CRITICALLY ASSESSING THE SELECTION OF BEGINNER STUDENTS IN ARCHITECTURE AT THE UNIVERSITY OF PRETORIA (1971-2016)

by

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Critically assessing the selection of beginner students in architecture at the University of Pretoria (1971-2016)

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Abstract

In this study a critical assessment is undertaken of the methods employed for the selection of beginner students for purposes of admission to studies in architecture. The study employs mixed methodologies that include studies of literature and archival sources, a national survey, heuristic analysis and critical reflection.

A brief overview of education in architecture and its development in South Africa introduces the study. The admission procedures and assessment tools employed for the selection of beginner students into systems of architectural education internationally is investigated through the analysis of case studies and published surveys. The lack of available information on the subject necessitated that a national survey be undertaken so as to determine how and by what means assessment tools are employed by schools of architecture in South Africa for the selection of students for admission to studies in the discipline of architecture. The findings of the survey are critically examined so as to establish an understanding and framework of local practice.

In the thesis the final focus is on the academic informants, procedures, assessment tools and outcomes for the selection of beginner students for admission to the Department of Architecture, University of Pretoria. This case study covers three consecutive episodes that span the forty-five years up to and including the 2016 academic year in order to critically assess, reflect upon and make pertinent and informed recommendations as to current procedures both specifically for the institution as well as nationally and internationally.

PREFACE

This study originated from my daily work with students and prospective students at the Department of Architecture, University of Pretoria. Their ambitions and questions, my curiosity and the support of current and former colleagues, from both the academic and administrative sides, contributed to this research finally coming to fruition. I extend my gratitude to every one of them for their contributions over the course of twelve years. The Admission Officer of the Faculty, Jenny van Rooyen, and my colleagues Moloko Mothemela and Johan N. Prinsloo must be singled out – my heartfelt thanks to them for their steadfast backing of, and ongoing participation in, the selection project.

The formative influence of my mentors, Professors Emeriti Roger C. Fisher and Schalk W. le Roux, deserve a special mention. Both lectured Design during my first year of study and some decades later I am privileged to have undertaken a formal research study under each of them. Their humanity, wisdom and pedagogic values continue to inspire me. I especially thank Professor Fisher for acting as the promotor of this thesis.

This study is dedicated to my wife, Rachel, without whom it would not have seen the light of day.

DECLARATION

I, the undersigned author, declare that the applicable research ethics approval has been obtained for the research described in this work and that I have observed the ethical standards required in terms of the University of Pretoria's Code of Ethics for Researchers and the Policy Guidelines for Responsible Research.

This treatise is submitted in fulfilment of part of the requirements for the degree Philosophiae Doctor in Architecture at the University of Pretoria. No part thereof has already been, or is currently being, submitted for any other degree or examination at any other university.

Nico Botes
12 February 2018

RESEARCH CONTRIBUTIONS RELATED TO THIS STUDY

BOTES, N. 2015. Knocking at the practitioner's door: Job shadowing and the threshold to the architectural professions. *Architecture South Africa*, (76) Nov/Dec:39-46.

BOTES, N. 2015. Gatekeeping for the architectural disciplines. Invited presenter, Workshop on Student Admission and Attrition, Faculty of Veterinary Sciences, University of Pretoria. Onderstepoort, 22 January.

BOTES, N. 2014. Workplace exposure as part of selection for beginner students in the architectural disciplines: The ninth tool. Paper presented at the Architectural Education Symposium, University of the Witwatersrand, 22 January.

BOTES, N. 2012. Towards demystifying the 'black box': body as site. *South African Journal of Art History*, 27(2):121-132.

BOTES, N. 2010. Chicken pie, distinctions and inkblot tests: rethinking the selection of undergraduate students for design programmes in the built environment. Invited presenter, Research Seminar Series, Faculty of Art Design and Architecture, University of Johannesburg, 17 May.

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The discourse on admission policies as a theme within the overall context of architectural education worldwide is receiving considerable interest among design educators; nevertheless, the literature indicates there is a dearth of research in this area. (Salama 2015:84)

CHAPTER 1 **INTRODUCTION**

1.1. INTRODUCING THE RESEARCHER

The researcher holds a professional Bachelor of Architecture and a Master of Interior Architecture (Research) degree from the University of Pretoria (hereafter **UP**). He started lecturing on a part-time basis in 1997 while working in private practice and was subsequently appointed in a permanent teaching position at the Department of Architecture of his alma mater in 2000. He has since led design studios, taught subject modules in the construction, visual literacy and design theory streams to students in all three[1] of the Department's undergraduate programmes and has acted as study leader and co-study leader for students pursuing their professional master's degrees in all three spatial design fields.

He coordinated the undergraduate and professional postgraduate programmes in interior architecture between 2001 and 2008 and managed undergraduate student administration until 2016. He currently leads the Department's interdisciplinary first-year design studio and is responsible for the undergraduate programme in architecture. He has convened selection for admission to all undergraduate programmes since 2005 and has done the same for the professional postgraduate programmes since 2012.

The researcher views himself as an intuitive designer and curious pragmatist. Apart from the research field of architectural education and the topic of this thesis, his academic interests include interdisciplinary design teaching, especially at foundation level, sensory and intuitive response development, visual communication as a design language, vernacular furniture typologies (which was the subject of the research for his master's dissertation), product design in general, and conservation, especially in urban

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1   The Department of Architecture presents a core curriculum with a homologous structure through coursework at both undergraduate and professional postgraduate levels in the spatial design fields of architecture, interior architecture and landscape architecture.

contexts. Between 1990 and 1993 he compiled and co-authored three published volumes on urban conservation studies in Pretoria with Prof. Schalk W. le Roux and later contributed to four conservation policy documents.

It is the view of the author that space making, as a cultural construct that should ultimately be user-centred, is a generative, interdisciplinary and collective act driven by abundant possibilities and multiple informants across many gauges. He believes that spatial design is a responsive discipline, formed and informed by context in the widest sense of the word, and that teaching and learning in the spatial design professions of the built environment should explore, exploit and actively engage with multivalent tenets, especially at the critical level of the foundation phase. This inclusive approach to an architectural pedagogy is neatly summarised when Le Roux (2006:98) asks "And how is learning to be achieved?", to which he answers: "By dialogue and confrontation, confrontation with as wide a variety of architectures, as wide a variety of texts, as wide a variety of contexts, as wide a variety of scales, as wide a variety of approaches as possible."

1.2. STUDY PROPOSAL AND STRUCTURE

1.2.1. Background to the study

This study is the result of the researcher's active involvement in student selection for longer than a decade, albeit that it was not initially intended to become a thesis in this format. Early in 2005 the researcher was tasked by the (then) Head of the Department of Architecture, Prof. 'Ora Joubert, to investigate and improve the prevailing criteria and procedures for admission by selection to the Department's undergraduate programme offerings. Joubert's concern was sparked by apparent inconsistencies between the student intake and their graduation data, among other factors. The mandate – with hindsight essentially a free rein – prompted informal research that focussed on preliminary explorations and often intuitive investigations informed by recent admission data, institutional regulations and proto-testing during 2005 and 2006. The initial questions asked were '**What do I expect a prospective student of architecture to know?'** and '**Which skills do I expect a prospective student of architecture to have?'**. These were obviously escalated to '**How do I, as an architect and educator, test these aspects?'**. At the time these questions were aimed at finding a feasible and equitable alternative to the prevailing selection practice as formulated by the Institution and employed by the Department.

The first cohort of beginner students who were selected under the new selection procedure commenced their studies in the 2007 academic year. In the following year the author was appointed to coordinate and lead the first-year design studio – this proved invaluable as it offered the opportunity for regular interaction with first-year students and enabled formal (through assessments and surveys) and informal (through observation and studio discussions) feedback cycles with beginner students. These, along with

managerial and logistical considerations, informed ongoing adjustments and tweaks within a framework of guidelines that were earlier established. By 2010, based on responses from staff and some external examiners, it became apparent that the new selection procedure had achieved some success in strengthening the general disposition of the student body at undergraduate level. Preliminary data on the standard academic indicators (academic results and the rates of attrition and graduation) had all shown remarkable improvements under the new selection regime and thus it seemed feasible to formalise research on the topic.

Part of this process was the discovery and ensuing exploration and systematising of archival sources[2] that evidenced the Department's historic selection processes for admission between 1971 and 1995, which re-introduced the author to procedures in which he participated as a prospective student early in 1987. The archival sources proved to be immensely rich informants, especially when one considers that there is generally a lack of available research on the topic of student selection for admission to studies in the architecture. According to the South African Council for the Architectural Profession (**SACAP**), there were eleven schools of architecture[3] at ten public institutions of higher learning that presented validated programmes in architecture and architectural technology in South Africa in 2016 (SACAP 2017). Selection is the global norm[4] used to admit students to academic programmes in architecture and it is therefore no surprise that all of the schools of architecture in South Africa admit students through screening and have, across the board, done so for a considerable time. In this context it is disconcerting that very little research has been published on the selection of students for admission to studies in architecture, especially in South Africa.

The opportunity for reflection, that had become a thesis, is a luxury that should not be read only as a (research) means to an end, but rather as part of an ongoing enquiry aimed at identifying the strongest cohort of beginner students to enter a specific academic programme at a specific institution of higher learning at the beginning of every academic year. There has never been any intention of finding a formulaic solution to the selection of students, but rather attempts were made to discover approaches that are contextually appropriate and developing measures and means that are relevant to the discipline of architecture in our time and place.

In light of recent interest in dialogue and research into architectural education in South Africa, it seems fitting to present this research at this time.

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2   The archive of the Department of Architecture was established in 1966 and currently houses close to 80 significant physical and digital collections (Barker, Van Niekerk & Swart 2016:6). Prof Karel Bakker, then head of the Department, discovered some of the historic selection material in a storeroom in the basement of the Boukunde Building in 2011. More documents were discovered during June of 2017 when the Department moved out of the Boukunde Building to allow for extensive renovations. These items have now been accessioned to the archive with other sources on selection that were archived before.

3   SACAP officially refers to schools of architecture as 'Architectural Learning Sites' (abbreviated to ALS in the singular).

4   The exception usually occurs where access to free and equitable public education is constitutionally guaranteed, such as in Argentina.

1.2.2. General overview of the related literature

Where possible references have been included according to the Harvard method in the formats outlined in *Bibliographic style & reference techniques* by Burger (2010). In this study the literature is introduced and reviewed in the chapters where it is pertinent to the discussion. The following overview serves as an introduction to the literature related to the study as a whole.

Compared to other research topics that interest educators in architecture, literature on contemporary practice in selection for admission to schools of architecture is scarce and intermittent, especially for research emanating from South Africa or the African continent. Contrary to the scarcity of such literature on the architectural front, recent home-grown research on student selection is quite accessible. It addresses selection for tertiary students in general[5] terms, as well as admission to specific academic programmes[6] presented at South African universities. Apart from the transformation agenda relevant to a post-Apartheid context, a recent upsurge in research on admission and selection was driven by the introduction of the National Senior Certificate (**NSC**)[7] which has marked the final year of secondary schooling in South Africa from 2008 onwards. This research is overwhelmingly based on admission procedures that are driven by quantitative considerations that have an explicit relationship with the programme content and are therefore are easy to define or defend. This is not the case with architecture.

A number of references that address broader issues in architectural education make incidental or supplemental references to selection as part of arguments and narratives that focuses on other topics, especially the history of architectural education. Such references can be found in literature that pertains to the European precedents that are considered to have established and developed studio-based education, namely the École des Beaux-Arts – and its predecessors the Academie Royale d'Architecture and the Academie des Beaux-Arts; see Egbert (1980:xxi-xxii) – and the Bauhaus. The gruelling competitions held to admit students to the French Beaux-Arts institutions are discussed in almost every source that cares for its pedagogic influence, from Weatherhead (1941), who scrutinises the École for its influence on architectural education in the United States, to Broadbent (1995), whose essay is a précis of architectural education and its development in the Western world. Similarly, the history of the Bauhaus has been comprehensively documented. Its admission policies can be extracted from its academic programmes and statutes that have been collated, translated and published in an exhaustive archival document by Wingler (1969). Other studies, like the one by Wick (2000), *Teaching at the Bauhaus*, offer further analysis and points of interest, although they are generally sparse on issues of admission.

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5   See, for example: Mabokela (1997); Maree (2003); Visser and Hanslo (2005); Van der Merwe and De Beer (2006); Wiese, Van Heerden and Jordaan (2010); Wilson-Strydom (2012).

6   See, for example: In business and commerce: Kotzé and Griessel (2008), and Rankin, Schöer, Sebastiao and Van Walbeek (2012); in chemistry: Potgieter and Davidowitz (2010); in dentistry Ebersöhn and Maree (2003); in industrial design: Oosthuizen (2007); in medicine: Essack, Wedekind and Naidoo (2012); Van Zyl, Gravett and De Bruin (2012), Naidoo, Flack, Naidoo and Essack (2014) and Sommerville (2014); in the natural sciences: Maree, Fletcher and Sommerville (2011); in optometry: Mashige, Rampersad and Venkatas (2014); in statistics: Latief and Blignaut (2008).

7   The following examples illustrate research that relate to the higher education sector's responses to the introduction of the NSC: Nel and Kistner (2009); Blignaut and Venter (2011); Dlomo, Jansen, Moses and Yu (2011); Zewotir, North and Murray (2011); Essack, Wedekind and Naidoo (2012); Rankin, Schöer, Sebastiao and Van Walbeek (2012).

Some articles from the late twentieth-century address selection at schools of architecture in the United States of America. Moore (1970) critiqued the prevailing means of assessment for admission and suggested they be augmented with alternative tests that may reveal creative problem solving abilities. Nelson (1974) investigated the sociological reasons why students choose to study architecture and highlighted the fact that the majority of beginner students are total neophytes to architecture, while Domer (1981) analysed a battery of assessment tests and indicators for the admission of architecture students at the University of Kansas.

Peripheral references to selection at schools of architecture in South Africa are found in contemporary texts on the transformation of the architectural education sector, such as articles by Carter (2004:7-8) and Le Grange (2014:43-44), both specifically arguing points pertinent to the demographic distribution of the student intake at the school of architecture of the University of Cape Town (**UCT**). Selection at this school in 2001 is described and analysed in the paper 'Selection in a time of change' by Murray (2001); it provides insight to the challenges faced by many local schools of architecture.

Casakin and Gigi (2016) explored the relationship between visual and verbal cognitive styles and the performance of candidates in selection for admission to the school of architecture at the Ariel University in Israel. Adewale and Adhuze (2014) investigated the relationship between subject-specific admission requirements from and the academic performance of architecture students at certain tertiary institutions in Nigeria. They found that a student's performance in physics and mathematics made no significant contribution to their later performance at a school of architecture. Similar enquiries dealing with specifics of locale can be found in articles by Cubukcu and Cubukcu (2009), who studied possible correlations between the results of a centralised university entrance exam and the results of students in architecture in Turkey, and Olweny (2008), who questioned admission criteria for studies in architecture in Uganda. The recent thesis by Olweny (2015) appraised socialisation in architectural education in East Africa – Burundi, Kenya, Rwanda, Tanzania and Uganda; it reveals perceptions and expectations of architectural education (from both students and members of faculty) and includes pertinent arguments about selection and the clarification of intake criteria.

Some pertinent research exists that addresses issues like normative positions, approaches, procedures and reflections on the outcomes of selection. The work of Abercrombie, Hunt and Stringer (1969, 1972) presents a comprehensive study of selection for admission to the Bartlett School of Architecture at University College London (**UCL**) for the period between 1960 and 1968. In *Selection and academic performance of students in a university school of architecture* (Abercrombie et al 1969) they account for the investigations of a research unit that was responsible for developing and implementing selection criteria through different procedures and formats, and studying the outcomes with statistical analyses overlaid with various informants on successful (and even some unsuccessful) applicants. This study is an exemplary model for both the depth and breadth of its research and its concern for the specificity of the school with which it was engaged. It is clear that the unit advised on more than selection as they actively supported teaching and learning, and assisted in formulating the Bartlett's approach to both at the time.

Goldschmidt, Sebba, Oren and Cohen (2001:281-289) investigated the means employed by 69 schools of architecture in 21 countries to assess applicants for admission through selection. Their analysis usefully extracted eight main assessment tools and indicated that congruent trends exist among the respondents to their survey, albeit that those respondents often offered disparate motives for the same action or disparate actions motivated by the same approach. Subsequently, their work was presented with a focus on a single school of architecture – Israel's Technion – in Oren, Cohen, Goldschmidt and Sebba (2005). The assessment tools defined by Goldschmidt et al (2001) informed components of, and some procedures for, this thesis. It also served as the basis for an enquiry on selection tools by Salama (2005:5), who extended the initial survey to a total of 118 institutions with similar quantitative findings as Goldschmidt et al (2001).

Two recent research studies are of interest as they investigate selection within the framework of architectural education in very specific contexts. The thesis by Izadi (2002) concentrates on the context of Iran with the purpose of evaluating and improving the methods of student selection in Iranian schools of architecture in the context of changed legislation and government requirements. Roberts (2004) locates his research at the Welsh School of Architecture at Cardiff University; his thesis investigates the (possible) relationship between cognitive style and a student's performance in architectural design education.

