Part 4: Critical reflection

Introduction

This chapter summarises the finalised dissertation outcomes in terms of research, design and technology. I critically reflect back on the finalised design, the process that was followed and the decisions that were made. Through reflection, I am able to determine what impact this mini-dissertation has for my future career in the architectural industry.

The frame of most fields of play in sport has been clearly defined and standardised by regulatory sporting bodies. However, supporting spaces surrounding the field of play have become somewhat generic spatial solutions that are largely based on maximising a sports venue's profitability. However, with the focus on economy, attention is taken away from the athlete's needs when designing sports architecture. Little thought has been given to the athletic performance enhancing potential of architecture. On site, specifically, the UP Hillcrest Sports Campus accommodates sports venues that clearly favour *functionality* over *experience*. The architectural intention for this mini-dissertation was to retain the efficient functionality of typical local sports architecture, but to enhance this functionality through improved experiential design principles that could contribute to improved perceptions of a space, in turn, contributing to athletic performance enhancement for athletes.

Dissertation outcomes

The TuksAquatics Centre is transformed into a multi-programmatic complex of celebrated public spaces, protected private spaces and a variety of experiences that shape the intermediate spaces between those two ends of the spectrum. Operating on the campus, the vibrant, social and high-energy nature of the site has been used to enhance the functionality of the spaces by creating accessible public spaces that are correctly integrated into their surroundings. This has been achieved by linking the site to the newly proposed semi-pedestrianised Arcadia Street and the Gautrain station. This integrates athletes' support structures into the scheme and adds to the sustainability of the design by ensuring continued future use.

On site, spatial characteristics are warped and transformed as one moves through the facility, each time addressing a certain need, desire or stressor experienced by the athlete. These intentions are reinforced by the technological detailing of those spaces where design and technology are merged to create psychologically-supportive, competition-simulative and physically-beneficial environments for the athletes.

Figure 196: A swimmer in action (Serrao, 2013)

Critical reflection

In the research proposal of this mini-dissertation, it was hypothesised that an internationalised standard sports design prototype would not suffice when designing athletic performance enhancing sports architecture. Rather, a holistic approach to athlete-centred design is needed that spatially responds to the athlete's psyche, emotions and physical condition in sustainable ways to promote the further development of the sporting industry and its athletes. In line with my normative position, a contextually responsive, sustainable and user-centred design that employs both functional and experiential design principles could be a potential solution. This was proven true through research done on evidence based design.

Where research on evidence based design has been highly focussed on medical architecture, this dissertation expands its scope to other programs such as sports design (figure 178). Ultimately, evidence based design aims to remove stressors on the user. These stressors take the form of psychological stressors, for example, pre-race anxiety in athletes, as well as physical stressors, for example, poorly maintained spaces that cause hazards to an athlete's health.

A shallow understanding of evidence based design principles, however, could run the risk of re-generalising sports architecture in a merely newer format. To ensure that unique design solutions are created in response to sports architecture, specifically, and not a mere re-representation of existing design solutions borrowed from medical architecture, *sports psychology* principles are looked at to identify user-specific stressors. These athlete-specific stressors enabled me to translate the evidence based design principles into sports-focussed, athlete-relevant interventions based on athlete's psyche, competition routines, challenges and unique desires.

