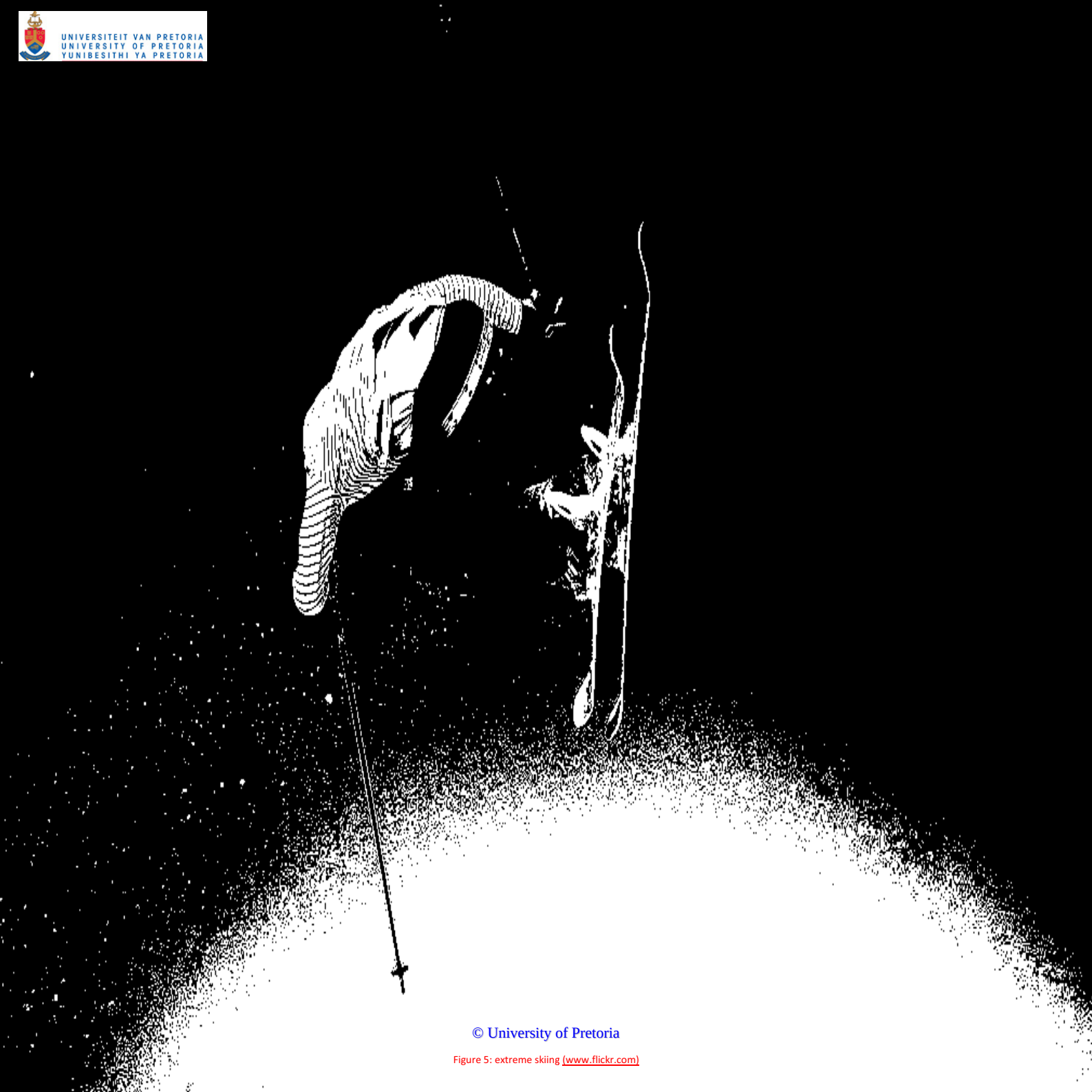

Figure 5: extreme skiing (www.flickr.com)

INTRODUCTION

If architecture is concerned with the large scale matter of spaces (creating boundaries), the specialisation of interior architecture considers the human scale and experiences inherent in the public and private matter of a space (exploration within boundaries); it is an expression of our encounter with spatial cultivation. As interior architects, we are concerned with authentic architectural experience, and the development of a multi-sensory approach to space which facilitates a sense of belonging and integration. We create comfortable spaces from the point of view of the user.