In the South African context an abridged reference was found in University of Natal (1973: 22-25). The document is a transcript of an architectural teachers' seminar held in Durban, South Africa, during July 1973. It summarises a paper presented by Harber and Kearney and the ensuing discussion. This source indicates that that there was interest in selection and that research had been conducted on the matter at some South African schools of architecture. Le Grange (1989:36-38) highlighted challenges in the recruitment and admission of black students in South Africa with reference to the school of architecture at UCT. Most recently the research of Janse van Rensburg (2011, 2015, 2016) has highlighted the role of the design studio (and the pedagogic approach of those who lead studios) in her discourse on transformation. While her thesis (2015:450-461) documents the selection process at the University of the Witwatersrand (**Wits**), it deals in depth with the development of her normative approach to teaching architecture to beginner students after selection is concluded.

For the purpose of this study, the most significant local sources on the selection of students for studies in architecture relate to selection practices at UP. The first of these is a thesis in psychology (Herholdt 1972) that presents a programme for the selection of architecture students at UP. This thesis was developed with the Department of Architecture at UP and served as the basis for its selection practices from 1971 until the mid 1990s. These practices were assessed in Kemp's report on selection between 1971 and 1990 (Kemp 1991) and other references from the period documented in the archives of the Department of Architecture at UP.

1.2.3. Research opportunity

From the overview of existing literature it is clear that there is very little pertinent literature available, especially of a contemporary nature and emanating from South Africa, on the selection of students for admission to programmes in architecture. There are many possible reasons why this is so; one might speculate that institutions may view information on selection as proprietary, or it could be that selection is separated from the academic agenda and, as such, resorts under administrative functions performed by non-academic staff. It could also indicate a lack of research or interest (or both), or indeed that no need exists for such research. Indications are that the latter is unlikely as the practice is prevalent in most schools of architecture worldwide and the published body of knowledge therefore contradicts the reality that selection for admission is a ubiquitous practice.

Thus, the impetus for this study, against this background of scarcity, the availability of unpublished archival sources and the experience accumulated over the past decade with structuring and implementing a procedure for selection provide an opportunity for conducting this research.

1.2.4. Problem statement

1.2.4.1. Main problem statement
The main problem is to critically assess the methods employed for the selection of beginner students in architecture at UP between 1971 and 2016 in order to reflect and make recommendations as to current procedures.

1.2.4.2. Supposition to the main problem
The supposition to the main problem is that a generalist approach to selection is inadequate for the appropriate assessment of applications for the admission of beginner students in architecture at UP and therefore that a specific approach is required that is informed by the modes and means of learning and teaching in the programme for which students are selected.

1.2.4.3. Subproblem 1
In order to understand the context of the main problem we need to critically investigate the admission procedures and assessment tools for selection into systems of architectural education worldwide.

1.2.4.4. Supposition to subproblem 1
The supposition to subproblem one is that schools of architecture worldwide use a variety of differing admission procedures and apply multiple assessment tools during selection.

1.2.4.5. Subproblem 2
In order to understand the context of the main problem we need to determine and critically investigate the admission procedures and assessment tools for the selection of beginner students into schools of

architecture in South Africa.

1.2.4.6. Supposition to subproblem 2

The supposition to subproblem two is that schools of architecture in South Africa use admission procedures and assessment tools for the selection of beginner students that are similar to those used by schools of architecture worldwide.

1.2.4.7. Subproblem 3

In order to understand the context of the main problem we need to critically examine the trajectory of historical selection practices for the admission of beginner students in architecture at the University of Pretoria from 1971 until 2006.

1.2.4.8. Suppositions to subproblem 3

The first supposition to subproblem three is that the trajectory of historical selection practices for the admission of beginner students in architecture at the University of Pretoria between 1971 and 1994 were based on research findings and were compatible with and analogous to teaching and learning in the programme for which students were selected.

The second supposition to subproblem three is that the trajectory of historical selection practices for the admission of beginner students in architecture at the University of Pretoria between 1995 and 2006 was informed by managerial policies and were general and not specifically aligned with teaching and learning in the programme for which students were selected.

1.2.4.9. Subproblem 4

In order to understand the context of the main problem we need to critically examine the trajectory of selection practices for the admission of beginner students in architecture at the University of Pretoria from 2007 until 2016.

1.2.4.10. Supposition to subproblem 4

The supposition to subproblem four is that the selection practices for the admission of beginner students in architecture at the University of Pretoria between 2007 and 2016 were specific to, and had a positive interrelationship with, teaching and learning in the programme for which students were selected.

1.3. DELIMITATIONS

The concern of this study is the standard educational trajectory for architectural education in South Africa, namely a full-time, studio-based education with an undergraduate degree at level 7 of the National Qualifications Framework (**NQF**), followed by two postgraduate degrees at NQF levels 8 and 9 respectively.

The study deals with the selection for admission of beginner students in architecture, namely those first year students at undergraduate or first-degree level who have not previously undertaken studies in architecture at a higher education institution. It therefore includes school leavers, but also those who may have studied towards other degree or diploma courses in other disciplines and who may, or may not, have completed such studies.

The context of this research after the first year of study is the first qualification that a beginner student could or can obtain at UP. As the case study covers a period of forty-five years, during which the structure and duration of the programme changed, the study is concerned with the five and six-year Bachelor of Architecture degree until it was replaced with the three-year Bachelor of Science in Architecture in 1999. The admission of advanced students, including those undertaking professional postgraduate studies and those applicants undergoing Recognition of Prior Learning (**RPL**) procedures, are excluded from this study.

1.4. ASSUMPTIONS

It is assumed that this study is undertaken within a framework of academic normalcy and academic and organic and evolutionary change and that therefore that any findings and results will impact positively and progressively in a related future academic trajectory.

1.5. METHODOLOGIES

Mixed methodologies were employed in the undertaking of the research. Sources were engaged through a literature study in order to build a frame of reference so as to be able to situate the study and subsequently to critically distil aspects pertinent to the research. In order to contextualise this information on the local front a survey of selection practices at schools of architecture in South Africa was undertaken by means of a questionnaire compliant with the demands of research ethics.

The initial desktop study of literature was subsequently expanded to the sourcing, collating and systematising of primary material for their accessioning to the Department's repository for future research. This was done in an effort to access information pertinent to the major case study and to assist in delineating and developing an understanding for particular episodes in the trajectory of historical selection practices there. It was also necessary to document aspects of recent selection practices in order to make them available to reviewers and to allow for the critical assessment of, and reflection on, ongoing procedures.

1.6. EXPECTED OUTCOMES

The principal expected outcome is to be able to situate the selection practices for the admission of beginner students in architecture at UP over the course of forty-five years within the international and the local frameworks of practice so as to be able to identify strongpoints and shortcomings that could confirm or refute the validity of the selection practices, the approaches that inform them and the procedures through which they are implemented. It is expected that a critical assessment and reflection will serve to improve and support future endeavours in selection.

1.7. DEFINITION OF TERMS

Admission refers to the act of obtaining and gaining entry to an academic institution, for the purpose of this study to a higher learning institution and specifically to a school of architecture. Admission is a generic term and does not imply that a prospective student will gain entry by means of selection.

Academic year refers to the South African academic calendar year. At the UP the academic year starts in February and ends early in December. Academic years therefore correspond with calendar years. The academic year in South Africa is divided into two semesters, with short recesses in April, July and September. Current practice requires that selection for a particular academic year take place in the preceding year. Unless otherwise stated, this study refers to cohorts according to the calendar year in which their studies officially commenced.

Admission criteria – see Admission requirements

Assessment instruments refer to the means that guide assessors in a specific evaluation task. In the context of this thesis assessment instruments are employed to direct the evaluation of assessment tools during selection.

Admission policy refers to the official procedure and protocol published by an academic institution in order to outline their admission requirements and admission procedure. An admission policy is generally approved by management or other structures of an institution and thus become sanctioned through regulation.

Admission procedure refers to the measures used by academic institutions to effect the admission of a student. This may include selection.

Admission requirements refer to the requirements published by higher education institutions as prerequisites for admission to a specific academic programme. It usually entails minimum achievement ratings or percentages for specific school subjects and an average expression of the applicant's academic achievement, such as the Matriculation Score or an Admission Point Score (APS). Typically meeting the minimum admission requirements does not guarantee admission if the institution selects applicants for admission to academic programmes with a limited intake.

Assessment tools generally refer to the instruments used to evaluate or measure the progress, development or academic readiness of a learner, student or applicant in an academic environment. In the context of this study, assessment tools refer specifically to the instruments that schools of architecture employ to evaluate applications for admission through selection.

Beginner student refers to a student who commences higher education in a specific field of study. In the context of this thesis a beginner student of architecture is a first year student at undergraduate level who has not previously undertaken studies in architecture at higher education level.

Criterion (or **criteria** in the plural form) refers to a standard or principle by which an aspect may be judged or decided or that serves as a reason for making a judgment or decision.

Ecosystemic thinking is an approach that was borrowed from the discipline of psychology. According to Fisher and Clarke (2011:20): "To think ecosytemically is to think of systems as nested, each as part of a larger system; made up of sub-systems and in turn as a part of a supra-system. These sub-systems can develop properties that are emergent and are thus uniquely properties of the supra-system and not found in the sub-systems. We can thus speak of the ecology of building materials as biologists would use the term, and understand the term and see each element as part of a larger whole which impacts on other sub- and supra-systems."

Matric (shortened from **matriculation**) refers to the highest year of secondary schooling in the South African educational system, namely Grade 12 (of twelve years of combined primary and secondary schooling) through which a learner can obtain the National Senior Certificate; from this term follows **matriculant** (a learner completing the final year of schooling) and matriculate (completing Grade 12 successfully with a pass grade).

School of architecture refers to a department, unit or other managerial entity at higher education institutions that formally presents validated professional programmes in architecture according to the following definition of the Collins English Dictionary (2007:1444): "a faculty, institution, or department specializing in a particular subject". Confusingly, the organisational structure of higher education institutions in South Africa refers to academic programmes that are presented by departments that are organised in schools or colleges that are, in turn, grouped together in faculties. As an example, the Department of Architecture at UP presents professional programmes in architecture, among other disciplines, validated by the local statutory body and is therefore, in the context of this study, a school of architecture. Organisationally, the Department of Architecture forms part of the School for the Built Environment, which in turn resorts under the Faculty of Engineering, Built Environment and Information Technology at UP.

Selection refers to the processes and procedures employed by higher learning institutions to scrutinise and assess aspects of a prospective student's academic credentials or other abilities through predefined criteria, or by employing a range of possible assessment tools, or a combination thereof, prior to granting admission to an academic programme.

1.8. ABBREVIATIONS AND ACRONYMS

AERU - Architectural Education Research Unit (at the Bartlett School of Architecture)

AA - Architectural Association

APS - Admission Point Score

ARB - Architects Registration Board

ASAT - Architecture School Aptitude Test

CAA - Commonwealth Association of Architects

CPD - Continuing Professional Development

CPUT - Cape Peninsula University of Technology

CSIR - Council for Scientific and Industrial Research

DUT - Durban University of Technology

GPA - Grade Point Average

ICOMOS - International Council on Monuments and Sites

ISAA - Institute of South African Architects

MIT - Massachusetts Institute of Technology

NATA - National Aptitude Test in Architecture

NBRI - National Building Research Institute, a division of the CSIR

NBT - National Benchmark Tests

NCARB - National Council of Architectural Registration Boards

NQF - National Qualifications Framework

NMMU - Nelson Mandela Metropolitan University

NSC - National Senior Certificate

OBE - Outcomes Based Educational

RPL - Recognition of Prior Learning

RIBA - Royal Institute of British Architects

SACAP - South African Council for the Architectural Profession

SAIA - South African Institute of Architects

SANS - South African National Standards

SAQA - South African Qualifications Authority

TUC / TUK - Transvaal University College / *Transvaalse Universiteitskollege* in Afrikaans; antecedent of
　　　　　　　UP and therefore the origin of the acronym **Tuks** that is generally used to refer to UP

TUT - Tshwane University of Technology

UCL - University College London

UCT - University of Cape Town

UFS - University of the Free State

UIA - International Union of Architects

UJ - University of Johannesburg

UKZN - University of KwaZulu-Natal

UP - University of Pretoria

Wits - University of the Witwatersrand

There is one thing that we all may agree on that studio is excellent for: As a social and organizational setting studio is the ideal context to learn the art of good judgement. This is important because analysis and logic reasoning, however important they may be, do not suffice for making architecture. We are talking about the ability to make wholes that are more than the sum of their parts, juggling multiple and elusive criteria in doing so. (Habraken 2007:11)

CHAPTER 2 **THE PROBLEM IN ITS CONTEXT**

2.1. OUTLINE OF CHAPTER 2

The context of the problem statement is explored in this chapter. It starts with a brief exploration of the notion of architecture, followed by an overview of the context of an education in architecture with particular reference to the origin of the dual format of project and theory from a Western perspective. This links with and introduces the context of architectural education in South Africa, where the establishment of schools of architecture is traced and outlined in the context of some of the major developments that helped shape the eleven schools of architecture that presented validated programmes in 2016. The contents is ordered from the general to the specific and, where possible, presented chronologically.

2.2. OVERVIEW OF THE RELATED LITERATURE

A wide range of sources were consulted to assist the writer in forming an understanding and formulating a contextual thread for the research presented in this chapter. Useful references include Julia Williams Robinson's (2001) ideas on the form and structure of architectural knowledge and Thomas Fisher's (2001) on revisiting the discipline of architecture..

Most helpful in this process was *The Architect: chapters in the history of the profession*, edited by Kostoff (1977a) that includes his chapter on the practice of architecture in the ancient world (1977b), that by Wilton-Ely (1977) on the rise of the professional architect in England, the study of John Galen Howard and the École des Beaux-Arts by Draper (1977) and the essay on the emergence of the Italian architect by Ettlinger (1977). Among other informants count *The beaux-arts tradition in French architecture* by Egbert (1980) and the overview of architectural education by Broadbent (1995). Equally edifying was the thesis by Weatherhead (1941) on *The history of collegiate education in architecture in the United States*,

which has become a standard reference for the history of schools of architecture in the Western world in the early twentieth century. On Germany and the Bauhaus the texts by Gropius (1971), Wingler (1969) and Wick (2000) stood out.

The norms, requirements and reports by bodies that validate and accredit academic programmes at schools of architecture proved insightful; these include publications by the Royal Institute of British Architects (RIBA 2014), the Commonwealth Association of Architects (CAA 2008) and various documents published by SACAP, including its guide to validation (SACAP 2012) and annual reports (SACAP 2015, 2016a). Information made available by the South African Institute of Architects (SAIA 2016, 2017), and the early history of its predecessor, The Institute of South African Architects (**ISAA**), published in ISAA (1959) were useful, but in the absence of a seminal text on the history of architecture, and an education in architecture in South Africa, an array of sources had to be consulted. Prof. Pearse's report on architectural education (Pearse 1934), Herbert's work on the modern movement in South African architecture (Herbert 1975) and the thesis by Van Graan (2011), *Negotiating Modernism in Cape Town: 1918–1948*, proved valuable in outlining aspects of local interest. Articles, for example those by Natas (1971), Theron (1985), Le Grange (1989), Davies (1996), Young-Pugh (2005) and Carter (2013) filled gaps in the unfolding of a narrative.

2.3. THE CONTEXT OF ARCHITECTURE

According to the Collins English Dictionary (2007:82-83) the English the word 'architect' originates from the sixteenth century French noun *architecte* derived from the Latin *architectus* that is based on the Greek *arkhitektōn*, where *arkhi-* means chief or principal (derived from *arkhein* – to rule) and *tektōn* refers to workman or builder (related to *tekhnē*, meaning art and skill). According to this etymology the architect is thus literally the principal builder.

The need for shelter – and, reciprocally, the intentional action of shaping environments – predates the notion of architecture as a vocation and the architect leading those who build. Habraken (2007:12) summarises the emergence of the profession as follows:

> The architect we think ourselves to be emerged in the Renaissance. It was Alberti who first defined him, declaring he was no longer beholden to vernacular customs, and could, by his inventions and creativity, do buildings never seen before. And it was Palladio who established our professional role model along that vision. From then on the architect did the special building: the castle, the place of worship, the palace and the villa, the town hall and the courthouse.

Kostof (1977a:v) defines those who practice architecture as "[…] conceivers of buildings. What they do is to design, that is, supply concrete images for a new structure so that it can be put up. The primary task of the architect […] is to communicate what proposed buildings should be and look like". He adds that the profession supplies "[…] the specialized skill that is called upon to give shape to the environmental needs of others" (1977a:vi). The Department of Architecture (2016a:2) at UP explains it as follows:

Architects design spaces and buildings to satisfy our daily needs and improve the environment in which we live. They need abilities and skills that range from the practical to the artistic and from the technical to the theoretical. As professionals they conceptualise, design and document building projects and oversee quality control during construction. Architects are ethically and legally bound through Institutes and a government controlled Council which protects the interests of the public. Architects may manage their own practices or work for other, often, multidisciplinary firms, or can make contributions to the government sector and education.