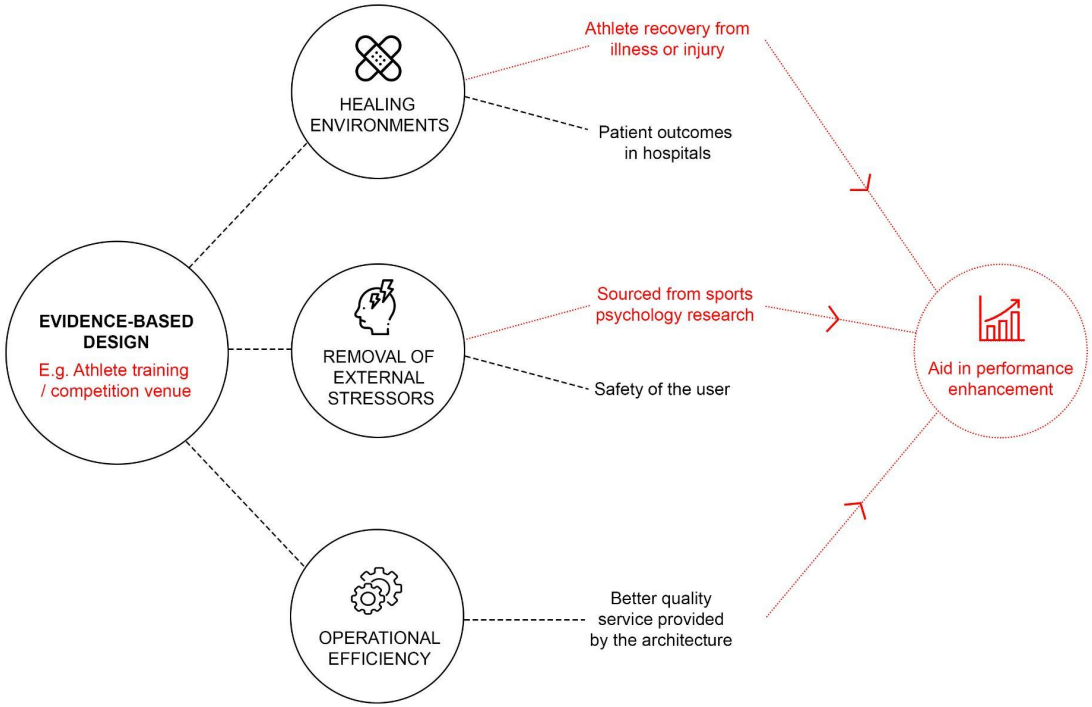

Figure 197: EBD and athletic performance enhancement (Author, 2021)

This all has to be designed in sustainable ways to align with the standards of international sporting bodies, as well as to solve the local crisis of non-functioning sporting venues. Research into sustainable design has proved contextually-relevant design to be a vital factor for a building's long-term success. The design and technological solutions for this mini-dissertation became very site-specific. This reiterated the hypothesised solution that a standardised prototype could not be followed; instead, that the site would dictate which spatial solutions of sport-specific evidence based design could be employed, based on the assets available on site. For example, geothermal strategies that are based on the large amount of open space surrounding a site, or the prioritisation of nature as an element for psychologically supportive environments based on its existing wide availability on the campus.

Moving beyond the limitations of a mini-dissertation, the extent to which evidenced based design can be applied can be explored even further. In more advanced research studies, physical testing on athletes physiological conditions in standardized versus those in psychologically supportive spaces can be done. In addition data of athletes' performances over various competition seasons can be analysed to determine where and why athletes performed better in some venues compared to others. Additional research in this regard could pave the way for even more sport-specific evidence based design solutions. This merely emphasises the performance enhancing potential that architecture has - my mini-dissertation forming a good foundation for future study.

Meaning for future career in architecture

Through the research done on evidence based design and in the attempt made to create a prototype that proved much more individualised than standardised, it becomes clear that the research does not have to be merely limited to sports architecture.

Findings can be used beyond the field of sports architecture and in a variety of spatial designs from designing comfortable large public spaces to creating intimate and supportive private environments. This knowledge that has been gained in my master's year, sets a solid foundation for understanding the large scope of impact of architecture from the functional to the experiential, all at a variety of scales of interventions.

In terms of my design process, I have learnt to advance beyond typically functionality-driven design decisions towards a deeper understanding of the experiential qualities of space. Through my involvement in sport, I was able to use personal experiences in the spaces under investigation to gain a better understanding of theoretical design informants, further helping me to confirm the impact that these design drivers can have on a user.

Overall, the design strategies that were explored in this mini-dissertation can be used in a variety of disciplines in architecture to create *frames* where the built environment, people and place merge into one collective, supportive whole (Sfinteş, 2012). Each scenario may differ slightly based on each scheme's unique contextual response, however, the core driver of the architecture remains the same.

Conclusion

The outcomes of this mini-dissertation could help to further drive architects' progression away from globalised, single solution architecture and could help to reverse the deprioritization of experience in design. Sport architecture has evolved and is constantly improving from a mono-functional, economy driven structure, to a multifunctional, flexible urban asset. This dissertation, however, has taken the impact of sports architecture beyond the multifunctional typology and has further injected *user-experience* as a means to benefit, uplift, protect and celebrate the athlete. A complex, context-specific and user-centred intervention becomes the mould for future sports architecture.

