus and demonstrates that the residents' hall comprises four levels with double and single rooms, communal kitchens and study areas.

Figure 4. SPU Central Campus Residence Halls
Source: own elaboration, 2022

Rinn (2004) pointes out that on-campus university resident halls are aimed at student development and continued by stating that residing in a resident hall for a year or two can influence a student's growth and development more than any student affairs programme university may offer.

The second main category of student housing is off-campus accommodation. The off-campus local student rental market refers to students who find shared or single-private rental accommodation in residential neighbourhoods (Ackermann and Visser, 2016). The local student rental market is also known as a house in multiple occupancies (HMO), and can be defined as a traditional single-family dwelling – often with a front garden and a backyard – that accommodates university students. In such a setup, students usually have their rooms and share communal facilities such as the kitchen, bathroom and living room (Ackermann and Visser, 2016).

HMO is defined as a more private form of student housing. The shortage of on-campus accommodation for students creats an opportunity for residents and private developers to enter the off-campus student rental market to provide student accommodation to generate income (Ndimande, 2018). Private student group housing is the same as the on-campus traditional student halls, where each student has a private room while sharing facilities such as bathrooms, living areas, kitchens, dining rooms, laundry facilities and gardens (Bondinuba *et al.,* 2013). Purpose-built student accommodation (PBSA) can be seen as off-campus student accommodation in the form of multi-storey student housing that appears as a block of flats with all the required facilities (Smith, 2009). Only the private student apartments are all-inclusively private for the student. Private developers of student housing and student apartments could be the tenants' landlords (Martin and Allen, 2009). The developers will set measures to reduce noise and maintain the development.

Another form of off-campus student housing is the backyard housing option. Before a city becomes a university host, the neighbourhoods surrounding a university may be classified as low-density areas (Revington *et al.,* 2020). As the university grows and more students are enrolled, the surrounding neighbourhoods become high-density areas as residents build student housing in their backyards. A challenge for planners regarding backyard student housing is that not all the residents or homeowners follow the correct procedures to ensure their zoning is correct before constructing these additional structures on their land parcels (Ndimande, 2018).

POLICY REVIEW

The Constitution of the Republic of South Africa (108 of 1996) made provision for a social democracy that was built on "human dignity, equality and freedom" for all South African citizens. After passing the supreme law of South Africa in 1996, the government passed various pieces of legislation, which will be discussed to determine the impact of studentification on the sustainable planning and development of an established city. The Department of Higher Education (1997) established the CHE to develop, govern and fund all South African public higher education institutions. Another purpose of the CHE in South Africa is to identify the need for new higher education institutions. Section 20 of the Higher Education and Training Act (1997) explains that after the Minister of Higher Education has consulted with the CHE, the new higher education institution proposal will be gazetted as a public higher education institution, which can be a university, *technikon* or college (Department of Higher Education, 1997). The SPU was published in Gazette 36771 (630) in 2013, as the CHE concluded in 2012 that the Northern Cape needed a university (Department of Higher Education, 2013).

The South African government passed several policies for sustainable development. In effect, this was the birth of sustainable development in South Africa. In 2002, the South African government adopted the United Nations (UN) Agenda 21 and endorsed the international community's guarantees of poverty eradication (UN, 2021). In 2015, the UN implemented the 17 Sustainable Development Goals (SDGs) after establishing global sustainable development plans. These goals will be integrated into the 2030 UN Agenda for Sustainable Development (Biermann *et al.,* 2017). These identified SDGs must be achieved before any area can be considered sustainable (Biermann *et al.,* 2017). It is, therefore, suggested in the Gazetted that new university in the Northern Cape Province be planned and developed in line with SPLUMA, the Minimum Norms and Standards for student housing at public universities and the SPU Resident Policy of 2019 to ensure the university is sustainable.

In 2013, the Spatial Planning and Land Use Management Act (SPLUMA) was passed as the primary urban and spatial planning legislation of South Africa. SPLUMA aims to provide a framework for and specify the relationship between spatial planning and land-use management in South Africa and to incorporate spatial planning and holistic planning approaches that would integrate the different spheres of government (SPLUMA, 2013). SPLUMA also includes development principles, which must be applied to spatial planning, land development and land-use management (LUM) in South Africa, and the following three principles are relevant to the development of the SPU.

- Spatial Sustainability – all land development must align with the country's "fiscal, institutional and administrative" means to focus on the current and future needs.
- Efficiency – land development must optimally use the present resources before depleting others.
- Spatial Resilience – the resilience of land development surrounding the university and the livelihood of the residents should not be negatively affected.

The Ministerial Committee for the Review of the Provision of Student Housing at South African Universities, in September 2011, compiled a report on the standards of student accommodation at South African public universities (Department of Higher Education, 2015). The Committee's investigation revealed that the South African public higher education institutions are on a sub-standard

level, and the Minimum Norms and Standards for student housing at public universities policy was subsequently adopted to address these sub-standards. This policy focuses on the standards of on-campus and off-campus housing, and these norms and measures apply to all South African public tertiary institutions (Department of Higher Education, 2015).

The SPU Policy on Residences of 2019 is also guided by the policy on the Minimum Norms and Standards for student housing at public universities (Nkonyane, 2019). Student housing is essential for most of the students as higher education institutions cannot provide all enrolled students with on-campus accommodation (Nkonyane, 2019). The policy on residences was established to guide the placement of students at the SPU.

This SPU Policy on Residences of 2019 focuses on fostering the student's academic and personal growth and ensuring that the students are placed in student housing in a democratic sense. The policy will not only focus on the placement of students in on-campus housing, but it will also ensure that the off-campus student housing aligns with the policy on the Minimum Norms and Standards for Student Housing at public universities.