It is also a spatial art that differs from both architecture and interior design in its full commitment to rethinking the life of existing structures - through design alterations, rehabilitation and adaptive reuse.

The idea of experimenting with new spatial concepts, intensifying existing structures and exploring new materials in the pursuit of a visionary aesthetic that encompasses all fields of design has lead to the notion of designing a new vehicle (alias “cable car”) as part of an aerial transport system. The vehicle will require extreme levels of complexity and intense research into diminutive spaces (applying ergonomics to every extent), materials and engineered structures.

This document will start with a recognised problem statement within the context of Lesotho and then gives a design proposal in the form of an alternative transport method, being the cable car. The site will then be briefly discussed to create an apparent context in which the ‘cable car’ will be designed. The document will then transcend into a clear design objective followed by various precedents which will strengthen design resolutions. A concise conceptual section which will communicate aspects of the system as a whole and the carriage as an entity, these inceptions will be followed by the design discourse where all aspects from colour, texture to branding are analysed and incorporated. By then the reader should have a clear understanding of the design objectives and the technical resolution will be presented. The document will then follow with a final conclusion.

>>>

Figure 6: snowboarding (www.flickr.com)

DESIGN TASK

PROBLEM STATEMENT

In most countries, governments have attended to the needs of people to travel quickly from one place to another by introducing public transport systems such as busses, taxis, trams, light-rail systems, aerial transport systems and rapid underground trains. These systems have, however, remained in a mutualism on urban scale and the rural landscapes have gained little. Even though all reason magnetically rejects any form of advanced designed systems within the rural rawness, the Europeans have somehow managed to place these systems within pristine context so that the landscape remains mythical. Aerial tramways graze along the highest and pristine European mountains, rationalising structures that live and breathe with their surroundings, respecting it. Some of these structures (gondola) have, however, aged and a new generation of aerial lifts and vehicles has only now been designed and implemented (funitel).

The exterior shell of the common “cable car” is meticulously designed with a definite symmetric squareness which aids in balance. However this much used shape hasn’t changed since day one on the ‘cable car’ timeline. New engineered hangers and ropeway systems have been designed to strengthen the system, but the four-sided figure remained. The interior of the carriages are clustered and little thought has gone into user interfaces, inclusive design or commuter experience.
The interior space of the vehicle communicates starkness and has claustrophobic spaces where little is done to create the illusion of spaciousness. Standard seating and sliding doors are the only two components occurring within this trivial space and the vehicle has the sole function of plural transportation. There is thus space to explore new designs within the gist of the traditional and functional ‘cable car’.

Through the act of translucency and colour one can start to make the passenger aware of his/her context and stimulate interaction between passenger and context. By stretching and bending structure and space one can create storage spaces, design adaptable seating units, and augment views. One can convert a seasonal entity into a multi-seasonal entity. One can enhance an overall entity by simply putting thought into design and researching the brand new.

Figure7: "funitel" cable car (http://www.poma.net)

THE CHALLENGE

The sinuous shell of the vehicle, compared to horizontal and vertical surfaces, posed a significant challenge. This meant the development of a whole new set of criteria and strategies. Another challenge was the context of the vehicle, the sky and the concept of constant movement. Compared to land-based interior architecture one has to contend with notions such as comfort, weight, balance and humidity.

The dissertation will be …. Commitment to the exploration of the essence of form and space. Designing a fully functional structure complete with seating, storage compartments and tangible user interfaces. The cable car will also be a symbol of the notion of movement and commuting. Its disquieting form will levitate in response to the human body but will still remain functional as to enhance interchange and commuting. The vehicle will be designed to the greatest level of detail. Vehicle assembly and branding will also form part of the vehicle design and resolution. Accompanying supporting structures such as transition, recreational, and toilet facilities promoting accessibility, clarity and comfort will be dealt with up until conceptual phase but will not include detail design.

DESIGN OBJECTIVE

A commendable identity should be portrayed through a sustainable design with functional anthropometric systems and inviting spaces. Safety, functionality, and aesthetic quality are generally required from the design and with considerations of typology of the infill structure and product should metamorph through conceptual phases into a full-grown design. Ergonomics and scale should be taken into spatial consideration.