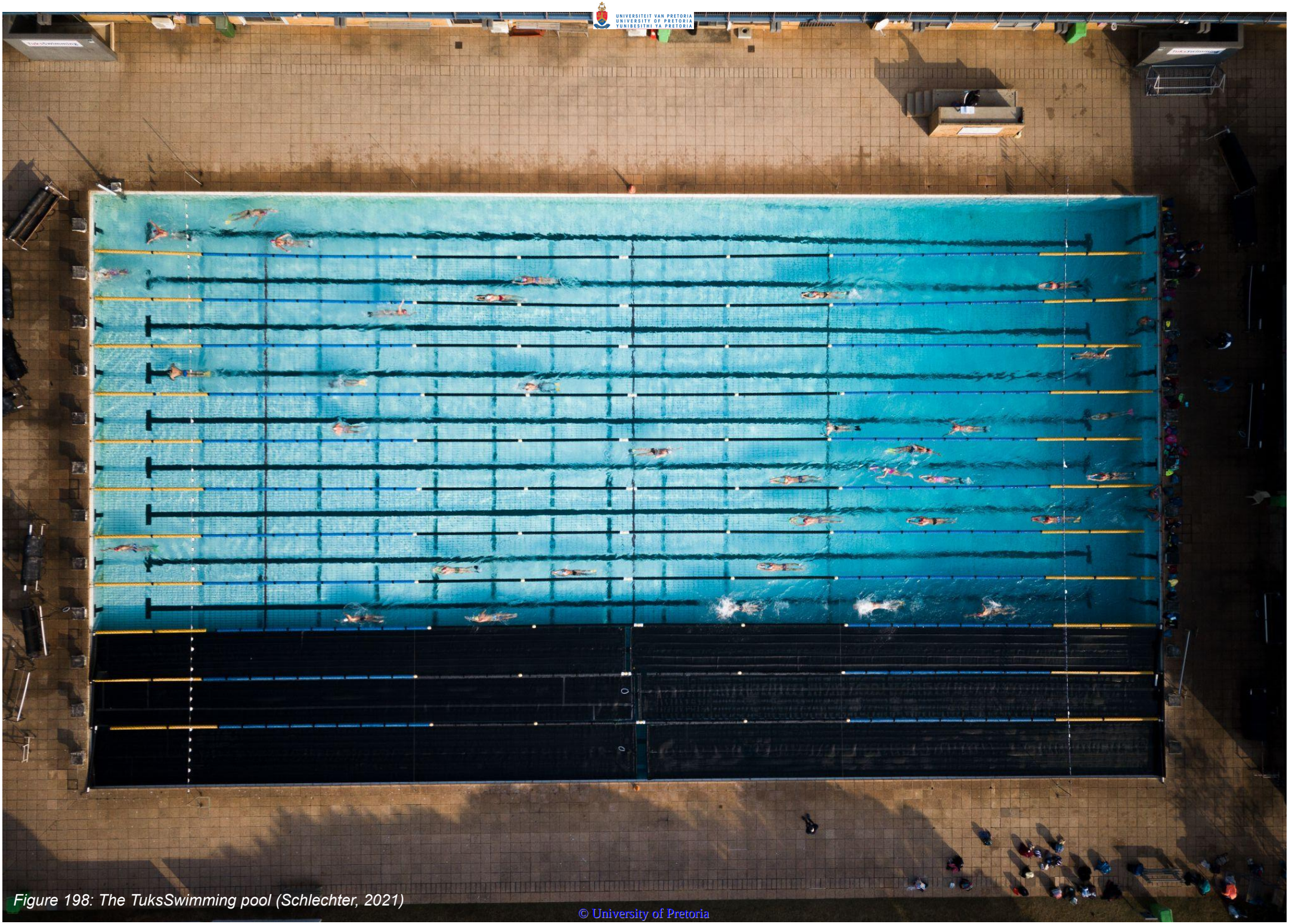

Figure 198: The TuksSwimming pool (Schlechter, 2021)

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Faculty of Engineering, Built Environment and Information Technology

Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie / Lefapha la Boetšenere, Tikologo ya Kago le Theknolotši ya Tshedimošo

9 June 2021

Reference number: EBIT/86/2021

Mr R Ras
Department: Architecture
University of Pretoria
Pretoria
0083

Dear Mr R Ras

FACULTY COMMITTEE FOR RESEARCH ETHICS AND INTEGRITY

Your recent application to the EBIT Research Ethics Committee refers.

Approval is granted for the application with reference number that appears above.

1. This means that the research project entitled "Architecture as a driver for the athletic performance enhancement of professional athletes" has been approved as submitted. It is important to note what approval implies. This is expanded on in the points that follow.
2. This approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Code of Ethics for Scholarly Activities of the University of Pretoria, or the Policy and Procedures for Responsible Research of the University of Pretoria. These documents are available on the website of the EBIT Research Ethics Committee.
3. If action is taken beyond the approved application, approval is withdrawn automatically.
4. According to the regulations, any relevant problem arising from the study or research methodology as well as any amendments or changes, must be brought to the attention of the EBIT Research Ethics Office.
5. The Committee must be notified on completion of the project.

The Committee wishes you every success with the research project.

Kai-Yin

Prof K.-Y. Chan
Chair: Faculty Committee for Research Ethics and Integrity
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY

List of Figures

-End-