As the discipline of architecture is centred on the design of space, the architect's core competencies with regards to the spatial artefact have not significantly changed in the modern[1] era. Architectural knowledge is produced and disseminated through its branches of practice, education and research (Robinson 2001:62). While education acts as a threshold to the profession, there is, despite some chasms, a coterminous relationship between practice and the academy. Duffy (1995:121) interprets this coalition as follows: "The profession is as good as a school and the schools are as good as the profession". Effectively all three branches rely on and, in turn, inform other fields and disciplines across a broad spectrum of interests and amid a rapidly expanding production of knowledge. This wide scope and reach – see Figure 2.1 – is deemed integral to the identity and praxis of architecture.
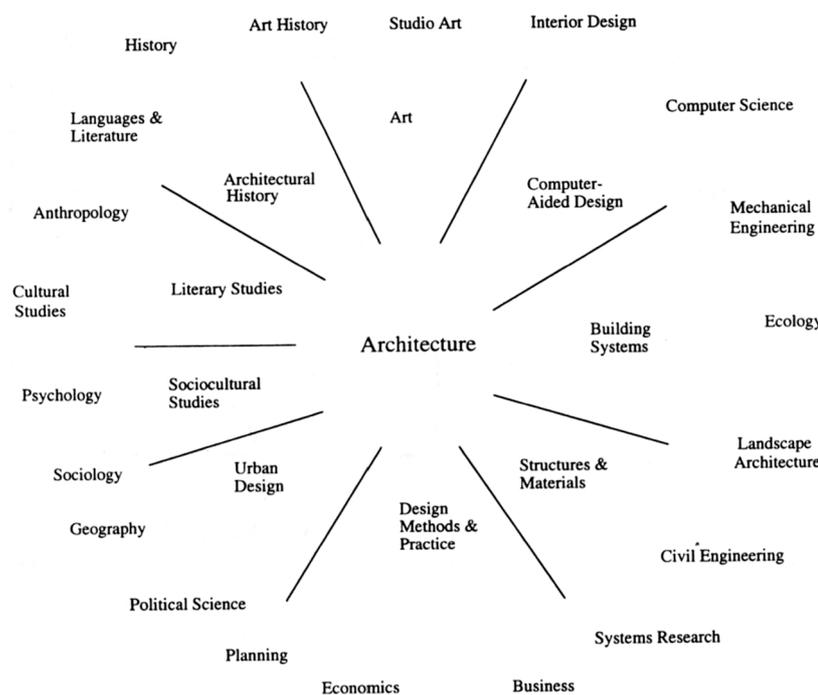
FIGURE 2.1 The relationship of architecture to other fields and disciplines (Robinson 2001:70)

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1   The term 'modern' is used according to the following definition in Collins English Dictionary (2007:1046): "belonging or relating to the period in history from the end of the Middle Ages to the present".

With this growing production of knowledge, or perhaps because of it, the relationship between architect, patron and the end users for whom the spatial artefact is intended, has evolved over time. From a Western understanding patronage of the profession has, since the dawn of the modern era, slowly shifted away from state and church to a capitalist client-base in a free-market economy. The emergence, in the late twentieth century, of the global village and its economic realities forced the profession to question its role in society (Fisher 2001:5-7) and the paradigmatic shift in societal informants that impact on our collective spatial conscience. In part this was escalated by a global economic slump over the past decade, but it was also necessitated by other agendas, such as the impact of climate change on the built environment. With a multitude of informants on which to draw and respond, multidisciplinary and cross-disciplinary engagements have become unavoidable for the architect in the twenty-first century.

2.4. THE CONTEXT OF AN EDUCATION IN ARCHITECTURE

In one of the oldest surviving treatises on architecture, the Roman architect Vitruvius (c.80-70 BCE-c.15 CE)[2] famously proclaimed that "The architect should be equipped with knowledge of many branches of study and varied kinds of learning, for it is by his judgement that all work done by the other arts is put to test. This knowledge is the child of practice and theory" (Vitruvius 2006:40). His division of architecture into practice (Latin: *fabrica*) and theory (Latin: *ratiocinatio*) relates, albeit indirectly (Pont 2005), to the dual format of learning that has come to dominate architectural pedagogy. This dual format consists of theory, conventionally shared in lecture-format, and projects executed in the design studio (Broadbent 1995:16).

Theory inclusively covers aspects that, at the extremities, include the natural sciences and their primarily pragmatic application in the built environment, and subjects from the human sciences, such as history, that address precedents, philosophical viewpoints and other texts so as to unlock the meaning of place and the rituals that designed space facilitate. Ideally the theory component, as a whole, diachronically and cumulatively supports the project endeavours of the design studio, which over time has come to be recognised as the mainstay of the architect's education. On this point, Fisher (2001:4) argues that, despite other societal and ideological changes, design-orientated, studio-based pedagogy has, for more than a century, remained moderately stable.

Studio-based learning typically follows the format of a "reflective practicum" (Schön 1985:89) through learning-by-doing, discussion and critique closely associated with the project method (Knoll 1997) and broadly based on a Socratic mode. Salama (1995:1) contextualises the role of the studio as follows:

> Despite the considerable differences in the process of educating future architects around the world, there is one remarkable similarity – the overriding primacy given to the design studio as the main forum of creative exploration, interaction, and assimilation. The design studio is the kiln where the future architects are molded. It is the primary space where budding professionals explore their

2   Where available, biographical dates are given only for deceased persons in this study.

creative skills, which are so prized by the profession. Thus, the attitudes imbibed in the studio are those that young graduates take to the profession. The architectural design studio occupies the core of the education of architects. This is evident in the time devoted to teaching architectural design and the importance given to the design studio by the students and the teaching staff.

Fernando (2007:143) explains the many aspects of learning in a studio environment when he writes:

> In the stage of design education, the design studio exists in a range of contextual sets: it is an artist's studio where aesthetic and creative ideas are materialized; it is a lab where experiments in building technology are conducted; it is a philosophical scene where theory of design is explored; and it is also a social workshop where the relevance of human and socio-cultural aspects of a design is addressed and applied. Although distinct from each other, these different sets must exist concurrently to achieve a comprehensive studio experience and to fulfil the need for a broader and all-inclusive design studio education.

The studio's prominence is clearly articulated in the requirements of local and international bodies that validate programmes in architecture. SACAP (2012:24) requires that validated courses "must be balanced between the theoretical and practical aspects of architectural training" and, like the Royal Institute of British Architects (RIBA 2014:5) and the Commonwealth Association of Architects (CAA 2008:11), SACAP (2012:25) stipulates that at least half of all formal learning in validated academic programmes should be design-related project work.

2.4.1. Historical analysis

In the following historical analysis the origin of the studio system in tandem with theory lectures from a Western perspective is investigated. Pivotal episodes in the development of architectural education in Europe, the United States of America and the United Kingdom are explored so as to contextualise current educational practices for architects in South Africa. In it is established how architects rose from artisans to be trained through internships in practice and eventually through full-time tertiary study that relies heavily on the design studio as a place of teaching and learning. All this is set against the background of the drive for professional recognition obtained through an academic qualification.

Kostof (1977a:v) suggests that the presence of architects was documented as long as five thousand years ago, but little is known about their training, if any, that enabled the proto-architect to make temples and monuments. It is accepted that Theodoros (or Theodorus) of Samos (d. 540 BCE) managed a private school of architecture in Sparta in the sixth century BCE (Kostof 1977b:16) and that architecture was discussed at Plato's Academy in Athens about three centuries later, although it was probably not formally taught (Broadbent 1995:10-11; Knoll 1997). Vitruvius (2006:42) suggested that the architect should be "[…] educated, skilful with the pencil, instructed in geometry, know much history, have followed the philosophers with attention, understand music, have some knowledge of medicine, know the opinions of the jurists, and be acquainted with astronomy and the theory of the heavens". This idealised prospectus gives us clue that an education must prepare the practitioner to deal with the broad spectrum of informants since the concerns that impact on the architect's decision-making are wide-ranging and varied.

2.4.2. Italy and France

Architects in the Western world were, for centuries, trained in situ, initially as artisans under master builders, and later through formal apprenticeships until the dual format of theory lecture and design project was progressively introduced from the sixteenth century onwards.

> Gradually, the two professions, builder and designer, diverged; the split between handicrafts and design grew and eventually resulted in the transformation of the building profession from a technical skill-based craft to a more innovative and creative form; as simple bricklaying and masonry skills developed into the sophisticated and creative application of form, mathematics and geometry, architecture evolved from a practical profession to a learned field of study. (Salama 2015:21)

The modern notion of studio projects as part of an architect's education stems from the popularity of design competitions in Renaissance Italy – see Ettlinger (1977:104-109) – and was reinforced by Italian architects' ambition towards professional recognition beyond the status of artisan. Knoll (1997) describes how projects (Italian: *progetti*) were introduced as hypothetical design exercises to supplement lectures at the Accademia di San Luca from 1596 onwards, but adds:

> […] this does not imply that the project method had emerged as a central teaching device, since the competitions organized by Accademia di San Luca were not viewed as an integral part of training. Participation was open to every young architect, regardless of whether he was a student at the Academy or not.

The institution that ultimately established the studio project, and formalised weekly discussion groups into theory lectures, was fashioned after this early Italian model. At the French Académie Royale d'Architecture, founded in 1671 (Egbert 1980:18), and its eventual successor, the École des Beaux-Arts (hereafter the École), students effectively worked as interns and acquired design and presentation skills in the studios of their masters while attending lectures on a weekly roster at the academy. According to Broadbent (1995:13-15) these lectures initially dealt with subjects such as arithmetic, geometry, mechanics, military architecture and fortifications, perspective and stone cutting; by the early nineteenth century the curriculum covered the theory and history of architecture, construction, perspective and mathematics and by the early twentieth century it included physics and chemistry, descriptive geometry, building law, general history and the history of French architecture.

By the late eighteenth century the monthly Prix d'Emulation was well established as a scholastic and teaching method and students were required to complete several such competitions to advance academically (Knoll 1997). Like the Concours du Grand Prix de Rome, the prestigious annual design competition established in 1720 that advanced a student to attend the French Academy in Rome, the monthly competitions tested a student's ability to sketch (in the *esquisses*) and render and compose a design proposal for presentation (in the *projets rendus*) in response to a specific brief (Broadbent 1995:15). The approach of the École was eminently an academic one characterised by an "emphasis on the study of compositional theory and traditional principles of formal design" (Egbert 1980:4).

2.4.3. United States of America

The École had a substantial influence on architecture and architectural education beyond the sphere of the Francophiles. This is especially evident in the United States of America during the late nineteenth and early twentieth centuries, where the first formal school of architecture at a tertiary institution in the Anglo-Saxon world was established (Weatherhead 1941:24). Draper (1977:209) explains that the École's influence in the United States was partly based on ambitions towards the Beaux-Arts' values "[…] at a time when American architects were lobbying for state licensing laws, decrying the low quality of public buildings, organizing professional societies, and attempting to found new schools." Weatherhead (1941:5), who describes the École as "the leading one for the training of architects throughout the world for two centuries", notes that many prominent American architects were trained at the École in Paris and that the new schools of architecture in the United States followed the Beaux-Arts format and teaching methods. He ascribes this influence to thirteen important factors, among them the École's rigid entrance examination, the fact that the instructors in the École were practicing architects of high repute who offered individual instruction to students, that this instruction was based on individual competition with the incentive of prizes, that progress was measured by the quality of a student's work (as opposed to the duration of study) and their educational philosophy with an emphasis on design supported by theory and the development of skills, especially in presentation (Weatherhead 1941:17-21).

The Beaux-Arts tradition manifests at the first schools of architecture established in the United States, namely those at the Massachusetts Institute of Technology (**MIT**), where teaching commenced in 1868, and later at Cornell University, especially so after 1896 (Weatherhead 1941:24-25, 33-35). This was cemented by graduates of the École lecturing design at the new American schools, most notably Eugène Létang (1842-1892) and Constant-Désiré Despradelle (1862-1912) at MIT (1941:29-31). At least at MIT, design was, from the outset, taught continuously throughout the course, as opposed to other early American institutions where it was only introduced in the last year of study (1941:34, 39, 42). It was significant that the design studios at most of these institutions were integral to the schools and thus not located in practice (1941:27-28). This has come to typify the American model of architectural education. Robinson (2001:61) explains the major shifts in architectural education in the United States as follows:

> Since the nineteenth century, [architecture's] locus of education has changed from the architecture firm to the higher education institution. Its instructional practices have shifted from a predominantly apprenticeship system to a system of classroom-based teaching supplemented by apprenticeship. The role of architectural instructors is changing from master architect, whose knowledge and theory of making buildings is personally held, implicit, practical, and integrated, and who instructs by demonstration, to that of professor who imparts explicit, specialized knowledges, using explanations based in architectural theory and science. The role of the student has changed from learning one synthetic approach from a knowledgeable individual to learning to synthesize a variety of knowledges from different perspectives and disciplines. Architectural theory is changing from prescription based in historical precedent to critical analysis and explanation deriving in part from the scientific model.

While the American Institute of Architects, founded in 1857, was instrumental in lobbying for the eventual establishment of education programmes (Weatherhead 1941:14), the profession was only later regulated

through the process of licencing. The number of schools in the United States increased dramatically after Word War II and the National Council of Architectural Registration Boards (**NCARB**) currently regulates standards for the licensing of architects in the United States and thereby indirectly controls the outputs of architectural education (NCARB 2017).

2.4.4. United Kingdom

In England the medieval artisan and master builder were gradually replaced by a "gentleman-architect, with a Classical education and an Italian bias acquired through the Grand Tour" (Wilton-Ely 1977:187). The notion of a single practitioner being responsible for both the design and supervision of buildings was established towards the latter part of the eighteenth century, while the only form of training available at this time was through the "irregular standards" (Wilton-Ely 1977:197) of articled pupilage in an architect's office, possibly supplemented by drawing classes. Weatherhead (1941:23) critiqued it as follows:

> The pupilage method could not afford a well-rounded training. It was necessarily lacking in any thorough study of the sciences of construction, and little opportunity was afforded for development in creative design. The student's experience consisted of contact with buildings, either completed or in the process of construction, and with the actual office routine. Thus it tended to produce good office men, well-grounded in English traditions of design and practical methods of construction, but not brilliant designers.

The Royal Academy Schools, founded in 1768 and principally based on the model of the French academy, was the first institution to offer classes in architecture in Britain, but these were intermittent and intended to supplement practice experience or educate privileged young men. Its standing was improved under the professorship of Sir John Soane (1753-1837), who taught there from 1806 and 1837. His lectures, some controversial, were extensively illustrated and his collections of antiquities, books, and artworks were principally intended as teaching tools. Soane was also a successful practitioner and is widely considered as the father of the architectural profession in Britain; his practice also took pupils (O'Donoghue 1898:210-211).

Wilton-Ely (1977:191-193) identifies the launch of the Institute of British Architects in 1834, designated as 'Royal' by Queen Victoria in 1866, as the first move towards professionalism in England. The Institute's charter stated its concerns as "the general advancement of Civil Architecture, and for promoting and facilitating the acquirement of the knowledge of the various arts and sciences connected therewith" (RIBA 2017). To be admitted as a Fellow of the Royal Institute of British Architects (**RIBA**), it was required that prospective members had at least seven successive years of practice experience, while the designation of Associate indicated either fewer years of experience, or that the member was "engaged in the study of Civil Architecture" (Wilton-Ely 1977:193).

Amid rapid urbanisation in the wake of the industrial revolution, early nineteenth century England saw an increased demand for buildings, including new typologies, like railway stations, that required greater technical knowledge and innovation from the architect. To address this need, and to overcome the

general inadequate training available, coursework focusing on the technical aspects of design were introduced at UCL in 1841 and at King's College London (Wilton-Ely 1977:197-8). This was followed by the founding of the Architectural Association (**AA**) in 1847 by articled pupils who objected to the prevailing conditions in architectural training and the pupilage system that was costly (to the pupil), inconsistent and open to abuse (AA 2017). From the outset the AA's mandate was principally focussed on their members' interests; this informed its tradition of self-governance and independence as it proved to be a powerful lobby group that successfully exerted pressure on the RIBA for reform, as Wilton-Ely (1977:199) explains:

> In particular, through the AA's campaign for the creation of an equivalent of the French *Diplôme d'architecture*, the Institute was eventually persuaded to hold the first voluntary examination for entry to its Associate Membership in 1863. In return the AA set up a 'Voluntary Examination Class', thus establishing for the first time the modern concept of systematic study tested by examination as the basis of the architect's education.

The RIBA further improved and eventually formally systematised its examinations in 1887 into three parts – Preliminary, Intermediate and Final – and in so doing raised the level of expectation for the professional knowledge of architects. At the turn of the 1890s, rising in the numbers of membership and the demands of the new examination system directed the AA to undergo a major reorganisation that laid the groundwork for a more systematic, methodical course of study. The implication was that full-time study gradually began to replace the system of pupilage (AA 2017), with other institutions following suit (Wilton-Ely 1977:204).