These features are a principle design goal that should be reached to generate effective spaces in and around the aerial tramway. The vehicle as an entity may enrich the commuters' (tourists) experience and as a result could generate more commuters, which will attract and bring about a higher frequency of tourism and subsequently generate work opportunities on various levels within the rural area. Within the rural and democratic context of both South Africa and Lesotho, it is vital that this aerial transport system functions as a social equitable line in which people of all races and cultures can interact and commute, whether they are poets or mountaineers.

Another design challenge lies within material selection of both the membrane and components of the vehicle. Materials have three overlapping roles: that of providing technical functionality, that of sustainability and that of product personality. The designer should communicate all three of these foreign aspects into one spoken language. The design should thus communicate an appealing green durability.

The integration of spaces of intermission and "dwelling" within a structure that primarily conveys movement and flow will be exploited on a primary level, with the sole purpose of understanding the system as a whole, and how the vehicle design will enhance commuting not only as a function but as an experience as well. How does one allow for lingering without interfering or delaying a two-way circulation and on the same level of debate not hinder the dweller? These complex analytical movement patterns should both be accommodated for in exhibiting an effective spatial system.

Interior architecture has broken out of the box, literally and figuratively. New technologies in materials, design and construction have at last begun to transform the built environment. Boundaries that have separated architecture from art and design have fallen. Space and the very idea of it and how it can be manipulated functionally, have evolved greatly by the artist's understanding and expression of a third dimension and molecular awareness.