METHOD

A non-experimental research methodology was adopted to investigate the impact of studentification on the sustainable planning and development of an established city, which, in this case, is Kimberley. The non-experimental research methodology cannot be tested as it merely examines the relationship between variables (Salkind, 2018). This investigates the causal affiliation among the research variables, i.e. studentification, sustainable planning, sustainable development and student housing. The non-experimental data were collected by utilising a qualitative research design. Salkind (2018, 11) briefly defines qualitative research as:

> "Observing human actions and the social, cultural, and political contexts within which it occurs".

This research design primarily focuses on studentification and how it may affect Kimberley in the future. Thus, this research focused on the municipality's current events, university stakeholders and dwelling owners in the neighbourhoods surrounding the university, and how studentification would impact Kimberley's sustainable planning and development. The non-experimental data were collected between April and August 2021 using a multi-method qualitative research design. The multiple methods included interviews, personal observations and document analysis – comprising both primary and secondary data – rather than merely using a single data source, as illustrated in Table 1.

Table 1 recognised that the primary data for this paper is conducting interviews with professional bodies that contributed to the paper's main focus of urban and regional planning aspect of studentification, and no students were interviewed. Consequently, Qu and Dumay (2011) note that interviews are among the most critical qualitative data collection methods. The secondary data were utilised to draft a strong literature background into the paper and to adopt sound methods for collecting and analysing the data.

Table 2 illustrates the seventeen participants interviewed for this research to investigate the imbalances of the socio-economic and physical aspects of studentification that can contribute to the tension between students and

PRIMARY DATA	SECONDARY DATA
Hox and Boeije (2005) explain that the collection of available data for the qualitative method is qualitative interviews, which allow the interviewees to voice their experiences on the topic. Therefore, the primary data collection for this research is qualitative interviews with various participants and participants groups as follows: • Professional planners; • SPU Resident Senior Manager and Student Support; • SPU physical planning and infrastructure representative; • Residents from surrounding neighbourhoods; • Estate agent; and • Eskom employee. Due to the global COVID-19 pandemic, face-to-face interviews were a struggle; thus, a semi-structured interview method was adopted. Creswell (2009) mentions that a semi-structured interview allows for an open-ended or in-depth study of the social context of the research question. The researcher formulated semi-structured interview questionnaires, which the participants answered in their own time before sending them back. If the collected data is insufficient, the semi-structured interview comes into play as the interviewer can be contacted to ask what was intended by the answer.	Daas and Arends-Tóth (2012) state that secondary data is pre-existing data manipulated for research purposes. For this study, the following secondary data was collected: • Literature regarding the topic of the research from various scholars; • Policies that are relevant to answering the research questions; and • Statistics of Kimberley's demographics.

Table 1. Primary and Secondary Data
Source: own elaboration, 2022

residents living in the surrounding neighbourhoods of the universities. The primary question of the paper is how studentification would impact an established city's sustainable planning and development. Thus, Table 2 has been divided into six sections, such as to first code the participants, their designation and role and responsibilities, sampling techniques adopted to sample the relevant participants, identifying which secondary questions each participant group will answer, and lastly, the questions asked during the interview.

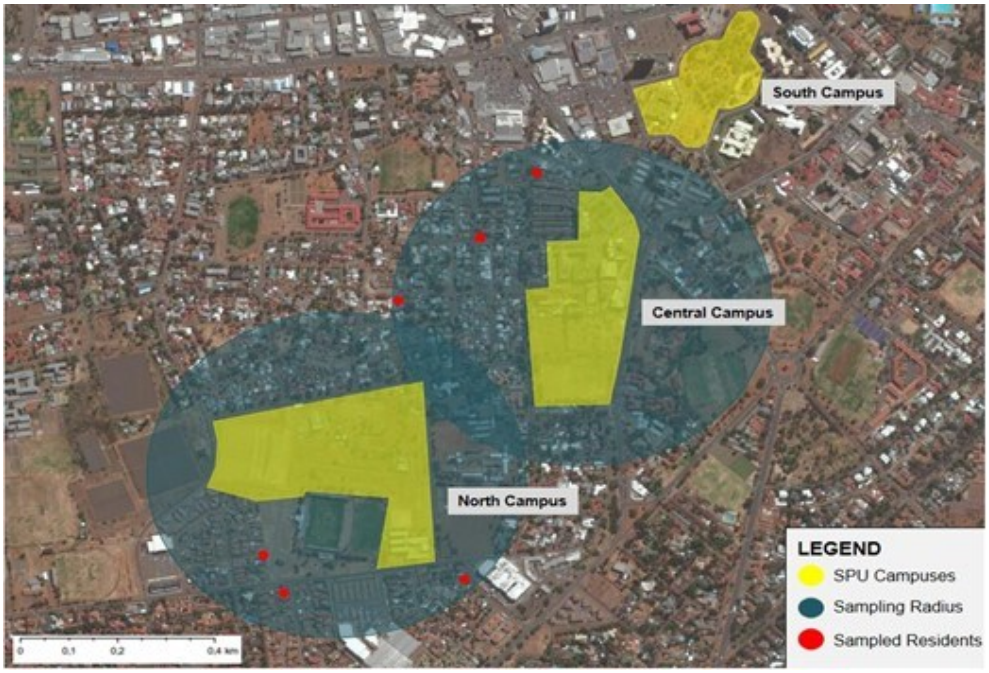

Figure 5. Surrounding neighbourhood residents sampling
Source: own elaboration, 2022