Although the RIBA has never undertaken teaching, it has promoted architectural education as an alternative route to its membership and therefore developed systems for recognising academic programmes that achieved the standard for exemption from the Institute's examinations. "In 1924, RIBA visiting boards were established to evaluate courses and examinations preparing students for professional practice. These visiting boards are the foundation of the current RIBA validation system" (RIBA 2014:5) and has been accepted as the norm for the validation of academic programmes.

Legislation passed in the 1930s saw the establishment of the Architects' Registration Council of the United Kingdom and the Board of Architectural Education, but these bodies were superseded by the Architects Registration Board (**ARB**) after the publication of the Architects Act 1997. The ARB is now the statutory regulator of architects in the United Kingdom charged with prescribing or recognizing the qualifications required to become an architect and keeping the Register of Architects, among other duties (ARB 2017a).

2.4.5. Germany

The Kingdom of Prussia, a precursor to modern Germany, had already in 1770 established a state architectural examination and its first laureate – architect David Gilly (1848-1808) – established a private school of architecture at Stettin in 1783, followed by a Bauschule and Bauakademie in Berlin in the 1790s (Cellauro & Richaud 2006:130). Here construction and materials were emphasized as the basis for

design. The German schools of architecture of the late nineteenth and early twentieth century continued this scientific approach and they maintained close links with engineering and technical schools. The training was "[…] long, rigid and technical, with little opportunity for individual freedom or originality in design" (Weatherhead 1941:23).

The Staatliches Bauhaus in Weimar, established in 1919, arguably had the most enduring legacy of early twentieth century schools of architecture in the Western world. Amidst the rise of Modernism in Western Europe and the economic ravages of World War I (1914-1918), its architectural ambitions grew from a rejection of the prevailing design approach that was decried for being superficial and detached from technological progress (Gropius 1971:81-82). It aimed to unify all the disciplines of art as inseparable components of a new architecture (Wingler 1969:32) that embodied the notion of total works of art (German: *Gesamtkunst*). This was to be achieved by "combining imaginative design and technical proficiency" (Gropius 1971:52) that, on the one hand undermined the medieval romantic view of crafts and, on the other, favoured a rigorous and sober pragmatism informed by the ambitions of Walter Gropius (1883-1969) to standardise and rationalise. These ambitions could only be fully realised when instruction in architecture was formally included in its teaching regulations in 1927 (Wingler 1969:122).

Gropius (1971:66-67) divided the Bauhaus curriculum into practical and formal instruction, which can be read in terms of the format of practice and theory. The 'practical instruction' concentrated on the handling of materials and lectures in materiality and tools; 'formal instruction' was further divided into studies of aspect, representation and studies of design "supplemented by lectures on all branches of art (both ancient and modern) and science (including elementary biology and sociology)" (1971:67). Weatherhead (1941:181) writes that this approach was "[…] sufficiently broad to provide an opportunity for the artisan or the artist as well as for the architect."

The curriculum was structured to be followed over three periods, commenced with the *Vorkurs*, a six-month foundation course established by painter Johannes Itten (1888-1967). It took on "something of the character of a rite of initiation" (Wick 2000:36) and aimed "[…] to remove the slag of academic ideas about art and design and to develop free artistic personalities but also to pass on basic qualifications for design in the form of a 'supraindividual design language' that could serve as the basis for understanding and communicating the self" (2000:36). This approach was in stark contrast to the pre-existing traditions of education in architecture: not only was design teaching now articulated in the context of art and production, but the role of the individual designer was being emphasised and validated. This value system applied equally to the artists, designers and architects – including Johannes Itten, Wassily Kandinsky (1866-1944), Paul Klee (1879-1940) and later Hannes Meyer (1889-1954) and Ludwig Mies van der Rohe (1886-1969) – who acted as Bauhaus masters. Their personalities, interests, views and even idiosyncrasies unavoidably influenced the syllabus, and welfare, of the Bauhaus as it evolved over its fourteen-year existence (Wick 2000:102-184). Phelan (1981:7) explains:

> The Bauhaus introduced the notion that there could be a number of 'correct' 'solutions' of 'problems'.
> This was in opposition to the classical academic notion that there was a single 'correct' solution to any

given pictorial problem which depended on the current aesthetic ideal. The Bauhaus, by contrast, was pragmatic and considered a solution to a problem 'correct' as long as it adequately illustrated a solution. This was in keeping with its avowed desire to develop personal inspiration and individuality. This was a constant ideal of the Bauhaus preliminary course from Itten through both Moholy-Nagy and Albers. Pragmatism was also in keeping with contemporary scientific methodology which admitted new ideas not conforming to classical doctrine as long as they were demonstrably capable of explaining a phenomenon or solving a problem.

Following the completion of the foundation course students advanced to a three-year journeyman's certificate course that focussed on workshops dedicated to specific materials and outputs (Gropius 1971:67). In the period up to 1923 workshops were presented in printing, ceramics, stone sculpture, metal, wall painting, glass painting, weaving, stage, cabinetmaking and woodcarving. These were rationalised in the years between 1923 and 1928; while the printing and wall painting workshops remained, furniture replaced cabinetmaking, sculpture became plastic arts and weaving was substituted with the broader designation of textiles. As students graduated they became available to teach as junior masters; this assured continuity of the Bauhaus goals (Wick 2000:35-39). The third and final qualification was the master-builder's diploma that had no predetermined duration of study and was reserved for "especially promising pupils" (Gropius 1971:67).

Under Gropius' successor, Hannes Meyer, the curriculum was restructured by 1928 and subject modules like psychology and sociology were introduced, albeit for only two academic cycles before Mies van der Rohe replaced them with a renewed enthusiasm for craft and technical training (Broadbent 1995:18).

The Bauhaus legacy surpasses the founder's aim for all-inclusive design with a modern disposition; the intellectual and physical context in which it functioned allowed its participants to question long-established educational and professional routines, so that the professional ambitions of Renaissance architects came full circle as architects rediscovered their origin as craftsmen. As Robinson (2001:64) asserts, this cumulated in establishing the principle that apprenticeship follows education in architecture.

2.5. THE CONTEXT OF AN EDUCATION IN ARCHITECTURE IN SOUTH AFRICA

The establishment of educational programmes in architecture followed much the same path as it did in Western countries in the first half of the twentieth century: part-time courses eventually became full-time studies and university-based as demand grew and the profession established itself with the support of legislation and professional bodies. Van Graan asserts that there is an inherent link, established through colonial ties, between the education of architects in the United Kingdom and South Africa.

> As part of a colonial hegemony, it is essential to view architectural education in South Africa in relation to the development of architectural training in Britain as the two are inseparably linked in terms of structure, systems of education, and indeed, people. South Africans went to Britain to study architecture before returning to South Africa to practise and teach, and many educators came out to South Africa from Britain. (Van Graan 2011:114)

The first teaching of architecture in South Africa was undertaken from approximately 1813 in Cape Town under the French-born and educated architect Louis Michel Thibault (1750-1815) and Anton Anreith (1754-1822), a German-born sculptor, who was principal and instructor (Fisher & Holm 1989:295). Anreith had initially founded an art school by 1806 that, in 1814, merged with the Technical Institute funded by Freemasons of the Lodge de Goede Hoop (De la Querra 2017). Thibault had, in 1813, accepted the appointment as advisor to the school and subsequently taught there formally, thus becoming the first educator in architecture in South Africa. According to De Puyfontaine (1972:110): "Lectures were given from 8 a.m. to 12 o'clock and from 3 p.m. to 8 p.m. Boys and adult men who wished to perfect their knowledge could attend the lectures. It was situated at 8, Bloem Street, probably in the sculptor Anreith's home." The first South African-born architect, H. Teubes (1792-1858), was trained here. The Technical Institute closed in 1822 after the death of Anreith (Prinsloo 2000:139).

2.5.1. Teaching in Johannesburg and Cape Town

According to Herbert (1975:5) economic aid was made available during the aftermath of the South African War (1899-1902) for the rehabilitation of parts affected by the devastation of the conflict. This stimulated the building industry, especially in Johannesburg, and shaped the need for architectural education.

> In this flamboyant environment of optimism and expansion, the first steps were taken to place architectural education on a formal basis. Cape Town, in 1902, had offered courses in building construction and drawing at the School of Art; but it was in Johannesburg, at the recently established Transvaal Technical Institute, that the first comprehensive and systematic courses were instituted. These classes were held in what was affectionately termed the 'Tin Temple', a corrugated iron structure originally erected as a temporary expedient to house the Municipal Offices on Tuin Plein, which remained a makeshift educational building until 1925. (Herbert 1975:5)

Ernest Willmott Sloper (1871-1916), who was reported to have a keen interest in architectural education, presented the first classes in architecture in the Transvaal in 1903. He presented lectures in design, while Henry Seton Morris (1869-1915) presented a course in the history of architecture (Herbert 1975:5). Geoffrey Pearse (1885-1968) was one of the first six pupils to be taught in Johannesburg. Pearse became a leading figure in architectural education and was appointed as the first Professor of Architecture in South Africa in 1921. The Chair in Architecture fell under the Faculty of Engineering at Johannesburg University College, which became the University of the Witwatersrand in 1922.

Pearse (1934:2) writes that the founding of four provincial institutes[3] was one of the formative steps in creating a demand for formal training in line with the aspirations of a profession seeking recognition. Classes were initially presented on a part-time basis as most students worked as assistants in practice (Herbert 1975:5). Gilbert Herbert (who was both a student and later a colleague of Pearse) explains that

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3 Natas (1971:43) outlines the establishment of the provincial institutes (according to the four provinces of the Union of South Africa and the Republic of South Africa prior to 1994 as follows: "The Association of Transvaal Architects, incorporated under the Architects (Private) Act No. 39 of 1909, of the then Colony of the Transvaal; The Natal Institute of Architects, incorporated under Act No. 10 of 1902 of the then Colony of Natal; The Cape Institute of Architects, founded in 1899 and the Port Elizabeth Society of Architects; and the O.F.S. [Orange Free State] Institute of Architects, founded in 1921."

the professor's attitude to architecture was based on his love for history and a strong practical bias (Herbert 1975:7-8). Broadly speaking these attributes came to characterise the early Wits school that Carter (2013:38) describes as having an 'engineering with arts' curriculum. Pearse (1934:3) explained that the curriculum at Wits was based on the University Schools of Architecture in England, where he attended the Regent Street Polytechnic in London before returning to South Africa (Herbert 1975:8).

Early attempts were made to present classes in Cape Town from 1902, but these were only really successful by 1912 when classes commenced at the School of Art (Van Graan 2011:118). The First World War disrupted teaching until 1919, following which the Cape School of Architecture was established in 1922 under the wings of the Cape Institute of Architects. It was incorporated into UCT in 1925 and thereafter became a branch of its Michaelis School of Fine Art (Van Graan 2011:119), which undoubtedly influenced the teaching approach of the school that Carter (2013:38) describes as having a 'fine arts' curriculum. From the second year of study students attended classes at night and worked during the day. Practicing architects who taught as part-time lecturers reinforced the link to practice, which is considered to be partly responsible for early training here being architecturally conservative, according to Van Graan (2011:119).

A conference on architectural education, held at the technical College in Durban in July 1923, proved to be influential as it led to the formation of the Federal Council on Architectural Education in the following year, when the Federal Council adopted two standard courses in architecture: a diploma modelled on the course at Wits and a degree modelled on the course of UCT (Herbert 1975:12-15). Thus, degrees and diplomas in architecture – both presented over five years of study and recognised by the RIBA[4] for purposes of exemption – were presented at Wits and UCT from 1927. In his report on a visit to schools of architecture abroad funded by the Carnegie Corporation, Pearse (1934:5-8) provides a summary of both schools for the 1932 calendar year, with staff and student numbers (76 students at Wits and 60 at UCT), the facilities available at the respective schools and an outline of their curricula – see Table 2.1.

The promulgation of The Architects and Quantity Surveyors Act (No. 18 of 1927) gave statutory powers to the ISAA and the Chapter of South African Quantity Surveyors to "direct and co-ordinate" (ISAA 1959:43-44) education in the two fields. In 1929 the government endorsed professional education in these fields as university (as opposed to technical college) functions, so that Wits and UCT were appointed as Joint Examining Authorities (ISAA 1959:44). This effectively meant that university qualifications would in future be the only available option to those wishing to qualify as architects.

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4   Two local Boards of RIBA examiners were established in Cape Town and Johannesburg respectively. The local RIBA examinations were discontinued from 1930 as RIBA endorsed the qualifications of the two local schools (Natas 1971:44).

TABLE 2.1: Core curricula of the degree and diploma programmes at Wits and UCT in 1932, after Pearse (1934:5-8)

YEAR	WITS (Full-time degree and part-time diploma)	UCT (Full-time degree and diploma)
1	Architectural Drawing and Elementary Design* History of Architecture* Building Construction * Freehand Drawing* Geometrical Drawing Chemistry Mathematics or History of the Fine Arts or Language Diploma only: Graphic Statics	Architectural Design* History of Architecture* Applied Building Construction* Theoretical Building Construction* Geometrical Drawing* Life Drawing* One approved BA course
2	Design* History of Architecture* Building Construction* Mathematics or Modelling Physics Graphic Statics* Freehand Drawing* Geology	Architectural Design* History of Architecture* Applied Building Construction* Theoretical Building Construction* Hygiene* Life Drawing One approved BA Course
3	Design* History of Architecture* Building Construction* Strength of Materials* Surveying Sanitation and Hygiene* Geology	Architectural Design* Applied Building Construction* Theoretical Building Construction*
4#	Design including Construction* Interior Decoration and Furniture Specifications* Materials* Theory of Structures* House Wiring	Architectural Design including Specifications and the ordinary practice of Architecture* The Law of Building Contracts* Theoretical Building Construction*
5#	Design including Construction* Structural Design* Professional Practice Town Planning*	Architectural Design* Specifications and Building Materials* Professional Practice* A thesis*

* Indicate subjects for both diplomas and degrees. The diploma subjects were essentially selected from the degree curriculum.

\# In the degree programmes the second half of the fourth year and the first half of the fifth year were to be spent in an approved office (Pearse 1934:6-7).

2.5.2. Teaching established in other centres

Pearse (1934:3) lists three other institutions (UP, the Natal University College, Durban, and the Technical College, Port Elizabeth) where architectural training was presented in the early 1930s for diploma studies, in all cases under the auspices of either Wits or UCT.

Studies in architecture were initiated at the Transvaal University College (**TUC**) in Pretoria in 1929, the year before the institution officially became the University of Pretoria. A Department of Architecture and Quantity Surveying was formally founded here in 1943 following the termination of an agreement according to which examinations in architecture were taken at the Wits and those in quantity surveying at UP.

Part-time courses in architecture were first offered by the Natal University College in Durban in 1933, with the examinations conducted by Wits until 1949 when the College became the University of Natal (Croft 1970:10-11). The teaching that Pearse mentions at the Technical College in Port Elizabeth must have been discontinued as a new school of architecture was only established at the University of Port Elizabeth

in 1970. It was the first programme in the country to offer a two-degree structure, with the first degree being a Bachelor of Building Arts, followed by the Bachelor of Architecture. A programme in architectural technology was initiated here in the mid 1970s as a programme in draughtsmanship within the building disciplines in the then College for Advanced Technical Education (McLachlan 2010). A school of architecture was also established at the University of the Orange Free State, now known as the University of the Free State (**UFS**), in 1955 (Joubert 1997:50).

2.5.3. The influence of modernism

At Wits, according to Herbert (2011:63), Pearse "[…] encouraged his staff and students to take an open attitude to design and provided an academic *milieu* in which the Modern Movement could take root". This shift towards modernist ideals emerged from the mid-1920s under the influence of Stanley Furner (1892-1971) and with Rex Martienssen (1905-1942) central to its development (Van Graan 2011:117). Gerneke (1998:208) provides context:

> Excepting the Bauhaus, schools of architecture were not supportive of the Modern Movement then. But in Johannesburg a covey of gifted students soon became colporteurs of the avant-garde, fighting a running battle with academics and the profession. They launched the new Witwatersrand school as a bastion of Modern design – the only South African one for some two decades. Soon after graduating, these disciples of the Gropius–Mies van der Rohe–Le Corbusier triumvirate put the Transvaal on the international architectural map by getting a few Modern designs built by dauntless clients.

Its influence was cemented by the work of the a talented group of young architects labelled as the Transvaal Group and their publication of *zero hour* in 1933 by Martienssen, Norman Hanson (1909-1991) and Gordon McIntosh (1904-1983). McIntosh later taught with fellow Wits graduate Norman Eaton (1902-1960) at the new Pretoria school at UP, where a spirit of optimism (if not independence) contributed to the development of an identity characterised by pragmatic concerns and a regionalist response to the landscape and climate of the city. Its underpinnings eased the acceptance of a wave of Brazilian modernism, evident in student work of the Wits and Pretoria schools in the post-war period (Gerneke 1998:211, 215). Carter (2013:37) discusses the pedagogic shifts during the first decades of teaching and concluded that Pearse's practice-aligned link between architecture and civil engineering at Wits moved towards the French model of studio pedagogy in the late 1920s, but was re-centred towards architectural science a decade on following the influence of modernism, and as complex buildings demanded more than a compositional artistry.