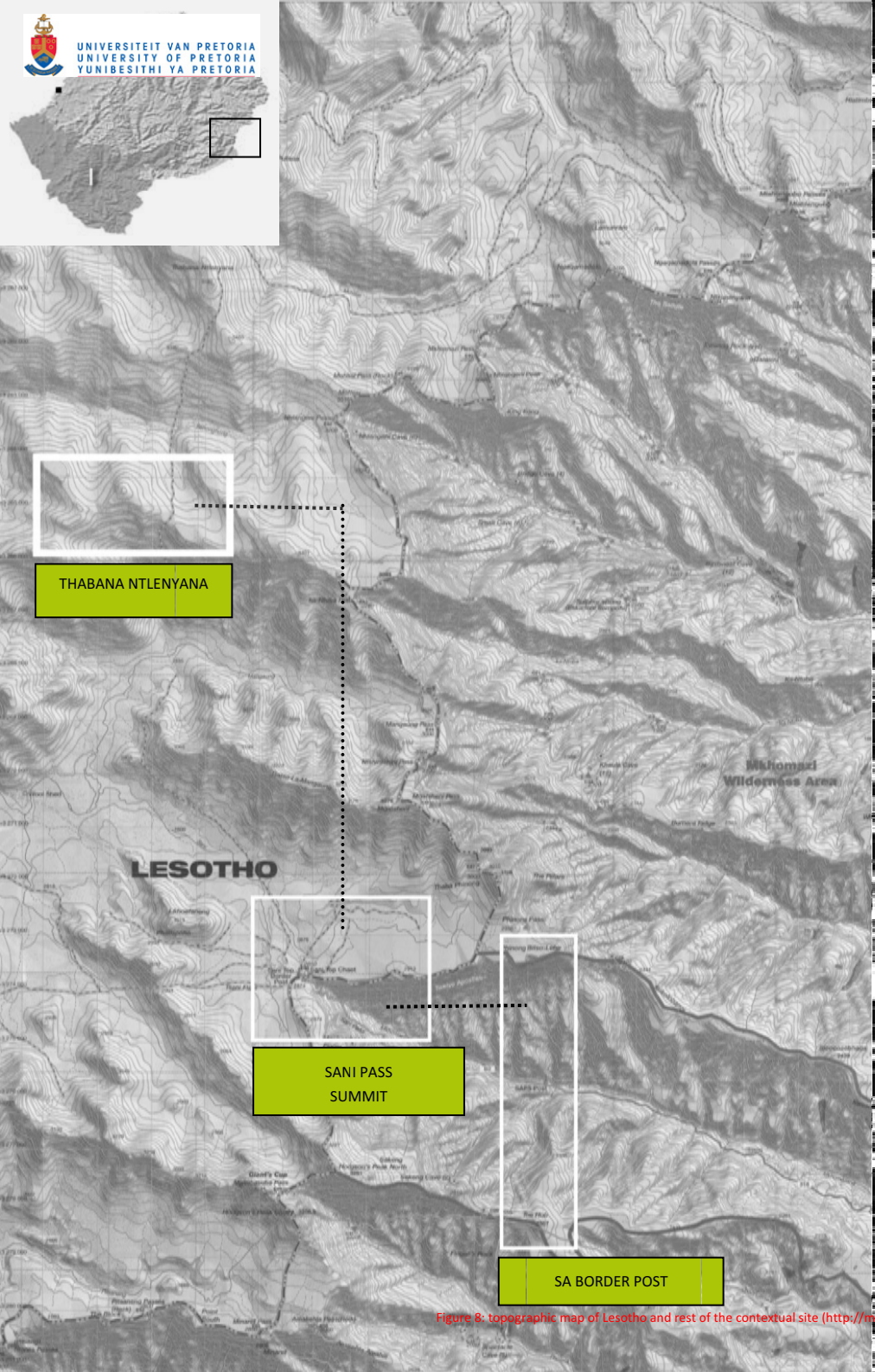

Figure 8: topographic map of Lesotho and rest of the contextual site (http://maps.co.za)

CONTEXT STUDY

SITE

>> >
Lesotho_

The only country in the world with all its land above 1000m (World Book, 1995). Lesotho is enclosed by South Africa along most of its border and shares a section of mountains, around the southern border, with Transkei. Lesotho lies approximately 320km (World Book, 1995) inland from the Indian Ocean. About two-thirds of the total land area is mountainous (elevation more than 3000m above sea level (Grolier, 1995), with higher elevations in the north-east and east. Along the eastern border of Lesotho, edging the central Drakensberg lays the highest peak in southern Africa: Thabana Ntlenyana at 3482m (Turco, 1994). A geological feature of the terrain is that all the rivers flow in the same direction due to the lower strata of sandstone that were uniformly laid in a north-easterly to south-westerly plan (Grolier, 1995).

Running north-east to south-west the Maluti mountain range dominates the western districts of the country, while the east is made inaccessible by the barrier of the Drakensberg. The Maluti Mountains in Lesotho and the adjacent Drakensberg range in South Africa are a unique but fragile ecosystem. The Maluti Mountains, in the central northwest are the source of two of South Africa's largest rivers – the eastward-flowing Tugela and the westward-flowing Orange River (Britannica, 1986). The Sani Pass forms a link between the Maluti Mountains and the Drakensberg Mountains. The Sani Pass is the only access from KwaZulu Natal to the Lesotho Highlands. The Route, aptly called the "roof of Africa", boasts to be the highest road in Africa and third highest in the world and peaks at a height of 3 200m above sea level (Sycholt, 2002). The Sani Pass summit lies within a couple of kilometres from Thabane Ntlenyana. Though fragile, this area is globally important as a centre of endemism, source of freshwater due to the unique wetland systems, as preferred area for nature based tourism and as a place of cultural significance (Turco, 1994).

Lesotho has a subtropical climate where the mean summer temperature is 15°C and the mean winter temperature is 3°C (Grolier, 1995), in the highlands of the northeast the temperature range is much wider, and frost and snow occur frequently. The Maluti Mountains and the Sani Pass are usually snow-capped in winter.

>> >
The Sani Pass_

Currently a 33-kilometre gravel road traverses the sheer cliffs of the Drakensberg escarpment in a series of tight zig-zag curves - climbing more than a kilometre from the Sani Pass Hotel past the South African border post at 1 900m (Sycholt, 2002) to the Sani Pass Summit at 2 873m (Sycholt, 2002), used by taxis, tourists and 4x4 enthusiasts, it is this which Michael Clark wants protected (2006: 17).
Clark (2006: 11) also points out that the pass was originally used to bring goods on pack animals from South Africa to Mokhotlong in the "Mountain Kingdom"; the pass was only opened to vehicle traffic in 1955 and, despite improvements since then, remains extremely steep and rough (Clark 2006: 11).