Table 2. List of participants
Source: own elaboration, 2022

PARTICIPANTS	DESIGNATION	ROLE AND PURPOSE	SAMPLING TECHNIQUE	ANSWERING THE PAPER'S SECONDARY QUESTIONS	INTERVIEW QUESTIONS
Interviewee No 1	Professional Planner	Planner in the Northern Cape Provincial Office	The qualitative interviews allowed the purposefully selected interviewees to voice their experiences. Merriam and Tisdell (2015) explained that purposive sampling is used when the researcher aims to discover, understand and gain insight from the selected samples to learn as much as possible from the sampled interviewees. • The seven Professional Planners were sampled on their understanding of how studentification will impact the sustainable planning and development of Kimberley as purposeful. • SPU Senior Manager and Student Support were also sampled based on the purposeful understanding of student housing needs. • The Director of Physical Planning and Infrastructure at the SPU be interviewed – who has a good understanding of the future infrastructure needs of the University as a purposeful sample.	How will studentification impact the city's land use and infrastructure? Does studentification comply with policies and legislation? How will studentification of the city affect Local Economic Development (LED) and property values? What are the various housing needs of students, and how can these be accommodated?	• SPLUMA formulated five land use and development principles; for this research, only the three mentioned principles, such as spatial sustainability, efficiency and spatial resilience, are relevant to the study. Do you think Sol Plaatje University's planning has been planned according to these principles? • Local Economic Development (LED) is critical for the economic growth of Kimberley. In your opinion, what effects will studentification* have on Kimberley's LED and property values? • Studentification has a close relation to infill planning and densification. Looking at the 2008 Spatial Development Framework of the municipality. Considering the impact of studentification on land-use planning, what impact could the SPU have on existing infrastructure (civil & electrical) and current land uses? • Sol Plaatje University Strategic Plan 2020 identified that they could only accommodate 70% of the enrolled students with on-campus accommodation. What would your recommendations be regarding student accommodation to accommodate the other 30% of students with off-campus accommodation?
Interviewee No 2	Professional Planner	Planner in the public sector. Working and residing in Kimberley			
Interviewee No 3	Professional Planner				
Interviewee No 4	Professional Planner	Planner at the Local Municipality			
Interviewee No 5	Professional Planner	Planner at the Local Municipality			
Interviewee No 6	Professional Planner	Planner in the Frances Baard District Office			
Interviewee No 7	Professional Planner	Planner in the Northern Cape Provincial Office			
Interviewee No 8	SPU Senior Manager and Student Support	Insights of student housing at SPU		What are the various housing needs of students, and how can these be accommodated?	• The residence policy 2019 explains the selection process guidelines and how the student will be placed. However, indicate in more detail the different facilities the on-campus student accommodation offers students? • Is the university in partnership with private developers to construct off-campus student accommodation? • Is there a process for accrediting off-campus student accommodation that aligns with the residence policy? • Has the universities' on-campus student accommodation been planned according to the Minimum Norms and Standards for Student Housing at Public Universities Policy 2015? • Once the university has been completed, will it be able to accommodate all the enrolled students, or will there still be a need for off-campus accommodation?
Interviewee No 9	Director of Physical Planning and Infrastructure	Good understanding of the planning and development of SPU		How will studentification impact the city's land use and infrastructure?	• How will SPU change the site development plan, as there is already an existing construction? • Kimberley road network has been identified to be in bad condition, and with this said, will the road networks surrounding the different campuses be repairing the road networks? • As a resident of Kimberley, I know that the intersection at the Central Campus is not a traffic circle, as indicated in the site mentioned above development plans. Will SANRAL be responsible for changing the intersection into a traffic circle, or did SPU get permission to change it themselves? • A critical question is the connection of basic services, such as water, electricity, waste management and roads at SPU. Who is responsible for connecting to Sol Plaatje Local Municipality's basic services network?

Table 2.(*contunious*) List of participants
Source: own elaboration, 2022

PARTICIPANTS	DESIGNATION	ROLE AND PURPOSE	SAMPLING TECHNIQUE	ANSWERING THE PAPER'S SECONDARY QUESTIONS	INTERVIEW QUESTIONS
Interviewee No 10 Interviewee No 11 Interviewee No 12 Interviewee No 13 Interviewee No 14 Interviewee No 15	Surrounding Resident	Resident in surrounding neighbourhood. Primary residents	Figure 5 illustrates the sampling method used to identify the six residents interviewed for the research. The cluster sampling method was adopted for sampling the six residents. Cluster sampling can be applied when your samples are scattered across a vast geographical region by clustering them into subgroups (Bhattacherjee, 2012). Figure 5 illustrates the sampling radius circles for selecting three residents in each cluster. The residents were selected by adopting a purposive sampling approach to select residents who would provide accurate and insightful information for the research.	How will studentification impact the city's land use and infrastructure? How will studentification of the city affect Local Economic Development (LED) and property values?	• How long have you been the property owner, and why have you purchased the property? • Do you have any intention of selling your property? • Would you consider constructing a flat and renting it to students? • Have you considered converting your property into a student house? • Would you sell your property to Sol Plaatjie University if they made a serious offer? • Do you think your property will maintain its current value if all other surrounding properties are converted into businesses or student housing? • Do you think the anticipated influx of students and related consequences, caused by the SPU will affect the general safety of residents in the area?
Interviewee No 16	Eskom Employee	Provided information regarding the one vacant building in Kimberley CBD	Purposeful sample due to the employees' understanding of the vacant Eskom building.	What are the various housing needs of students, and how can these be accommodated?	• When and why did Eskom move from the CBD? • Is the building still construction sound? • Who owns the building and is in the market to sell it?
Interviewee No 17			Purposeful sample based on the agent number of listings in the surrounding neighbourhoods.	How will studentification of the city affect Local Economic Development (LED) and property values?	• Did the property market in the sounding neighbourhoods of the university increase or decrease? • Who is mostly buying the properties in university neighbourhoods?