In 1937 the school at UCT became independent under Leonard Thorton-White (1901-1965), who was appointed to the first Chair in Architecture there. Thorton-White reviewed the syllabus, changed the designation of the degree from a Bachelor of Arts in Architecture to a Bachelor of Architecture, restructured the school away from the prevailing Beaux-Arts trajectory (Van Graan 2011:120) and introduced "a Liverpool-derived Modernism" according to Carter (2013:37).

2.5.4. Conferences and seminars on architectural education

The RIBA hosted an important conference on architectural education at Oxford in April 1958 where recommendations were adopted that would impact on the minimum standard of entry into training,[5] recognising schools where "courses of comparable standard" (Martin 1958) could be conducted and that full-time courses, along with 'sandwich'[6] courses, were recommended for professional qualifications. The ISAA proposal for full-time study was therefore in step with the Oxford Conference's resolution.

Although the ISAA had subsequently proposed that a similar conference be held in South Africa,[7] it only materialised in 1972 in Cape Town. The core of this conference was a report on architectural education by Prof. E.W.N. Mallows (1905-2003), from the Wits school, who delivered a plea for contextual relevance in light of the developing economy of the southern African region, but also endorsed art as the basis for architectural design (Cape Town Education Conference 1972:11). A paper by Prof. L.T. Croft (1918-2014), from the Natal school, dealt with teaching methods in which he advocated an interdisciplinary approach to architectural education (Cape Town Education Conference 1972:11).

The conference proceedings greatly influenced the subsequent ISAA National Board meeting, where a number of resolutions were adopted and later reported on in Action on Education (1972:34). Many of resolutions were similar to those raised at Oxford, including those pertaining to admission and that universities were required to limit student intake to match staff capacity, that unsuccessful candidates be assisted to find their true vocation in architecture or the allied fields and that statistical correlations between student selection and graduate placement be investigated on a national level (Action on Education 1972:34). In the points that were eventually adopted, a plea was made for better integration of practical training with academic coursework and that universities enlarge the scope of their programmes to encompass allied courses (Action on Education 1972:34).

In response to Croft's paper it was concluded that the standard of teaching and teaching methods were inadequate and an appeal was made for clinics to improve upon these identified inadequacies (Action on Education 1972:34). A pivotal architectural teachers' seminar followed in Durban in 1973, with Geoffrey Broadbent as the keynote speaker; he presented a paper on design methodology (University of Natal 1973). The fourth architectural teachers' seminar was held in Pretoria in 1982 and was recorded in Departement Argitektuur (1983c). From the position papers presented at the seminar it is clear that the six schools had developed quite distinct, but not necessarily disparate, approaches to architectural education.

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5 "The Conference unanimously agreed that the present minimum standard of entry into training (5 passes at 'O' level) is far too low and urged that this level should be raised to a minimum of 2 passes at 'A' level." (Martin 1958)

6 "The 'sandwich' course is **not** part-time training. (One conclusion on which the Conference was emphatic was that the part-time course must go.) The sandwich course which is proposed in schools, which carry out full-time training, is a means of breaking down the barrier between training and practice. This is done by alternating periods of training in a school with periods of **training** in an office. The collaboration in training by the office itself is essential to the success of any scheme of this kind." (Martin 1958)

7 Following on the discussions for the restructuring of the qualifications, the Registrar of the ISAA noted: "A Conference on Architectural Education will be organised as soon as practicable" (ISAA 1959:47).

Interest in such national seminars seemingly dwindled and only resurfaced thirty-two years later. Since 2014 three architectural educators' symposia have been held under the banner of the Architectural Education Forum for Africa, convened by Dr Ariane Janse van Rensburg of the Wits school. The first two were held in 2014, at Wits and thereafter as part of the international congress of the International Union of Architects (**UIA**) in Durban later that year. The third was integrated into the ArchitectureZA conference hosted at Wits in 2016. The success and frequency of these events are indicative of educators' shared interest and the need for dialogue on issues of architectural education.

2.5.5.   Broadening the horizons

As the schools in South Africa have grown and their numbers increased, they continued to develop regional variation in their academic offering and undertakings. This trend is still promoted by SACAP that encourages schools of architecture to develop and nurture characteristics that are unique (SACAP 2012:3). Carter (2013:37-38) sees the establishment of cognate disciplines in the fold of some of the schools as an example of this practice.

Wits had offered a diploma in town planning since 1945; a new chair in town and regional planning was established there in 1964 with a bachelor's programme commencing in 1965 and a master's degree in urban design 1975 (Bryer 1977:34). UCT began a two-year postgraduate degree in urban and regional planning in 1965 (Carter 2013:45) and have since developed aligned programmes in cities and regional planning, urban design, and landscape architecture (UCT 2017). The programme in Town and Regional Planning at UP developed from the programme in land surveying and the only undergraduate programme in landscape architecture in South Africa was established in the school at UP in 1971 (UP 1987a:68). A programme in interior design was assigned to the school in 1999.

2.5.6.   Duration and format of study

The formal, full-time programmes at the established schools of architecture were, at their inception, presented over five years of study, but in 1958 a proposal was adopted by the Board of Education of the ISAA to extend the required number of years of training to six, including one year of professional experience (ISAA 1959:48) to bring it in line with the seven-year requirement of the RIBA (Natas 1971:44). With the promulgation of the Architects' Act 1970 (No. 35 of 1970) it reverted back to a minimum of five years of study and two years of practice experience (Theron 198:65).

Diploma courses had been offered on a part-time basis at Wits and full-time at UCT at least since the 1920s. Pearce (1934:8) had by then indicated how similar the curricula of the degree and diploma courses, especially those presented at UCT, were – see Table 2.1. The only difference between them, according to Natas (1971:43), was the standard of the entrance qualification. The degree did, however, exempt graduates from the Final Examination for the Associateship of RIBA, while holders of the diploma were required to complete additional design requirements in order to apply for the same status. In 1958 it

was recommended to the ISAA that only full-time studies should be acceptable for professional recognition. John Stanley Lewis (_-1968), then the long-serving Registrar of the ISAA, commented that the first year of the part-time diploma courses were spent full-time at university anyway, while at one institution it was also the case for the final year of diploma studies (ISAA 1959:48). While the full-time diploma at UCT continued (Natas 1971:44), part-time diploma studies were subsequently phased out. At UP the part-time diploma in architecture was terminated in 1961 (anecdotally, the year in which the Union of South Africa became a Republic and left the Commonwealth) and replaced by an eight year, part-time degree course. The latter was also discontinued in 1966 (UP 1987a:68).

During the last quarter of the twentieth century diploma-based qualifications, later augmented by Bachelor of Technology degrees, were largely offered at technikons before 2004, when these institutions became universities of technology or merged with existing universities to form comprehensive universities. According to Young-Pugh (2005:35), technikons followed:

> […] a vocational curriculum in the training of draftspersons, architectural technologists, and senior technologists. Their architectural departments were established with the objective of supplying production workforce to architectural offices and have traditionally focused on detailed design, documentation, and delivery.

Theron (1985:65) notes that most of the six recognised schools of architecture offered two-stage degree courses over six years in the mid-1980s; UP was the exception, continuing to offer a five year Bachelor of Architecture degree until 1999, when a three year Bachelor of Science in Architecture degree was introduced, followed by a two year Master's degree in Architecture for the purpose of professional registration (UP 2002:194).

In accordance with the Architectural Profession Act, (No. 44 of 2000) (South Africa 2000), SACAP now validates academic programmes related to the architectural profession. The categories of professional registration have been amended to recognise architects, senior architectural technologists, architectural technologists and architectural draughtspersons (SACAP 2017). The threshold to each professional registration category is defined by qualifications measured against competencies explicated under specific outcome levels of the NQF – see Table 2.2.

TABLE 2.2: Professional registration categories for the architectural profession in 2016 based on SACAP (2017)

PROFESSIONAL REGISTRATION CATEGORY	REQUIREMENT	NQF LEVEL
Professional Architectural Draughtsperson	Higher Certificate [1] + 1 year WIL	5
Professional Architectural Technologist	Diploma [3] / Advanced certificate + 1 year WIL	6
	BScArch* / BAS [3]	7
Professional Senior Architectural Technologist	BTech, Advanced Diploma + 1 year WIL	7
	BArchHons* / BAS Honours / BArch(Prof) [4]	8
Professional Architect	BArch [5 / 6]	8
	MArch(Prof)*	9

KEY: [_]   indicates minimum duration of qualification in years
        WIL   Work Integrated Learning
          *   indicates programmes offered by the Department of Architecture, University of Pretoria, in 2016

In light of the ongoing #FeesMustFall campaign and the unresolved question of the funding of tertiary studies, the matter of part-time study is again pertinent as full-time study is costly and thus not accessible to all. Theron (1985:65) had already previously suggested that alternative formats be considered so as to remove the stigma attached to architecture as being the preserve of the affluent. Although in its infancy, the Open Architecture Programme facilitated at the Cape Peninsula University of Technology (**CPUT**) may prove to be a beneficial option for senior students, while Work Integrated Learning, mostly embedded in the programmes of the former technikons, address some of the objectives of the sandwich option so as to better integrate academic and practice experience. At most of the local schools of architecture that present a three-year first degree, there is also a requirement for a bridging year out (to work, travel or undertake independent research) after graduation before professional postgraduate studies are undertaken.

2.5.7. Apartheid

No account of South Africa can overlook the political construct of Apartheid as the instrument of state that sanctioned and imposed systemic inequalities on its people. The election of the National Party into government in 1948 can be seen as the official start of the Apartheid state that formally ended with the first democratic elections in South Africa in 1994. During this time, in the curtest sense, the minority regime systematically shaped and entrenched the notion of physically segregated spaces based on groups defined by race.

> Apartheid social engineering used the built environment as part of its repressive arsenal against black South Africans. The presence of black people in cities was tolerated only insofar as they provided a source of cheap labour for industry. The social environments created for black people are reflective of this attitude. Townships located on the periphery of urban areas are characterised by row upon row of barracks-like matchbox houses and single-sex migrant worker hostels. A limited number of access points and a geometric street layout are designed with the intention of restricting unregulated movement thereby curbing potential resistance. The public realm exists only as a series of interconnected residual spaces dominated by motor vehicle movement, devoid of formal public amenities of any kind. (Manning 2004:529)

Education did not escape these policies nor their consequences and as a result the legacy of apartheid's policies remains tragically evident, and divisive, in the South African landscape in the second decade of the twenty-first century.

According to Davies (1996:321) higher education institutions in South Africa were already divided along racial, ethnic and language lines before 1948, a consequence of pre-existing policies and statutes that organised society according to race. Two acts of parliament would cement the Apartheid state's control over education through bureaucratic and authoritarian measures: the Bantu Education Act (No. 47 of 1953) and the Extension of University Education Act (No. 45 of 1959). While the former demoted the education of black learners to a segregated, inferior and underfunded system under state control, the latter affirmed this condition by formally segregating universities. Black students (defined as those of African, Indian and mixed race descent) were thus denied admission to the established 'white' universities

without a special permit. The regime's solution was that these students should attend separate institutions set up along racial and tribal concerns (Davies 1996:322). It should be noted that none of these designated institutions presented programmes in architecture.

A group of four institutions, including UCT, Wits and the University of Natal with schools of architecture, publically opposed the discriminatory policies and published their position in a booklet entitled *The Open Universities of South Africa* in 1957. They declared that their institutions were 'open universities' that took a determined stand against Apartheid and insisted that they maintain their autonomy to uphold the principle of academic freedom, "[…] particularly in appointing staff and admitting students without regard to race, colour, creed or gender" (Lange & Kirby 1991:1). Small numbers of black students thus managed to graduate in architecture.

The permit system ended in 1983 with the promulgation of the Universities Amendment Act (No. 83 of 1983) with the de facto consequence that a limited number of black students could, theoretically, access 'white' universities other than the 'open' institutions (Davies 1996:326-327). The impact on schools of architecture was not significant, as by the late 1980s there was:

> […] very little evidence of significant progress in the education of black architects. At the schools of architecture throughout the country black students make up an average of 5% of the student roll. Of the ISAA's registered 'full members' in 1988, only 1,6% is black. From these statistics it can be deduced that architecture as a profession remains predominantly accessible to middle class white South Africans. (Le Grange 1989:36)

Apart from the systemic exclusionary policies of the Apartheid school system, Le Grange (1989:36) lists several other factors that contributed to the low uptake among black students at the time. He argues that the cost and financial burden of a full architectural education, a lack of access to information about the profession and perceptions within architecture schools also had significant influence. In 1991, the year that admission to universities in South Africa based on racial grounds were scrapped, 2.76% of students enrolled at the three 'open' schools of architecture were 'Africans', with 60% of them in the first year of study (Lange & Kirby 1991:13-15).

On many levels the after effects of Apartheid policies remain tangible more than twenty years after the first democratically elected government took office. It is thus not surprising, when considering the legacy of Apartheid coupled with profound poverty and high levels of unemployment, that the architectural profession is more often than not viewed as elitist and therefore remains largely unfamiliar territory to many South Africans.

2.5.8. Transformation

An outline of transformation follows naturally from the brief discussion on the effect of Apartheid on architectural education. South African Institute of Architects (**SAIA**) and the Institute for Advanced Studies in Architecture and Infrastructure (SAIA & IASAI 2010:4) state: "There is a need for transformation of the

sector via professional representation in terms of race and gender as well as wider access and routes of qualification, including the provision of opportunities for learning while working."

By 2016 the South African architectural profession "[…] has not made significant improvement with reference to equity and redress within the new democratic dispensation" (SACAP 2016b:1). SACAP (2016a:23) indicates that in 2016 black men and women represented only 13% of the almost eight thousand registered professionals across all registration categories, while only 3% of registered women were black. The drive to increase the demographic representation of previously disadvantaged individuals, women and people living with disabilities, is therefore a priority that directly impacts schools of architecture in South Africa. The last published statistics for schools of architecture in South Africa indicate that 2 895 students were studying between first and final year at the ten public higher learning institutions in 2008; the report also indicates that just over 60% of these students were male and 56% were white (Wits CUBES 2008:2).

In light of these numbers the academy is acutely aware of the ongoing need to transform and (re)contextualise the profession from within schools of architecture (Saidi & Nazier 2011; Le Grange 2014; Botes 2015; Janse van Rensburg 2015). Similarly SACAP and SAIA currently drive transformation initiatives that focus on:

- Awareness and promotion
  Raising awareness of and interest in architecture, especially among previously disadvantaged groups (SACAP 2016a:24; SAIA 2016:33) is necessary in order to address a lack of awareness when compared to other professions, such as those in the legal and health care sectors.

- Funding
  There is a huge need for financial support on at least two fronts: in the first instance it is required to promote access to studies in architecture. The SAIA Future Architects Bursary Programme (SAIA 2016:33) made a start in this regard in 2016. Beyond the threshold to tertiary education it is imperative that disadvantaged students receive financial backing in order to complete their studies. Beyond fees for tuition, books, accommodation, sustenance and other daily expenses that, in our segregated cities often necessitate an exorbitant amount dedicated to travelling to and from campus, the student of architecture also requires materials and means to undertake and complete design projects.

  Bursary initiatives of regional institutes, like the Pretoria Institute for Architecture – see PIA (2017) – make a valuable contribution, but is hardly sufficient to address the demand. SACAP has reintroduced their limited bursary programme (SACAP 2016a:27), but it is clear that almost a decade of low economic growth, locally and globally, has had a negative impact on the availability of funding opportunities. This directly affects transformation across the board. The #FeesMustFall campaign challenged "[…] assumptions about who should go to university, what it should look like,

and who should pay for it" (Spaull 2017), but it also highlighted the chasm between academic ambitions and the availability of resources to achieve those ambitions.

- Alternative routes to professional registration
  These options serve the transformation agenda by offering alternative or accelerated routes to achieve professional status. SAIA launched the Open Architecture Programme in collaboration with the CPUT in 2014 to accelerate access to professional registration. This web-centred programme is offered over two-years as a part-time, practice-based alternative to full-time studies and is currently focussed on students pursuing a Bachelor of Technology degree in architectural technology with a specific emphasis on applied design (SAIA 2016:36).

  The raison d'être for RPL in the architectural profession is that "[…] a significant number of practitioners from historically disadvantaged backgrounds actively practise their trade, with no opportunity to upgrade their professional standing other than enrolling for full time studies" (SACAP 2016b:2). Effectively RPL provides the apparatus to assess and recognise pertinent professional experience within a framework for progression (SACAP 2016b:4) and in the spirit of the criteria and guidelines developed by the South African Qualifications Authority (SAQA) – see SAQA (2004).

- Women in Architecture South Africa
  With only 22% women among registered professionals in architectural practice in South Africa in 2016, there is an obvious gender imbalance (SACAP 2016a:9). The Women in Architecture South Africa project aims to increase equitable access to the profession, specifically for black women, and to retain them over the long term as active practitioners and successful owners of practices.

In the midst of these initiatives (and other less formalised endeavours) it is crucial to recognise the spatial context of transformation within the profession. Lucan summarises it as follows in SACAP (2015:4): "Transformation is not merely seen as 'colour by numbers', but further deals with issues of professional development and the quality of architectural education as this impacts on the spatial transformation of the built environment." The transformation goal is therefore spatial as it directly affects the impact of the architectural profession on reforming existing and creating new environments worthy of all its users. This remains the challenge to schools of architecture and the profession alike.