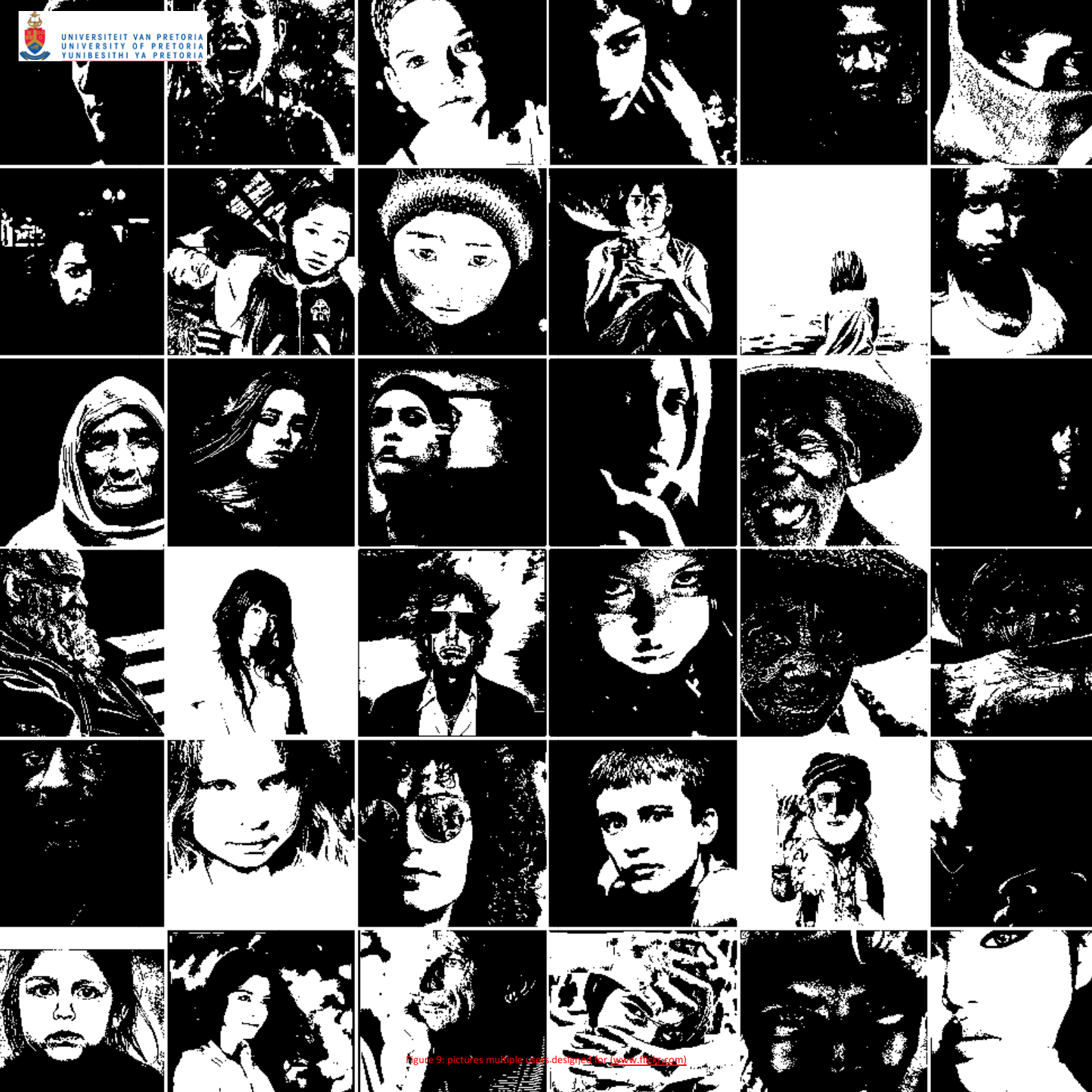

Figure 9: pictures multiple users designed for (www.flickr.com)

The Lesotho Aerial Transport system will attract a variety of users ranging from the Basotho on his way home from work to foreigners seeking adventure. The funitel as well as the various terminals will have to cater for all types of users. By a thorough investigation of the demographics and visitor profiles of the identified areas, designers can predict what user type will form the majority and so allow the design to respond accordingly.

The transport system will be utilised by all types of users from various income groups; affluent, poor, local and foreign. The aim of the system is to replace the current futile taxi transport system and 4x4 vehicles with a more effective aerial ropeway system and progressively accommodate all the various activities such as communal transport, adventure and dwelling.

The user profile will be represented by:

- Local Basotho (all age groups)
- foreigners (all age groups)
- tourists
- elderly and disabled
- professionals
- workers
- students
- families
- dwellers/ adventurists