Table 2 identifies this paper's primary data collection process; the raw collected data is insufficient if not analysed to draft the research findings. Analysing qualitative data requires analytical skills and a good understanding of the social context of the research to make sense of the collected data (Bhattacherjee, 2012). The content analysis approach was adapted used for analysing the content of the text. In this case, interview data were regarded as the content.

Figure 6 stipulates that the collected data needs to be analysed to make sense of it before grouping the data. In this paper, the secondary questions were identified as the acquired groups to analyse the interview data and then group responses of the different professional bodies interviewed into the groups to see if the questions had been answered. The final step of the content analysing method in Figure 6 is known as the abstraction phase. The abstraction phase in this paper will categorise the findings and proposals as one integrated method of identifying the results of the primary data and proposing a way forward.

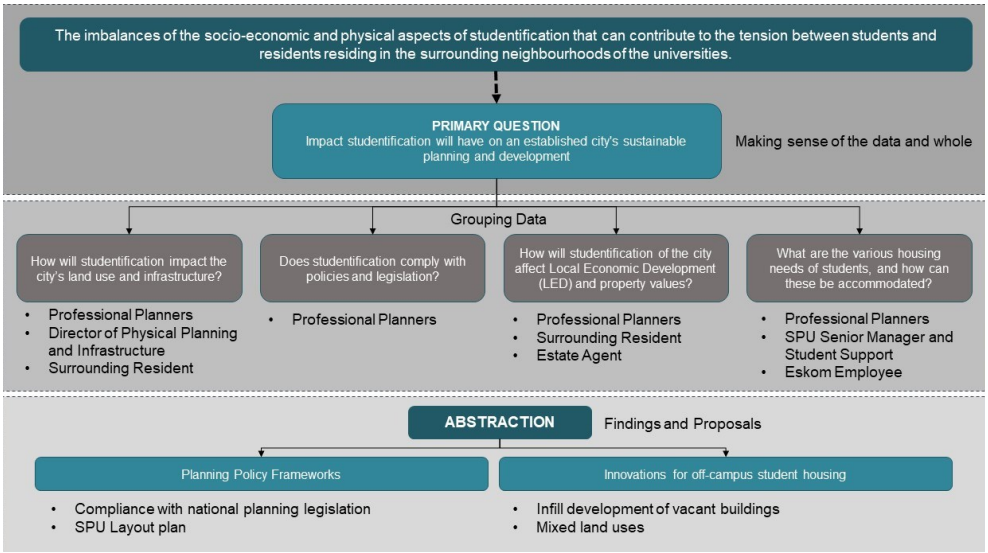

Figure 6. Content Analysis Method
Source: own elaboration, 2022

FINDINGS AND PROPOSALS

Referring to Figure 6, this section of the paper will be based on the abstraction phase of the content analysis method and will be divided into two sub-sections in order to (1) determine whether the SPU was planned according to planning policy frameworks, and (2) discuss innovations for off-campus student housing. It is important to note that each sub-section will present the findings and the proposed recommendations.

Planning Policy Frameworks

This sub-section concentrates on determining whether the SPU was planned according to the relevant planning policies or not. The sub-section firstly considers the planning policy frameworks, and then, investigates the site development plan of the SPU to identify if the layout of the SPU was planned in a sustainable way.

Compliance with National Planning Legislation

Interviewee No 5 (personal communication, May 5, 2021) stated that "the first land-use application for the SPU was approved in 2013 before SPLUMA (16 of 2013) came into operation (July 2015) as the Act (16 of 2013) was assented to on 2 August 2013". The majority of other planners also agreed that the SPU was planned according to the three relevant SPLUMA development principles (spatial sustainability, efficiency and spatial resilience); and they identified the following essential points to support this claim:

- The University's development has strengthened the city's civic character by considering the construction of new buildings and spaces, improved existing municipal infrastructure and efficient utilisation, conserved energy, managed water, and enhanced the landscape. This aligns with the efficiency SPLUMA development principle to optimally utilise existing resources.
- The desire was to provide the appropriate development and arrangement of land uses for the coming SPU and its associated land uses to ensure a development pattern that is compatible with university operations and to encourage the grouping of those land uses for purposes of social cohesion in line with SPLUMA's spatial resilience development principle. To protect

and promote the university's long-term stability, its accessory uses coupled with the spin-offs derived from its establishment.

- The SPU was not planned in isolation. The SPLUMA principle of 'spatial sustainability' was considered as the development of under-utilised land in Kimberley was promoted. The university's placement optimises spatial integration as it only utilises public-owned land, and its placement limits urban sprawl as it is more focused on the densification of existing land uses.
- The planning of the SPU can be classified as efficient as the university was planned on the smallest area they could find to fit the proposed infrastructure, and this can be considered to be SPLUMA's spatial sustainability and efficiency development principles.

One of the spatial planners interviewed did not agree that the SPU was planned according to the three SPLUMA development principles. Interviewee No 7 (personal communication, May 5, 2021) explained that the planning process for the SPU was done with an outdated Spatial Development Framework (SDF) as the local authority's SDF and Land Use Scheme (LUS) were drafted before the approval of SPLUMA in 2013, and the local authority is only now beginning the process of reviewing the SDF and LUS to be in line with SPLUMA. SPLUMA stipulates that each local authority must draft its long- and short-term planning frameworks and development plans. However, the local authority reviewing their strategic frameworks after the approval of SPLUMA could have an advantage. Reviewing after the passing of SPLUMA can ensure the planning framework and LUS adhere to the Act's aims and development principles. Reviewing the planning framework after establishing the SPU can ensure the framework that makes provision for the future development in and surrounding the neighbourhoods of the SPU.