With the questioning of the architect's role in an ever-evolving society, some responsibilities are moving further away from the core of the profession through, for instance, the rise of project managers in the built environment, which Noero (2012:55) bemoans. In other respects the architect's role as an agent for change has started to be more aligned with the ascendant sociocultural frame of reference. One implication has been that the locus of architecture is being extended to previously marginalised environments such as informal urban settlements.

Many challenges remain, as De Klerk (2016:52) states in her essay on the role and status quo of architecture in South Africa:

Architects as activists and entrepreneurs have a proud history in this country, but their practice constitutes a tiny proportion of all work done. We largely stand outside the endeavour to provide mass housing, planning initiatives to change the structure of our cities and the upgrade of informal settlements. There is a wide recognition that current development patterns – especially with regards to RDP [Reconstruction and Development Programme] housing delivery – continue apartheid spatial policies, yet delivery systems are entrenched and dictated by land values and economic constraints. Alternatives offered by social housing models are exciting on a policy level, but rarely lead to well-designed buildings that have a positive impact on communities. Further, while there is much excitement around the transformative potential of large infrastructure projects (especially the vaunted ability of large transportation projects to weave together our fragmented cities), the creation of meaningful buildings that define inviting public spaces around such nodes remain the exception rather than the rule.

While substantial portions of practice outputs are, and will probably remain to be, dedicated to commercial buildings and the needs of the well-heeled, more members of the architectural community and academy in South Africa are actively engaging, or starting to engage, with the realities facing a developing and post-colonial African context. Osman (2015) raises some pointers for the future:

Architects have often called for participation and ongoing engagement with the communities that aren't yet adequately served by the profession. But alternative approaches are not yet the norm and have not yet strongly influenced the way that the discipline is taught, practised or how professional institutes and councils operate.

The industry still tends to focus on wealthy clients and the architect as 'creative individual'. When working in complex, poverty-stricken and politically polarised contexts, this designer-centred approach is in direct opposition to a user-centred approach.

2.5.9.   Schools of architecture in South Africa in 2016

Some schools of architecture were affected by the South African government's restructuring of higher education, which was intended to deliver a more equitable and efficient system, and the subsequent merger of institutions of higher learning in 2004. Especially the National Diploma and Bachelor of Technology programmes presented by former technikons have been affected and are in the process of being aligned to the NQF or have been introduced and await validation by SACAP.

Table 2.3 indicates the eleven schools of architecture in South Africa and the qualifications they offered in 2016.

TABLE 2.3: Schools of architecture in South Africa and the qualifications they offered in 2016, after SACAP (2017)

SCHOOL OF ARCHITECTURE (alphabetical order)	QUALIFICATIONS
Cape Peninsula University of Technology (CPUT)	N Dip (Architectural Technology) BTech (Architectural Technology)
Durban University of Technology (DUT)	N Dip (Architectural Technology) BTech (Architectural Technology)
Nelson Mandela Metropolitan University (NMMU) (Department of Architecture)	BAS MArch(Prof)
Nelson Mandela Metropolitan University (NMMU) (Department of Architectural Technology and Interior Design)	N Dip (Architectural Technology) BTech (Architectural Technology) MTech (Architectural Technology)
Tshwane University of Technology (TUT)	B Tech (Architecture Professional) (Part 1) [BArch – introduced in 2017]* M Tech (Architecture Professional) (Part 2)
University of Cape Town (UCT)	BAS BAS(Hons) MArch(Prof)
University of Johannesburg (UJ)	N Dip (Architectural Technology) BTech (Architectural Technology - Applied Design) BArch* MTech(Prof)
University of Kwazulu-Natal (UKZN)	BAS MArch(Prof)
University of Pretoria (UP)	BScArch BArchHons MArch(Prof)
University of the Free State (UFS)	BAS BAS(Hons) MArch(Prof)
University of Witwatersrand (WITS)	BAS BAS(Hons) MArch(Prof)

* Indicates programmes that have not been validated by SACAP to date.

2.5.10. The route to registration as a professional architect

Like in many other countries, the title 'architect' is legally defined and protected in South Africa, while the practice of architecture is a regulated profession with explicit requirements for training, registration and ethical standards of conduct and practice.

An aspiring professional architect would typically, upon completing Grade 12 with the requisite NSC, enter a higher education institution that presents programmes validated by SACAP in order to obtain a first, or undergraduate, qualification. While there are exceptions, the first degree at NQF level 7 is presented over a minimum of three years of full-time study at most schools of architecture in South Africa, including at UP (see Table 2.2). Graduates are able to register as professional architectural technologists and most spend a year gaining work experience in practice, or travelling, or both, before embarking on professional postgraduate studies that, at most institutions, consists of an honours and master's degree, each of at least a year's duration. With the achievement of a professional master's degree, the aspiring architect can apply to SACAP to register as a candidate architect.[8]

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8 The process of a three-year first qualification followed by a year out and two subsequent years of postgraduate study and practice experience as a prerequisite for the professional exam correlates with the sequence followed in the United Kingdom – see ARB (2017b:5).

The candidate architect is required to work under the formal supervision of a professional architect or mentor for a minimum period of two years (SACAP 2014:2). Provided that certain stipulations are met, the candidate architect may sit for the Professional Practice Exam, which he or she should pass to be able to apply for registration as a professional architect. Renewal of professional registration has, since 2007, been conditional to ongoing skills development, measured by credits obtained for Continuing Professional Development (**CPD**) over five-year cycles (SACAP 2017).

CPD courses are generally presented through SAIA, a voluntary professional association, and its eleven regional affiliates (SAIA 2017). Sustainability, which has been a longstanding research field at UP, has only recently become a focus of CPD courses since new sections – on environmental sustainability and energy usage in buildings – were added to the South African National Standards (**SANS**) 10400[9] in 2011.

2.6. SUMMARY

The context of the problem was outlined in this chapter, from a brief exploration of the notion of architecture to an overview of some of the developments that shaped the prevailing Western attitude to architectural education. It mapped the rise of architects from artisans to apprentices and subsequently from occasional or part-time to full-time students who are trained through the dual format of studio projects and lectures in theory. The studio system became more prominent as a form of simulated practice that augmented and later replaced the apprenticeship system. Over time professional recognition obtained through academic qualification became the norm and consequently statutory bodies were established to regulate standards of education in architecture.

Through colonial ties the architectural profession and its education systems in the United Kingdom strongly influenced the development of both aspects in South Africa during the twentieth century. The specific character of the South African context highlighted some of the aspects that shaped and continue to influence the landscape of architectural education. The objectives of transforming the profession and the demographic representivity of students of architecture stems from the need to address the systemic discrimination suffered by the majority of South Africans under the Apartheid regime. The tussle between full-time and part-time study has not been fully resolved and has gained renewed interest in the context of transformation, the high cost of full-time studies and the unresolved issue of the funding of tertiary studies for South Africans.

The structure and outcomes of the academic programmes offered by South African schools of architecture has seen significant change over the past two decades. It was prompted by legislation that redefined and articulated all qualifications in South Africa and followed by the Architectural Profession

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9   SANS 10400 explicates the deemed-to-satisfy rules regulated by the National Building Regulations and Standards Act, No 103 of 1977.

Act, (No. 44 of 2000) which eventually led to new professional outcomes being introduced for the architectural professions. Government's restructuring of higher education institutions also impacted on the number and type of qualifications offered by schools of architecture in South Africa.

Architectural education is not merely a matter of acquiring certain professional habits, although the cultivation of skills and judgements necessary to the profession must form a part of the educative process. The central discipline of architectural education is that of design in its widest sense – design as creative decision-making and positive action generation. It is concerned with the development of conceptual design skills and intellectual design skills and rational and logical design skills. The identification of innate design skills and flair and the devising of techniques for their development is a constant source of discussion. (Males 1976:27-28)

CHAPTER 3 SELECTION INTO SYSTEMS OF ARCHITECTURAL EDUCATION

3.1. SUBPROBLEM 1

In order to understand the context of the main problem we need to critically investigate the admission procedures and assessment tools for selection into systems of architectural education worldwide.

3.2. SUPPOSITION TO SUBPROBLEM 1

The supposition to subproblem one is that schools of architecture worldwide use a variety of differing admission procedures and apply multiple assessment tools during selection.

3.3. OUTLINE OF CHAPTER 3

In this chapter the practice of selection into systems of architectural education is investigated and the admission procedures and assessment tools employed by schools of architecture are examined by way of a literature study. The discourse starts with an investigation into the context of selection and the motives for selective admission to schools of architecture. It is followed by a historical enquiry into the admission procedures of three prominent precedents in architectural education, namely the École des Beaux-Arts, the Bauhaus and the Bartlett School of Architecture. The findings of two international surveys are subsequently examined in order to establish a frame of reference for selection practice into systems of architectural education and for the identification of the assessment tools used as part of admission procedures.

3.4. OVERVIEW OF THE RELATED LITERATURE

Discovering the literature that addresses the core motivation for student selection is more difficult than one would imagine. The thesis by Herholdt (1972), that developed a selection regime for the Department of Architecture at UP, addresses some fundamentals in this regard. It is supplemented by a report by Kemp (1991) that assessed selection at the same institution twenty years thereafter.

For the precedent studies some source material proved more valuable than others. For the École des Beaux-Arts the accounts of Cret (1941), published in the *Journal of the American Society of Architectural Historians*, and that of Carlhian (1979), published in the *Journal of Architectural Education*, stood out. Both attended the École as students – Cret first in Lyon and then in Paris. Their first-hand experiences make what is a very complex history more readily accessible. The study by Weatherhead (1941) gives a good comparative description of both the École and the Bauhaus, but the official documents collected for the latter in Wingler's book (1969) give an almost complete, albeit sanctioned, overview of admission procedures at the Bauhaus. The critical opinion of Eva Forgács (1995) in *The Bauhaus idea and Bauhaus politics* and especially that of Anja Baumhoff (2001) in *The gendered world of the Bauhaus* unravel finer detail that Cimino (2003) builds on in his dissertation on student life at the Bauhaus.

A detailed description and assessment is given of the admission procedures and assessment tools employed by the Architectural Education Research Unit at the Bartlett School of Architecture during the 1960s in Abercrombie et al (1969). This is a source rich in detail and data and in many respects these overwhelm the reader, but it is appreciated in the absence of other similarly detailed works of reference. A follow-up article was later published (Abercrombie et al 1972) that offered some clarity of understanding of the later years of their research. Additional context is provided by writings of Latourell (1969), who lectured at the Bartlett from the mid-1960s.

The findings of a far-reaching survey by Goldschmidt et al (2001) serves as a primary reference for establishing which assessment tools are used during selection for admission by schools of architecture worldwide. The researchers' findings delineate categories for these tools and describe their features and, in some instances, the motives as to why schools use them (or, through choice, do not). Their survey served as the basis for a follow-up by Salama (2005, 2015) who superimposed his findings on 49 more schools over and above the original results. Where his cumulative data serves as a quantitative informant, the original research by the Goldschmidt team serves as initial and qualitative source. Other sources from various disciplines and locales are referenced in the discussion of the findings of the survey in an attempt to clarify and contextualise aspects of interest or recent developments that occurred since the publication of these. The National Aptitude Test in Architecture administered by the Council of Architecture in India (India Council of Architecture 2017) serves as such an example.

3.5. THE CONTEXT OF SELECTION

Two broad categories of systems of selection for admission to studies in higher education can be identified, namely 'general selection' in which the specifics of the programme are not taken into consideration and then 'specific selection' where the specifics of the programme are considered (Herholdt 1972:10). The former acts as a generic benchmark aimed at identifying students with the capacity to undertake tertiary study and is therefore, in theory, similar to the categories in which a learner can pass the final school examinations in South Africa. The NSC, in part, distinguishes between learners who may undertake tertiary studies with a higher certificate, diploma or bachelor's degree as outcome (Department of Basic Education 2017). Conversely, Herholdt (1972:10) suggests that programme specific selection is more particular as it should account for the abilities, aptitude and skills required for a specific academic trajectory so as to be a successful student. According to Herholdt, such a selection process involves the coordination of individual qualities with the requirements for a specific activity (1972:11). One can thus argue that programme specific selection requires a high degree of compatibility with the academic programme for which the student is being selected. If a direct relationship is not achievable, the expectation should at least be one of an analogous nature.

The primary motivation for the selection of students for a specific study programme is most likely that the number of applications exceeds the number of places available in that programme, or in other words, that there is an oversupply of applicants or an undersupply of available places. In schools of architecture the number of available places is usually determined, and limited, by resources available to facilitate teaching and learning in the studio. This critically differentiates schools of architecture from most other programmes of tertiary study. Kemp (1991:1) motivates for the selective admission to schools of architecture by referring to the scarcity of resources, including that of physical space for studios and the availability of academic staff to sustain the studio teaching. He argues that high attrition rates are pronounced in the first year of study, which leads to financial loss for both the student and the state, which subsidises tertiary studies in South Africa. Selection has a role in addressing these factors and may therefore contribute to the student's aspirations for achieving academic excellence. Goldschmidt et al (2001:290) concur that schools of architecture "[…] have always been selective as to who they admit, due to constrained resources as well as a need to set an appropriate threshold for quality of performance". Males (1976:31) argues that inadequate means for the conducting of selection contributes to the considerably high failure rate in architectural education, thereby implying that an appropriate selection procedure may improve the throughput and success rate of students. He also lists other factors, including the long duration of the course, the complexity of its subjects and students' lack of experience of the discipline prior to admission.

The argument that new students lack experience in architecture is very pertinent to this study. Banham (1990:22-25) famously equated architectural education to a mysterious 'black box' in an analogy that hinges on the argument that what happens inside the black box is little understood by outsiders. Porter (2006:14-15) explains: "The function of the black box is to transform an input and to output the result. Its

importance as a concept lies in our not needing to know how the transformation is made in order to use the box", much like the workings of a camera's black chamber from which the term is borrowed.

School leavers generally find the transition from secondary to tertiary education challenging (Van der Merwe & De Beer 2006:548; Nel, Troskie-de Bruin & Bitzer 2009; Ramrathan 2013:211), but those entering the 'black box' of architectural education are also confronted by "[…] a move to a system where the answers are uncertain, and the route to that endpoint ambiguous and not following any set methodology" (Roberts 2006:169). The fact that most students are newcomers to the discipline is more often that not frustrating and difficult, as many have pointed out – see for example Peterson (1971:56), Nelson (1974:83), Domer (1981:24), Ochsner (2000:195), Kucker and Perkins (2005:171), Tozan Kiessel and Abbasoglu (2008:1). Abercrombie et al (1969:2) state that many prospective students know "[…] very little about architectural education, reflecting the relative ignorance of the public (including school teachers) about architects, compared with, say, doctors with whom most people at some time or other come into personal contact". One must concur with Nelson (1974:83) who, more than forty years ago, argued that few vocational councillors operating at schools understand the many facets involved in the practice of architecture and that they are normally not capable of offering a great deal of assistance to the learner.

This is even more relevant in the South African context when one considers the legacy of Apartheid and its continuing impact on education and other spheres. Janse van Rensburg (2015:7) argues that architects are 'hidden professionals' and Oluwa (2017:52) emphasises that the black student of architecture "[…] is unlikely to have understood what architecture is about before commencing studies". Arguably this specific aspect does not only apply to black students, but, like the argument of Saidi and Nazier (2011:185), serves to remind us that learners from poor communities are often severely limited in their preparedness to undertake studies in design disciplines such as architecture. Luckan (SACAP 2016a:6) contextualises the effect on transformation: "Equity statistics within our Architectural Learning Sites remain low due to youth in outlying disadvantaged communities remaining ignorant of what a career in architecture could offer them".

3.6. HISTORICAL OVERVIEW

In this section three seminal precedents for the practice of selection and procedures for admission are explored in an effort to establish an initial understanding of selection into systems of architectural education. The choice of these case studies was motivated by the differences between them, but also by the fact that they collectively give a good overview and outline of the development of admission procedures for specific schools of architecture.

3.6.1. The École des Beaux-Arts

The curriculum for architecture at the École des Beaux-Arts is considered to have reached maturity in the period after the French Revolution and specifically from 1819 (Collins 1979:2). The term 'Beaux-Arts system' refers to the period from that time until the end of architectural education at the École in 1968 when it was most influential – see Chapter 2.4.2 and 2.4.3.

Competition was, according to Carlhian (1979:7), one of the basic tenets of the spirit of the École. This manifests clearly in the selection practices of the Beaux-Arts system. Applicants competed for a limited number of available places through bi-annual admission examinations (Cret 1941:10-11). Applicants usually joined a studio for around six months prior to competing for admission. The following account of John Galen Howard (1864-1931), an American student at the École from 1891-1893, in Draper (1977:222), contextualises the process:

> When Howard sat for the exams in March and April, 1891, there were 230 aspirants, including fifteen Americans. Only thirty were admitted, including three Americans. Howard was placed fourth overall. His success was due partly to his American training [at MIT], but also to several months spent making measured drawings in the atelier of Paul-René-Léon Ginain, the 1852 Grand Prix winner and architect of the Ecole de Médecine. Nine or ten other American aspirants shared his corner of the studio, all of them mastering the French language and architectural conventions. There were also special 'prep schools' […] where students honed up on history and mathematics.

The six-part admission examination was cumulatively scored. During the process the rate of attrition among competitors was high and at its conclusion places were offered to those applicants who were awarded the highest rankings (Carlhian 1979:7; Weatherhead 1941:17). The first part called for an architectural design that had to be executed *en loge*[1] in a limited time. It is clear from the requirements of this assignment why applicants attended a studio before competing for admission. Carlhian (1979:8) gives an example:

> The first problem consisted of a 12 hour architectural design, simple in nature, requiring the use of classical motifs, expressed in plan, section and elevation and rendered with appropriate shadows. Such an exercise, therefore, required from its author not only an understanding of classical proportions, a familiarity with the orders, a knowledge of simple geometry in order to establish the proper correspondence between different projected views of the building, and to represent accurately the meeting of complex forms such as vaults as well as the correct way of casting shadows created by an imaginary sun, traditionally shining down at a 45° angle from the upper left corner of the drawing. Pencil was the favored medium, enhanced with washes of diluted Chinese ink. Problems consisted of small freestanding pavilions or simple facade motifs usually built out of stone and featuring the use of a classical order, whether Doric, Ionic or Corinthian.

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1   According to Collins English Dictionary (2007:957) the term 'loge' refers to a small enclosure or box, thus referring to a cubicle where the applicant was expected to execute the work without additional resources.

The second part called for the preparation of a representational drawing of a decorative element from a plaster cast "to be represented as accurately as possible in 8 hours" (Carlhian 1979:8), followed by the modelling, in soft clay, of a low-relief ornament from antique or Renaissance examples. The latter assignment was added in 1883. Applicants had to pass the first three parts (referred to as *admissables*) to be allowed to continue with the last three parts that consisted of examinations in ancient and modern European history, mathematics (arithmetic, algebra, and geometry) and descriptive geometry (Weatherhead 1941:17). Carlhian (1979:8) describes the two-hour descriptive geometry task as the most challenging and cites an example of a problem statement that asked for "[…] an accurate graphic representation of an intersection of vaults with the development of a selected component through appropriate projection".

The account of an American applicant's three attempts at gaining admission to the École reveals further aspects of this process. The École allowed women to attend evening classes for the first time in 1896 and first compete for admission in 1897, the year that Ms Julia Morgan (1872-1957) first did so. She was unsuccessful on both occasions in that year. She struggled in finding an atelier that would accept her as a woman but was finally permitted to join the atelier of François-Benjamin Chaussemiche so as to prepare for a third attempt at admission in 1898. This time she was placed thirteenth out of 392 applicants, thus becoming the first woman to be admitted to study architecture at the École. "Once accepted, the institution's centuries-old tradition of submitting work anonymously rendered Morgan's gender relatively moot" (McNeill 2007:237) and she became the first woman to obtain her certificate from the institution in 1902, completing her studies just before her thirtieth birthday (McNeill 2007:234-238).

It could be argued, as Weatherhead (1941:18) does, that the admission examinations of the Beaux-Arts system ensured that the cohort of students who were admitted were serious and well prepared. In his view it also allowed for the high standards of the course to be maintained. When considering that the approach to architectural education in the Beaux-Arts system was an academic one and that, after admission, the competition format remained central to its method – see Chapter 2.4.2 – the selection regime described above could be considered compatible with the educational offering of Beaux-Arts system. It assessed the critical skills required of students through varied formats (sketch, design, sculpt, write, draw) over the course of the six-part admission examinations and, moreover, it prepared applicants for their studies by foretelling what was to follow should they be admitted. Once admitted, students were only allowed to study at the École until they reached the age of thirty (Cret 1941:10-11), but for many being accepted to attend the École – "even if it was for no longer than a month" (Carlhian 1979:8) – constituted considerable proof of one's abilities.

A positive attribute of the Beaux-Arts system was certainly that a good fit was achieved between the selection competitions and the academic programme that followed. High expectations required months of preparation in an atelier to acquire the necessary skills for the applicant to cope during the selection competition. While this aspect can be criticised for its exclusivity, it also contributed to maintaining high standards at the institution before the whole model became out-dated.

3.6.2. Bauhaus

> Modern architecture's rhetorical rejection of traditional architecture was ultimately a rejection of traditional architectural education. Out of a melange of influences, the first codification of a new or alternative pedagogy was formulated and first used at the Bauhaus. (Crowe & Hurtt 1986:10)

The admission policies of the Bauhaus, and how it evolved between 1919 and 1932, have been made accessible from archival sources that have been translated and published in Wingler (1969). The first was published in the Program of the Staatliche Bauhaus in 1919 and simply stated that any person of good repute, irrespective of age or sex, whose previous education was deemed adequate by the Council of Masters, will be admitted provided space permitted (Wingler 1969:33). Constructed as an open invitation, it was clear that certain prerequisites were implied. Wick (2000:36) refers to Kröll's explanation that the Council of Masters was an "[…] advisory and decision-making body in all didactic and organizational questions relating to the institute" and adds that only the masters of form had voting right on the Council, while masters of craft only served in an advisory capacity.

By the time the statutes of 1921 were published, the general statement of 1919 referred to above was repeated with closing dates for applications for the next semester added (Wingler 1969:44). In addition, for the first time, a list of requirements for consideration was published. The translation thereof in Wingler (1969:44) reads as follows:

> Applications must be made in writing. The following must be furnished as a basis for admission:
> 1. Original work (drawings, paintings, sculpture, craft work, designs, photography, etc.);
> 2. Curriculum vitae, including a statement of previous education, personal situation, and means of support (in the case of minors this information to be furnished by parents or guardian);
> 3. Police certificate of good conduct;
> 4. Doctor's certificate of health;
> 5. Where applicable, certificates of previously completed training in the crafts (e.g., journeyman's certificate).

> Every applicant will at first be admitted only for a trial period of six months. This probationary period can be suspended only in exceptional cases of special talent, artistic maturity, and personal knowledge. During this time the preliminary course is obligatory. This course consists of elementary instruction in form, in conjunction with studies of materials (in the experimental craft workshop).

> Final admission is dependant on the applicant's completion of the above classes and on the quality of his independent work finished during this six-month trial period. Only after being finally approved by the Council of Masters may the newly accepted student join the workshop of his choice and freely select his artistic master from among the membership of the Council of Masters.

The semester-long period of probation was spent in Itten's *Vorkurs*, a foundation course. The rationale for this arrangement is explained by Forgács (1995:53):

> The Basic, or Preliminary, Course itself came into existence when the Bauhaus masters were casting about for a method of determining who was to be admitted to the school. Students arrived at Weimar from the most diverse types of schools in Germany and other countries, prepared by teaching

methods of all kinds. Seeing that this was the case, Itten proposed to Gropius that a Preliminary
Course be instituted as a period of probation during which it would be possible to form an idea of the
student's abilities and character.

Itten was also of the opinion that the preliminary course should assist students with their final choice of
specialisation by providing an opportunity for exposure to different materials and associated processes
(Wick 2000:101). Obtaining final admission was not easy and Forgács (1995:32) claims that many
students were advised not to continue after completing their probation period and the foundation course.
While the statutes claimed that, on successful completion of the *Vorkurs* the newly accepted student
could choose which workshop to join, the Council of Masters had considerable influence in, and control[2]
over, this aspect. Weatherhead (1941:181) makes it clear that: "Each student was permitted to pursue a
course only in accordance with his special aptitudes and demonstrated abilities."

The published descriptions and requirements for admission were tweaked over the following years. An
advertisement for the Bauhaus published in Dessau newspapers in 1925 mentions that applicants should
be at least 17 years of age (Wingler 1969:106). With the introduction of a minimum age the reference to
gender fell away. Baumhoff (2001:19) argues that, despite the fact that the initial statutes explicitly ruled
out discrimination based on gender, it was, in effect, a prevalent practice. Cimino (2003:99-101) explains
that initially at least half, or more, of the students enrolled at Weimar were women, but that the Council of
Masters decided to limit the female intake to a third of the student numbers. Consequently, during the
years in Dessau and Berlin, around thirty per cent of the students there were women.

In the 1925 curriculum of the Bauhaus (then in Dessau) a photograph of the applicant was added to the
list of items to be submitted (Wingler 1969:108). According to the workplan for the preliminary course,
which Wingler (1969:109) dates from 1925-1926, the introductory course was extended to two semesters,
one in which instruction covered exercises in basic form and one semester of basic practical instruction
where students became "[…] acquainted with various types of materials and tools".

Under the directorship of Mies van der Rohe and following the move to Berlin, the syllabus and curriculum
published in October 1932 indicates that the minimum age of entrants was now eighteen years and the
declaration of an applicant's means of support was listed separately, instead of as part of the curriculum
vitae (Wingler 1969:182). This move must be understood in the context of dwindling resources as the
income of the Bauhaus, then a private institution without any official endorsement, became reliant on
student tuition and fundraising (Cimino 2003:71).

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2   The practice of summarily placing women in the weaving workshop is an example of the Council's absolute control over
    admissions – see Cimino (2003:110).

Despite some controversy and rumours[3] about selection at the Bauhaus, the admission policy in general seems to have been successful in as much as it prepared applicants for the course if they were finally accepted. The lengthy process became a yardstick for the measure of applicants for access to advanced programmes while it acted as a mechanism of induction and instruction. It provided applicants with the opportunity to supplement their initial portfolios and compete for final admission having had first-hand experience of different materials and design disciplines (Wingler 1969:109). In addition they were by then familiar with the teaching practices of the school, which is valuable in any design programme. In the opinion of Feininger (1960:270): "[…] it is certain that the Bauhaus graduated fewer incompetents than any other institution I can think of. This is largely due to the high motivation of the great majority of applicants for admission."

3.6.3. The Bartlett School of Architecture

An Architectural Education Research Unit (**AERU**) was established at the Bartlett School of Architecture, UCL, through a grant made in 1963. It is of notable interest that the unit leader, Dr Jane Abercrombie (c.1909-1984), was not an architect.[4] AERU took responsibility for the selection of students into the school. Abercrombie et al (1969:1-2) explain that, at the outset, three factors impacted on the unit's work: firstly, their work started shortly after the conference on architectural education at Oxford of 1958 accepted the principle of full-time study for professional qualifications and raised the minimum requirements for admission to schools of architecture in the United Kingdom. Secondly, the Bartlett had recently restructured their academic offering, dividing the five-year qualification into a three-year bachelors degree, followed by a two-year master's degree. Thirdly, the number of students applying for admission to universities in the United Kingdom had increased significantly and a central council became responsible for the channelling of documentation from applicants to the institutions. This meant that certain information pertaining to applicants was only available in a standardised format. Applications to the Bartlett's architecture programme also noticeably increased[5] between 1963 and 1968, motivating the need for selective admission – see Abercrombie et al (1969:8-9).

Between 1963 and 1968 AERU administered a number of assessment tools, called 'predictors' (Abercrombie et al 1972:76), with varied weightings and subsequently monitored the academic performance of students so as to be able to investigate the interrelationships and predictive value of the assessment tools. The tools they employed were:

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3   Cimino (2003:16) writes about Herbert Bayer (1900-1985), who was a student and later director of printing and advertising at the Bauhaus, and one such a rumour: "Also capturing Bayer's imagination were the fascinating stories being told about the Bauhaus. He writes about a rumor concerning an unusual admissions practice: **'the applicant is locked up in a dark room. thunder and lightning are let loose to get him into a state of agitation. his being admitted depends upon how well he expresses this experience by drawing or painting.** [sic]**'** Images like this, while frightening to some, greatly appealed to many potential Bauhäuslers (as members of the Bauhaus came to be called) who were looking for something out of the ordinary."

4   According to her obituary (Collier 1985) she was a biologist by training and was earlier responsible for a ten-year research project at the Department of Anatomy at UCL that dealt with the selection and training of medical students.

5   Abercrombie et al (1969:8-9) indicate that 259 applications were received in 1963, of which 105 applicants were interviewed and 30, or 11.6% of applicants, were offered places. The number of applications peaked in 1967 when 659 applications were received, of which 96 were interviewed and 45, or 6.8% of applicants, were accepted.

- Academic record

  According to Abercrombie et al (1969:17) the academic record considered was initially the one submitted with the application. As applicants were in the process of completing their schooling, the final results were often not yet available. Beyond the grades obtained, consideration was given to the applicant's age when examinations had been taken, the number and range of subjects taken at a sitting, the kind of school (independent, direct grant and grammar schools, etc.) and family background. The academic record was assessed on a five-scale score and later the final school results, for A-level examinations, were included in the analysis of predictors (Abercrombie et al 1969:126).

- Referee's report

  The referee's report, usually from a head teacher, was assessed according to its "support for the candidate and confidence in his future as a student, bearing in mind how well the referee seemed to know the candidate, and to understand the requirements of architectural training" (Abercrombie et al 1969:17). The latter sometimes presented difficulties as "school teachers are less likely to be well acquainted with what is demanded of an architect than, say, of a physicist" (Abercrombie et al 1969:17). Despite some shortcomings the referee's reports provided a valuable context regarding the applicants that would not otherwise have been accessible. As such this has frequently proved useful in providing a context for the assessment of their academic record.

- Candidate's statement

  Applicants were asked to provide statements about their main interests, activities, why they wanted to pursue architecture as a career and to motivate their application to the specific school in 500 words or less (Abercrombie et al 1969:127). Assessment took cognizance of evidence of wide interests and a flexible outlook, but also of the social class of the applicant, the status of his or her family and the kind of school attended (Abercrombie et al 1969:19).

- Interviews

  In most years the aforesaid assessment tools were used in various combinations so as to be able to make a decision as to which applicants would be invited to attend interviews, the final step in the selection procedure. Perhaps the use of an interview as format is not surprising given that the leader of the unit, Dr Jane Abercrombie, had developed techniques for group discussions during her prior experience in the selection of medical students (Collier 1985:223).

  The interviews, for the sake of consistency, had to be arranged over as short a period as possible, but, nonetheless, still stretched over a considerable length of time (Abercrombie et al 1969:19-25). Different formats were tried out, from a conventional board interview with four interviewers (including staff teaching in the first year of study), to a series of consecutive interviews with one interviewer each, each assessing a different aspect. Initially the aim was to assess "suitability as a member of the Bartlett School" and "potentiality as an architect" (Abercrombie et al 1969:22) but

later aspects such as sensitivity to the environment and awareness, interests, organisational abilities and personal likeability were assessed. Importantly the interviews were informed by portfolios of drawings or other creative work that applicants were asked to bring along, together with a photograph of the applicant that was used as visual reference. The academic records, referee's reports and candidate's statement were made available to interviewers before and during the interviews (1969:37).

Mention is made of the time spent on selection, especially for the interviews, which varied from 230 person-hours per annum to 45 hours when single individual interviews were held (Abercrombie et al 1969:35). Despite the scores for the interview not having a conclusive predictive value, comments were made on the benefits of the format: "[…] the interview has great advantages in acquainting the candidates with the school, its teachers and students, objectives and methods" (Abercrombie et al 1972:86).

The weighting of these assessment tools varied over time; initially the academic record was given most weight in determining who was interviewed. It was perceived to be a good predictor as "the passing of certain examinations is an essential prerequisite for professional life" (Abercrombie et al 1969:25). Over time the interview became less of a deciding device and the other three tools more prominent in the selection decisions. It was established that the academic record, weighted for context and not just as an "arithmetical" index of grades (Abercrombie et al 1969:127), during selection was the best predictor[6] of future performance at the Bartlett. The grading of the candidate's statement, described as a "subjective assessment of a subjective report" (Abercrombie et al 1969:127), correlated significantly with performance at the Bartlett and the referee's report did so only positively and was not statistically significant (1969:127).

Apart from the assessment tools discussed, AERU also performed a battery of psychological tests on applicants with the understanding[7] that these results would not be used for selection purposes. The AH5 tested high grade intelligence and if the applicant's bias was toward verbal or non-verbal reasoning, while the Dynamic Personality Inventory aimed at identifying traits, tendencies and defence mechanisms in response to a wide range of stimuli (Abercrombie et al 1969:26). While no indicators for a marked and consistent inter-relationship between the former test and performance at the Bartlett was found, it was concluded from the second test that positive inter-relationships existed between certain personality traits (initiative, emotional independence and lack of passivity) and performance in studies (Abercrombie et al 1969:132). Abercrombie et al (1972:82) also indicate that initiative, self-reliance and decisiveness played a major role in the final results of graduates, but it should be noted that these aspects were only studied

6   This aspect was heavily criticised by Lowe (1970:62) who accused the unit of bias and their work as unrepresentative as the programme at the Bartlett was in many ways unique and not comparable with other schools of architecture.

7   Abercrombie et al (1969:25): "A series of tests taking about three or four hours has been given to candidates who were interviewed for admission in 1964 and after. It was explained to the candidates that these tests were part of our research programme and would in no way be used for selection."

for 260 male applicants who were educated in the United Kingdom and who were interviewed between 1964 and 1966 when they were between 17 and 20 years of age (Abercrombie et al 1972:76). This therefore excluded female applicants and those from abroad.