The Sol Plaatje Local Municipal Scheme – of 2008 – does not have a specific land use suitable for the establishment of a university; therefore, the municipality had to introduce a special condition use ('University') within its list of land uses (Interviewee No 9, personal communication, June 15, 2021). The 'Education' land use does not make provision for university residences. The special condition 'University' use accommodates a much wider range of uses compared to the standard 'Education' use, such as residences, conference facilities, sports fields and sports events, assemblies, theatres, retail outlets, student support functions (in respect of health and wellness), property maintenance facilities, nurseries, etc. (Interviewee No 9, personal communication, June 15, 2021).

SPU Layout Plan

Most planners observed that the university could be considered infill planning and densification. Rather than planning the university on the outskirts of Kimberley, the SPU Campuses were planned to be integrated into the existing urban structures of Kimberley. As the SPU was planned to be integrated, due to the limited vacant land for the construction of the university, the site development plan (Figure 7) indicates that the SPU was planned to have three different campuses: Central, South and North.

Interviewees No 1 – 6 (personal communication, 2021) identified some challenges concerning the layout planning of the SPU, such as a) the layout form and physical footprint of the university not being ideal; b) Kimberley's bulk infrastructure not being ready for the envisaged growth; and c) densification was not done strategically. Interviewee No 7 (personal communication, May 5, 2021) made recommendations to resolve the identified challenges. Kimberley is "land-

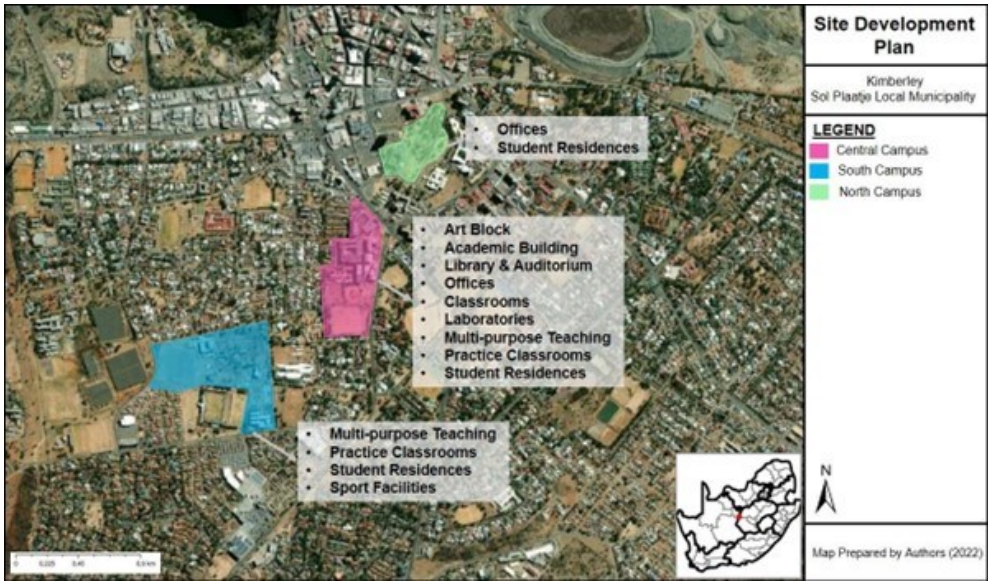

Figure 7. SPU Site Development Plan
Source: own elaboration, 2022

locked", meaning that the city is enclosed with non-developed land; however, through proper densification planning and the upgrading of bulk infrastructure, this area may be more suitable for off-campus accommodation and economic opportunities.

The recommendations made by Interviewee No 7 (personal communication, May 5, 2021) are too broad as they are not challenge-orientated and were merely general recommendations. The following proposals will focus on the three challenges most interviewed planners identified. Firstly, looking at the proposed layout (refer to Figure 7), the Central Campus has all the academic facilities; the other two campuses are mainly residential, and students must travel to the Central Campus to attend classes. It is thus proposed that SPU that is scattered across different sites must plan the layout according to the different faculties. For example, the Northern Campus, which contains mainly residential accommodation, can house one or two academic faculties while ensuring sufficient accommodation for the faculty students. This will improve the functionality of the various campuses and ensure the safety of the students.

The second challenge mentioned by Interviewee No 1 (personal communication, April 21, 2021) is the lack of sufficient bulk infrastructure to accommodate the university. This challenge can be resolved with the latest green infrastructure innovations. For example, solar energy sources can generate alternative electricity for the university as all the buildings' roofs can be covered with solar panels and outside walls can also be covered with innovative solar panels that would easily be incorporated with the university's design. Published research about the great wall of solar panels in China protects the inhabitants from weather conditions and, in this case, the engineers fix solar panels against the wall that receives the most solar radiation (Pui *et al.,* 2014). This innovation will generate alternative electricity and protect the university walls and roofs against harmful sun rays. The shortage of water resources has become a global problem with the increase in water pollution and rapid population growth (Ghunmi *et al.*, 2011). Several innovations are developed to treat wastewater via recycling for useful purposes. One of these innovations is called greywater system. This is where the specific wastewater (showers, baths, basins and laundries) is redirected to storing tanks, treated, and then reused for toilets and irrigation. The university can also invest in greywater systems that will take the pressure off the city's bulk water and sanitation infrastructure. The greywater

systems will not enable the university to fully decouple from the local authority's basic service as it will merely relieve some of the pressure. Regarding the last challenge identified by Interviewee No 1 (personal communication, April 21, 2021) (that densification was not done sustainably), the planning team could have investigated the opportunities to plan the university more vertically. The SPU's buildings were planned not to exceed four storeys, and with the limited vacant land, however it would be better if the municipality has allowed more storeys to accommodate more academic facilities and student accommodation.

As the majority of the planners identified that if new universities are planned correctly, it would greatly contribute to the LED of the city, and one interview mentioned that the construction of the SPU is already contributing to the LED of Kimberley. The university has, on the whole, a broad impact on Kimberley's LED as it supports contractors and their subcontractors, suppliers of specialist services and building products, waste management, local coffee shops and restaurants, the increased rate of use of bed and breakfast accommodation for university visitors and newly located staff as well as the retail expenditure of both students and staff members (Interviewee No 9, personal communication, June 15, 2021). The SPU also supports LED through mandatory construction development targets imposed on certain contractors by obligating them to support the local community with their expenditures and to employ a certain percentage of local inhabitants as contract labour (Interviewee No 9, personal communication, June 15, 2021).

Innovations for Off-Campus Student Housing

An interview was conducted with Interviewee No 8 (personal communication, May 6, 2021) regarding the on-campus and off-campus student accommodation of SPU students. Firstly, this study investigates what facilities the SPU offers on-campus students and how the selection process works and will shift the focus to off-campus student accommodation. Interviewee No 8 (personal communication, May 6, 2021) explained that the university's residential halls for on-campus student accommodation offer the following facilities to students:

- Single to sharing rooms,
- Communal bathroom facilities,
- Communal kitchen and living areas per residence,
- Study rooms where students can study individually or in groups,
- Residence kitchen and dining room,
- Access to uncapped Wi-Fi, and
- Laundry facilities.

The facilities offered by the university to students who reside on campus are established to assist the students in developing a residence culture, including social and educational activities. These facilities assist the SPU in producing well -rounded students (Interviewee No 8, personal communication, May 6, 2021). The SPU adopted its residence policy in 2019, and the university also adopted a conceptual framework for living and learning communities (Interviewee No 8, personal communication, May 6, 2021). Through this framework, students are not only placed because of vacancies but also offered accommodation according to their programme of study or academic level. It was identified that this type of allocation gives rise to small pockets of communities in residences, and each of these mentioned communities has wardens who meets with every student in residence and has sessions that the university calls the meet and greet sessions (Interviewee No 8, personal communication, May 6, 2021).

Interviewee No 8 (personal communication, May 6, 2021) explained that the SPU was aware that they would not be able to accommodate all the students on-campus, and the university then embarked on a process of requesting people – who are willing and interested to provide off-campus accommodation to the students – to submit proposals to the university. This process was called the third level of student accommodation, regulated by the DHE's norms and standards for off-campus accommodation. The SPU has established an evaluation committee that primarily aims to evaluate the off-campus accommodation and makes recommendations to the accreditation committee (Interviewee No 8, personal communication, May 6, 2021). If an off-campus accommodation is accredited, it is valid for a year. Hereafter, the accommodation needs to undergo the same evaluation process to ensure the off-campus accommodation is in line with the DHE guidelines.

Infill Development of Vacant Buildings

The SPU Strategic Plan (2020) identifies that the university could only accommodate 70 per cent of the enrolled students with on-campus accommodation. Then one of the questions asked the interviewed planners was "What would they recommend for additional off-campus student accommodation for the remaining 30 per cent of students?" The following section will answer this question.

The local authority's planners identified that the municipality must cater for the municipality's future development needs, and this can be done by observing the built environment's development trends over several years to provide the municipal planners with insights into the city's growth direction. Through the observations, the planners should be able to assume the preferred course of action for how the growth of the city should be fostered and managed, and, in this case, student accommodation and housing policies will be utilised to guide the desired form of densification in those surrounding areas of the university by utilising the following:

- types of densification (guidelines, strategies and interventions),
- efficient utilisation of existing municipal infrastructure resources,
- job creation,
- re-use existing inner-city buildings, and
- agglomeration of educational activities (primary, secondary, tertiary within the region).

Most of the interviewed planners proposed that existing vacant buildings and infrastructure should be renovated within and around the CBD to accommodate off-campus student accommodation. These are some of the planners' proposals:

- Brownfields infill development.
- Underutilised hostels can be considered a short-term solution where hostels are currently empty and vandalised (Interviewee No 1, personal communication, April 21, 2021).
- The old government building can be converted into accommodation. Interviewee No 6 (personal communication, April 20, 2021) identified that Kimberley's CBD has various vacant buildings and the old government building as an example of possibly being converted into student accommodation for SPU students. This old government building has been vacant for four years – since the previous company relocated its staff.
- Assisting the municipality and the SPU to engage with private land developers to make additional off-campus student accommodation

available in the neighbourhoods surrounding the university and the municipality will aid the surrounding neighbours with the process of changing their land uses to develop different student accommodations that can privately be leased to students, or the SPU can lease it on behalf of the students.

- Develop backyard rentals and develop a partnership with private property owners for off-campus accommodation.

Interviewee No 7 (personal communication, May 5, 2021) agrees with the other planners regarding promoting additional off-campus student accommodation. However, he explained that it is essential that the city's natural growth should also be accommodated by creating an environment for students who completed their studies to remain and become part of the city's economy.

The establishment of the SPU utilised vacant municipal, or state-owned, land to construct the Central and South Campuses, and the North Campus will be constructed on municipal land that will be rezoned from 'Public Open Space' to 'University', which are all developed on 'greenfields' sites. The problem is to provide off-campus accommodation for the students whom the SPU cannot accommodate on-campus. The proposal is to utilise 'brownfield' sites for infill development to provide additional off-campus student accommodation.

This proposal to reuse this vacant building (Figure 8) to accommodate students with off-campus accommodation will be an example of 'brownfield' development, i.e. to reuse existing resources. Figure 8 illustrates that the old government building is located in the heart of Kimberley's CBD.

Figure 8 also points out the route the students will travel from the building to the Central Campus, which is 1 km in one direction. Interviewee No 16 (personal communication, June 12, 2021) mentioned that the old Eskom building has 11 floors, and each floor is 554 m^2 of space. The norms and standards for student housing at public universities state that, for a single room, 8 m^2 is the minimum requirement, and for a double room, the minimum area is 14 m^2. The old building can accommodate 400 students with accommodation and other required facilities.

There are two options for developing the old vacant building into student accommodation. The first option is that the SPU negotiate with the building

Figure 8. Distance of proposed old vacant building to Central Campus
Source: own elaboration, 2022

owners to purchase the building and convert it into student accommodation owned by the university, as this building has been vacant for three years. The second option is that a private property developer procures the building and converts it into private off-campus student accommodation. This proposed development can contribute to the student accommodation needs, promote life back into the CBD and should not affect the property value of the properties surrounding the SPU. No additional infrastructure would be required.

Mixed Land Uses

One of the negative effects mentioned by the planners is that the current property market is costly, and most of the housing stock is based on single dwellings on an erf. A recommendation was made for the densification of the single dwelling units to accommodate students to improve the impact of studentification. Interviewees No 1 – 6 (personal communication, 2021) also stated that with the arrival of students and staff, more businesses would – over time – be established in the surrounding areas to cater for them, and that will significantly contribute to the LED of Kimberley as the location of the university is closely located to the CBD and the one mall that will enable the students to walk to these facilities to purchase their needs safely.

Overall, current property values in Kimberley are extremely high and unaffordable by university staff (Interviewee No 9, personal communication, June 15, 2021). Affordable property is not necessarily of the quality that prospective university staff are looking for. This does not make Kimberley a primary location to consider moving to as an academic. Property values continue to increase near the university as developers buy it up in anticipation of its need for housing. However, the implications are far-reaching as the properties in New Park have not generally been maintained, and the municipal service infrastructures are compromised by a lack of maintenance (Interviewee No 9, personal communication, June 15, 2021). This inflates the property's value, which will be passed on to the renters.

The planners acknowledged that there is limited vacant land surrounding the university, and infill planning will be a problem, with the only solution being densification. Recommendations were made as the land-use landscape will change as most of the residential dwellings near the university will be rezoned to accommodate student housing and small businesses Interviewee No 1, personal communication, April 21, 2021). Densification is an option to optimise the use of space via high-rise buildings to accommodate several people in small spaces (Interviewee No 6, personal communication, April 20, 2021).

The Sol Plaatje SDF indicates that the area in which the Central and South Campuses are located is known as sub-area eight, which is classified as a residential area, and the objective of the area is to ensure a functional and integrated residential neighbourhood (Sol Plaatje SDF, 2008). The area surrounding the SPU Campus may support and promote residential infill and densification of the neighbourhoods and promote transport-oriented businesses. Promoting mixed land uses surrounding the SPU to endorse infill and densify the neighbourhoods can provide student accommodation and create opportunities for local businesses in these areas.

Figure 9 illustrates that most residential dwellings are zoned 'Residential One', and the 'Residential One' zone permits single dwelling houses, meaning that each erf may only have one dwelling. According to the 'Residential One' zone, the owner may not, according to the scheme, construct an additional unit or

establish a business on the erf without rezoning the erf. 'Residential Two' permits more than one dwelling unit on one erf. Alternatively, the erf can be zoned 'Business One', which permits establishing a business on the erf and dwelling (houses, townhouses or flats) units may be constructed.

Figure 9. Land uses surrounding the SPU
Source: own elaboration, 2022

The interviews with the six owners residing in the surrounding neighbourhoods of the SPU revealed that the influx of students in the neighbourhoods might contribute to the depreciation of property values. The property owners interviewed are unwilling to construct additional units to accommodate students with off-campus accommodation. Interviewee No 17 (personal communication, June 10, 2021) explained that the property values in the surrounding neighbourhoods of the SPU did not depreciate but increased with the demand for private developers to buy these properties to convert them into off-campus student accommodation.

This proposal to promote mixed land uses in the university's surrounding neighbourhoods is based on infill and the densification of the neighbourhoods. The local authority can revise the LUS for the neighbourhoods surrounding the SPU to provide that this ' Residential One' zoned property may have an additional dwelling unit per erf without rezoning. As the SDF highlighted, these neighbourhoods must promote infill and densification development, the local authority should not decline applications to rezone these properties as the SDF governs the development of these neighbourhoods. There is only one disadvantage to the infill and densification of these neighbourhoods: the strain these additional units will have on the basic services of the local authority.

CONCLUSION

The question of the impact of studentification on an established city's sustainable planning and development in Kimberley, located in Northern Cape province, South Africa has been answered in this paper to contribute to the knowledge regarding studentification of newly established universities in established cities. With this in mind, the South African Higher Education and Training Department decided in 2012 that Kimberley needed a university, and in 2013 the construction of the SPU started, and they enrolled their first students in 2014. This was the start of studentification in Kimberley. Studentification is the transformation of

the urban space with the influx of students and academic staff in an urban setting. The paper focused on how studentification has affected an established city and what interventions the local authority implemented to promote sustainable off-campus student accommodation. Studentification in Kimberley greatly contributed to the LED as the need for off-campus student accommodation has created the opportunity for a new market, and the needs of students and staff will also continue contributing to the LED. The construction and the services to maintain the SPU are undertaken mainly by subcontractors, which creates additional employment opportunities.

Firstly, the paper investigated if the university has been planned to adhere to planning policy frameworks. The question was directed to seven planners whether or not the SPU has been planned according to the three development principles of SPLUMA: spatial sustainability, efficiency and spatial resilience. Six of the interviewed planners agreed that the SPU was planned in line with SPLUMA, and the other planner noted that the planning policy frameworks used to plan the SPU were drafted before the adoption of SPLUMA. Revising the planning policy frameworks after establishing the university was identified as an advantage, as the planning policy frameworks could be drafted to provide for more off-campus student accommodation. In addition, the majority of the planners identified that the layout of the SPU is not sustainable, and three proposals have been made to improve its sustainability. Planning the layout more sustainably was the proposal that stood out the most; other proposals were to cluster faculties and residences together on the various campuses and not to centralise all the faculties on the Central Campus and the majority of the residences on the North and South Campuses.

Secondly, the research investigated the innovations for off-campus student housing in the surrounding neighbourhoods of the SPU. The university's management mentioned that they have been aware of not being able to accommodate all the students with on-campus student housing. Through the interviews, several recommendations were made to accommodate students with off-campus accommodation. This research focused on two proposals to provide off-campus accommodation. Brownfield infill development was the first proposal to use vacant buildings in the CBD to convert them into off-campus student accommodation. The other proposal was that the local authority must revise the LUS of the properties surrounding the SPU to ensure residents can provide additional off-student accommodation from their properties.

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Öğrencileşmenin Yerleşik Bir Şehrin Sürdürülebilir Planlaması ve Gelişimi Üzerine Etkisi

Dane Phillip BUTTNER*
Maléne CAMPBELL*
Wessel KRUGER*
* Şehir ve Bölge Planlama Bölümü, Free State Üniversitesi, Güney Afrika

Özet

Bu çalışma kapsamında Güney Afrika'daki Kimberley gibi köklü bir kentin sürdürülebilir planlaması ve kalkınması üzerinde öğrencileşmenin etkisi araştırılmıştır. Kimberley 1871 yılında bir elmas madeni kasabası olarak kurulmuştur ve 2013 yılında şehirde yeni bir üniversite kurulması için ulusal bir karar alınmıştır. Araştırma, öğrencileşmenin etkilerini incelemiş ve kampüs dışı öğrenci barınması ve Kimberley'in Yerel Ekonomik Kalkınmasını (LED) teşvik etmek için önerilerle sonuçlanmıştır.

Öğrencileştirme, öğrencilerin ve üniversite personelinin yoğun bir şekilde gelmesiyle üniversitenin çevresindeki mahallelerin dönüştürülmesi olarak tanımlanabilir. Öğrencileşme, üniversite bölgelerindeki öğrenci sayısındaki artışı ifade eder ve bu artış kentsel alanın sosyo-ekonomik ve fiziksel yönlerini etkiler. Bu nedenle, bu çalışma fiziksel altyapı ve arazi kullanımlarına odaklanacak ve öğrencileşmenin Kimberley'in kentsel sosyal alanları ile ekonomik ve çevresel yönleri üzerindeki etkisini belirleyecektir. Çalışma ayrıca farklı öğrenci barınma ihtiyaçlarını kategorize edecek ve bu öğrenci barınma ihtiyaçlarını ele alacaktır.

Bu araştırma, deneysel olmayan bir yaklaşım benimsemekte ve araştırmayı iyi anlayan ve çalışma için bir değer olarak görülen belirli kişilerle yapılan görüşmelerden oluşan niteliksel araştırma metodoloji benimsemektedir. Bununla birlikte, çalışmada kullanılan veriler birden fazla kaynak aracılığıyla toplanmış ve birincil ve ikincil veri kaynağı olarak ikiye ayrılmıştır. Birincil veri toplama süreci seçilen 17 kişiyle yapılan mülakatlardan oluşurken, ikincil veri toplama süreci ise ilgili literatürün taranması ve politikaların incelenmesi olmuş ve Kimberley'e ilişkin istatistiklerinin analiz edilmesi gibi önceden var olan verilere odaklanılmıştır.

İkincil veri toplamanın bir parçası olarak, çalışmanın ikinci bölümünde sürdürülebilir planlama ve kalkınma ile öğrenci barınma konularına yansıyan öğrencileşme üzerine mevcut literatür sunulmuştur. Bu hususların gözden geçirilmesi, çalışma ile ilgili konuların geniş bir şekilde anlaşılmasını sağlamıştır. Ardından, üçüncü bölümde Güney Afrika'da öğrencileşme ve öğrenci barınmasını yöneten mevcut ulusal ve yerel mevzuat, stratejiler, planlar ve programlar gözden geçirilmiştir. Bu süreçlerin gözden geçirilmesi, öğrencileşmenin Kimberley'in mevcut arazi kullanımı, altyapısı, yerel ekonomik kalkınma, emlak değerleri ve öğrencilerin çeşitli barınma ihtiyaçları ve bunların nasıl karşılanabileceği üzerindeki etkilerinin belirlenmesini sağlamıştır.

Ampirik araştırma, öğrencileşmenin Kimberley'in sürdürülebilir planlama ve kalkınması üzerindeki etkisini belirlemek için iki bölümde ele alınmıştır. Profesyonel şehir plancıları, SPU Kıdemli Müdürü ve Öğrenci Destek ve Fiziksel Planlama ve Altyapı Direktörü ve çevre mahallelerdeki sakinlerle yapılan görüşmeler yoluyla toplanan birincil veriler analiz edilmiştir. Bu kişisel mülakat soruları, çalışmanın üç araştırma sorusunu yanıtlamak üzere formüle edilmiştir. Bununla birlikte, bu görüşmeler analiz edilerek Kimberley'de öğrencileştirmeye yönelik problemler ve öneriler belirlenmiştir.

Daha sonra, belirlenen problemler ve önerilerle birlikte, kampüs dışı öğrenci barınması için planlama politikası çerçeveleri ve yenilikler olmak üzere iki öneri formüle edilmiştir. Bu iki öneri Kimberley'in öğrencileşmesini olumlu yönde etkileyeceği ve kampüs dışı öğrenci konaklamasını teşvik edeceği düşünülmektedir.

Anahtar Kelimeler: Öğrencileştirme, Sürdürülebilir Planlama, Öğrenci Konutu

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Correspondence | İletişim:
danebuttner@ymail.com
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