The Bartlett's curriculum structure and assessment format changed in 1966 when a unit system for learning was introduced under Prof. Llewelyn-Davies (1912-1981) (Abercrombie et al 1972:79). Latourell (1969:42), with reference to Llewelyn-Davies' statement that "[…] schools of architecture should help to initiate change in society", described the Bartlett's approach in the late 1960s as follows:

> Education for change has been interpreted by the school as an education which encourages each individual to develop his unique combination of ability and interests. Both the need of students and the profession's development have suggested a diverse and individually guided pattern of education, for the wide variety of students' interests probably matches the profession's demands for a very wide range of individual contributions.

During the 1960s selection at the Bartlett focused on a scientific analysis informed by quantitative and statistical processes, but it is notable that aspects of the applicant's circumstances, socio-economic profile and personal context were considered during selection and influenced, for instance, the assessment of their academic records. As architecture is a responsive discipline where context is a major informant in the making of the spatial artefact, this aspect is viewed as constructive and admirably progressive for the 1960s and therefore compares favourably with the teaching of the school at that time. The normative position adopted by the researchers for personal interviews, namely that it provided applicants with an opportunity to experience the school first-hand, should be viewed as significant and the investigation into different interview formats is revealing and equally of interest, albeit that, at the time, their interviews did not produce significant results.

From these case studies it is evident that all three of the precedents under review have used multiple assessment tools during their process of selection for admission so as to be able to decide which applicants they would admit. While it cannot be assumed that these case studies are representative or typical of a specific context, they do provide a framework for understanding the tradition of selection in Western schools of architecture that ultimately informed some of the thinking in South African schools. This enquiry will be expanded in the next section where the role of specific assessment tools in the admission procedure is investigated.

3.7. INTERNATIONAL SURVEYS

Goldschmidt et al (2001) published the results of a survey they conducted of the means employed to select students for architecture programmes. Their study reported on 69 schools of architecture that offer professional degrees in 21 countries and concluded that all the institutions that responded conducted some form of screening for the admission of applicants. Their analysis extracted eight main assessment

tools[8] on which selection is based, namely high school records, psychometric or general scholastic aptitude tests, special architecture aptitude tests, interviews, portfolios, essays, written statements and letters of recommendation. A very small percentage of institutions used a single assessment tool for selection. On average the respondent institutions used a combination of 2.86 of the eight tools, with high school records being the most widely used, namely by 91.3% of the surveyed institutions. Psychometric or general scholastic aptitude tests were used by 55% and portfolios by 44.9% of the institutions, placing them respectively second and third (Goldschmidt et al 2001:283-284).

The 2001 survey was extended to 118 institutions in Salama (2005:5) and republished in Salama (2015:84-87). Salama's survey incorporated the data from Goldschmidt et al (2001) and retained the eight categories of assessment tools, but added data from a significant number of institutions from Africa and Asia. The quantitative results of the cumulative survey were similar to those of the 2001 survey, with a considerable number of schools again employing a combination of admission criteria, albeit that on average it dropped slightly from 2.86 to 2.44 per respondent. Moreover, the three most popular assessment tools were, in order, the same as in the Goldschmidt survey, although with some variation in the respective percentages. The use of high school records increased marginally to 93.2% (from 91.3%), aptitude tests decreased slightly to 49.2% (from 55%) and portfolios dropped to 29.7% (from 44.9%) (Salama 2015:86). Table 3.1 represents the cumulative data. In the subsequent discussion the assessment tools are ordered by the ranking of their popularity in Table 3.1.

3.7.1. High school records

When referring to high school records the intention is clearly to benchmark a preceding and completed academic cycle. For applicants wishing to pursue undergraduate studies this for the most, but not exclusively, refers to results from a phase of secondary education and thus their academic standing can be considered as a valid threshold to higher education.

In the countries surveyed by Goldschmidt et al (2001), educational standards and practices in secondary education are admittedly diverse. Similarly the minimum academic requirements that higher institutions set for admission differ, as do the procedures for calculating and ultimately interpreting school results. High school records can be expressed as a numerical average, such the Grade Point Average (**GPA**) or the Admission Point Score (**APS**) currently used in South Africa (Blignaut & Venter 2011:214). In addition minimum achievement ratings may be required for specific subjects or subject groups. Abercrombie et al (1969:108) point out that there may be a difference between academic results at the time of application and those at the time of registration. In South Africa provisional selection is predominantly based on the applicant's final results for Grade 11 as those studying towards Grade 12 and the NSC only receive their final results a few weeks before the academic year commences. In these cases selection is conditional to the minimum academic requirements being met in the final NSC examination results.

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8   Goldschmidt et al (2001) refer to admission or selection criteria; for the purposes of this study the term assessment tools is preferred – refer to the Glossary in Chapter 1.

TABLE 3.1: Assessment tools used by schools of architecture, based on Salama (2015:86)

REGION	COUNTRY	Number of institutions	High school records	Aptitude tests	Portfolios	Interviews	Special architecture tests	Letters of recommendation	Essays	Personal statements
Africa	Egypt**	**22**	22	5					1	1
	Nigeria**	**1**	1							
	Sudan**	**1**	1							
	South Africa**	**2**	2	2	2	2				
Asia	Bahrain**	**1**	1							
	India*	**3**	2	1		1	3			
	Israel*	**4**	4	3	1	2	4			
	Kingdom of Saudi Arabia**	**5**	5				1			
	Kuwait**	**1**	1							
	Oman**	**1**	1							
	Thailand*	**2**	2	2		2	2			
	United Arab Emirates**	**2**	2				1			
Europe	Belgium*	**1**		1						
	Denmark*	**2**	2		2		2			
	Finland*	**2**					2			
	Netherlands*	**1**	1							
	Poland*	**1**					1			
	Slovakia*	**1**	1	1						
	Spain*	**1**	1				1			
	Sweden*	**1**	1	1			1			
	Switzerland*	**2**	2		1					
	United Kingdom*	**5**	5	3	4	3		2		3
North America	Canada*	**3**	3		2	1		1	1	
	United States of America**	**44**	41	37	22	8	2	9	9	4
Oceania	Australia*	**5**	5	1						
	New Zeeland*	**1**	1		1					
South America	Bolivia*	**1**	1			1				
	Costa Rica*	**1**	1			1				
	Guatemala*	**1**	1	1		1				
TOTAL PER ASSESSMENT TOOL		**118**	110	58	35	22	20	12	11	8
PERCENTAGE OF THE TOTAL		100%	93.2%	49.2%#	29.7%	18.6%	16.9%	10.2%	9.3%	6.8%

KEY: * indicates data originally published in the survey by Goldschmidt et al (2001)
   ** indicates data published in Salama (2015)
   # indicates a calculation error in the source that has been corrected

The cumulative data from Salama (2015:86) indicate that only four of 118 respondent institutions – one in Belgium, two in Finland and one in Poland – did not consider academic records at all. Institutions in Nigeria, Sudan, Bahrain, Saudi Arabia, Oman, the Netherlands, Australia[9] and New Zeeland use it as the sole determinant for admission, while others combine it with other assessment tools. Institutions from Denmark indicated that academic merit is not the only means to obtain admission; while they admit a 60% of students based on school results, the remainder can gain entry on the basis of work experience or qualifications. Students who are admitted through the alternative route "[…] cope well in their studies although they got rather low marks at their secondary examinations" (Goldschmidt et al 2001:287).

A small number of institutions indicated that they have implemented preparatory, remedial or bridging programmes to assist inadequately prepared potential students. The only institution from South Africa included in the survey by Goldschmidt et al (2001:285-286) is reported to have had little success in attracting black students to their programme through this support mechanism.

Goldschmidt et al (2001:284-285) found numerous reasons for the primacy of academic records:
- In some cases it is used for lack of a better means of selection;
- It is believed to have good predictive power in any field of study;
- It is accepted as an effective indicator of a student's ability and motivation to study;
- It is perceived to reflect scholastic ability with reasonable objectivity;
- It is an accessible assessment tool;
- It is understood and accepted by society at large;
- Some institutions have found meaningful correlations between performance at secondary school and university programmes in architecture. It must be noted that many others have found little correlation between the two at all. In some instances these opinions were based on statistical enquiries.

Despite the widespread application of this assessment tool, the responses and motivations recorded by Goldschmidt et al (2001:284-286) indicate that there is little consensus on the merit of using high school records for selection.

For the remainder of this study the term 'academic record', as used by Abercrombie et al (1969), is preferred to 'high school records' as an academic record can also refer to other results, such as transcripts for other tertiary studies for advanced or transfer students. Goldschmidt et al (2001:285) indicate that it is not uncommon that additional assessment tools for applicants from these categories are taken into consideration.

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9   Coates and Friedman (2010:118) explain the perceptions in the Australian context as follows: "It is increasingly unclear that reliance on achievement scores alone provides a transparent and efficient means of ensuring that all talented people who would like to attend university are able to gain admission. Specialist courses have added other criteria, such as portfolios, aptitude testing and interviews, but these are relatively rare exceptions to the time-honoured tradition of achievement testing."

3.7.2. Generic aptitude tests

As the second most used assessment tool, psychometric or general scholastic aptitude tests cover a broad spectrum of assessments that "examine various cognitive and scholastic abilities to estimate future success in academic studies" (Goldschmidt et al 2001:282). The grouping together of a variety of distinctive types of assessment under one heading in the survey results seems to be motivated by the fact that these assessments are administered, and evaluated, by external parties that do not include the schools of architecture. These tests are generic and are thus not limited, or specific, to programmes in architecture. While psychometric testing can reveal specific aptitude and personality traits that may impact on selection decisions, the surveys do not differentiate between psychometric testing and general scholastic aptitude tests.

The cumulative data from Salama (2015:86) indicate that one institution in Belgium relies solely on this type of testing to determine admission, while other institutions that use this tool do so in combination with other considerations. Of the 44 respondent institutions in the United States the vast majority (84%) use aptitude tests for admission. This is understandable as both the SAT (formerly Scholastic Assessment Test) and the ACT (formerly American College Testing) assessments are established standard tests used to determine college admission. The equivalent in Australia is the Special Tertiary Admissions Test (STAT) discussed in Coates and Friedman (2010:118), who state: "As with all aptitude tests, it is important to stress that STAT is not designed to predict levels of achievement at university but to identify individuals who have the capacity to undertake university study." In South Africa the National Benchmark Tests (**NBT**) aim to assess the entry level academic skills of students to assist with their placement in programmes of higher education (NBTP 2016:10-12).

Goldschmidt et al (2001:286) record few but divergent views on the application and appreciation of tests administered by external parties, including strong arguments against their fairness. Most institutions in Israel rely on the results of a psychometric test for admission purposes. This practice is criticised as being economically and culturally unfair as "many prospective students attend expensive private preparatory classes that succeed in training them towards attaining high scores" (Goldschmidt et al 2001:286).

There is a danger that generic tests conducted by third parties may lack the specificity in accounting for the aptitude and skills required for specific academic programmes. It is also necessary to keep in mind that those who give vocational guidance to prospective students based on third party test results should be required to have adequate knowledge of academic programmes and professions to be able to do so (Nelson 1974:83).

3.7.3. Portfolios

Portfolios have, since the late twentieth century, become prominent assessment tools in a number of disciplines, including education and teacher training (Johnston 2004:396), engineering (Panitz 1996) and

the medical fields (Davis & Ponnamperuma 2005:279; Van Tartwijk & Driessen 2009:790-791). The portfolio format was borrowed from architecture and the arts, where it had been an essential part of education and practice for a considerable time. The term broadly refers to a collection of outputs as record and evidence of competencies achieved through completed work, or of progress made in the process of acquiring new competencies.

It is noticeable that there is a substantial difference between the number of respondent institutions that require third party aptitude tests (49.2%) and those that require applicants to submit portfolios (29.7%). The cumulative data in Salama (2015:86) indicate that half of the American respondent institutions required that portfolios be submitted; this mostly accounted for its ranking as the third most popular assessment tool. Others were located in South Africa, Israel, Denmark, Switzerland, the United Kingdom, Canada and New Zeeland. The data also suggest that portfolios are always weighted with other assessment tools; Goldschmidt et al (2001:283) report that portfolios are often presented as part of an interview. The research indicates that there is no consensus among educators of its value during selection of beginner students. Strong support for the portfolio came from respondent institutions in New Zeeland and the United States of America, but strong opposing views were also recorded. The response of a school in the United States that rejected portfolios outright is quoted as follows: "American school art education is inconsistent in availability and quality; a portfolio requirement would be unfair to our applicants" (Goldschmidt et al 2001:288).

Formal portfolio reviews, and less formal critiques, are well-established assessment tools in architectural education. Even where portfolios are not required at the outset during the selection of beginner students, they are generally used at a later stage for the promotion of candidates to senior years of study and for admission to postgraduate programmes. In this context portfolios do gain support when used for delayed selection, for instance where an institution admits a large number of beginner students which is then reduced to a fewer number of students during the course of study. Goldschmidt et al (2001:288) indicate that this procedure is motivated by an opinion that "[…] performance in architecture cannot be accurately predicated ahead of time and therefore the best policy is to allow as many students as possible to begin architectural studies, with control points at pre-established points along the way".

One school indicated that completing the first year of study in a school of architecture is believed to be the best indicator of future success, with a second screening after third year when they require a minimum average of 60% for students to progress to fourth year. While this attitude surely contributes to high rates of attrition, another respondent views students who drop out during their course of study as the norm and thus to be expected (Goldschmidt et al 2001:288). This approach was also prevalent at the Bauhaus.

3.7.4. Interviews

Selection interviews are usually conducted by members of staff, as already indicated by Abercrombie et al (1969:22) for the Bartlett, but at some schools senior students may assist in the process. According to

Goldschmidt et al (2001:284) interviews are used by 18 out of 69 institutions (26%) in ten countries, while Salama (2015:86) found the number to be lower, namely at 22 out of 118 (18.6%). Again opinions on the motives for and efficacy of this assessment tool differ, with those in support of interviews often using it as an opportunity to present and discuss portfolios. Goldschmidt et al (2001:288) refer to a Canadian school that viewed the combination of interview and portfolio review as a good predictor of success in the studio; moreover applicants with a high interview score showed themselves to be leaders in the studio.

Those institutions that oppose interviews thought that it required a measure of consistency and training of the interviewers, an aspect that they seemingly wished to avoid or with which they were uncomfortable. Others were of the opinion that the interview format conflicts with their "emphasis on academic performance" (2001:287). Some institutions mentioned logistical considerations, including travel distances and thus travel cost. With reference to Uganda, Olweny (2008:4) makes some salient observations in this regard:

> In addition to [academic considerations], all applicants were required to attend a face-to-face interview. This however proved challenging, given difficulties in transportation in the region. It was however regarded as an opportunity for applicants to visit the school, as many had not been in an architecture school before, let alone the university. The interview itself was to ascertain interest in architecture, as well as to allow applicants to espouse their 'life experience' as this was seen as being a key ingredient in success in architecture.

Another respondent expresses regret for not using interviews but this was done as the conducting of interviews is considered to be too labour intensive, despite it being "a useful tool to discover talent that is not testable" (Goldschmidt et al 2001:288). Other researchers also mention interviews as an opportunity to assess qualities that may otherwise be difficult to access – see Sedlacek (2003:268-269) as well as Andjomshoaa, Islami and Mokhtabad-Amrei (2011:218). Abercrombie et al (1972:35) had already indicated that the interview format is time consuming, but also that it potentially served purposes other than purely predicting academic potential and is therefore, on the whole, considered to be constructive.

3.7.5. Special architecture tests

In contrast to the generic tests that are processed externally, schools of architecture themselves mostly administer special architecture aptitude tests and examinations, otherwise in certain instances these are administered centrally or on a national level. In all events they are focussed only on the admission of students to architecture programmes. Salama (2015:86) recorded that 20 schools in 11 countries, or about 16.9% of institutions, used such tests, with a higher percentage of 26% noted in the survey by Goldschmidt et al (2001:284).

"Tasks given in those tests pertain to visual memory, spatial organization, drawing, simple designs, and so on" (Goldschmidt et al 2001:282). Understandably such tests vary considerably between institutions, but they share the common goal of finding "evidence of non-verbal, or Visio/Spatial intelligence" (Goldschmidt et al 2001:286). A response from the United States was quoted as follows:

> The purpose of this test is to provide the College Admissions Committee with the means to identify those candidates who exhibit the strongest motivation and the greatest talent for architecture. The Admission Test consists of a number of exercises designed to call forth the candidate's visual memory and logic, and ability to order space, form, pattern and color. (Goldschmidt et al 2001:286)

Among these were the Swedish institutions, where an established special architecture test – one of three admission routes available to prospective students – is considered to be very successful. The following opinion from a respondent in Sweden was recorded:

> The background of the Architectural test is that the schools believed that neither the gymnasium [high school] grades nor the aptitude test were 100% relevant for architects; artistic merit etc. did not show that way. The Architecture test has now been used for 14 years and has been a success. (Goldschmidt et al 2001:287)

An example of an especially challenging and comprehensive test was recorded for a Slovak school:

> Applicants must pass an Entrance Examination where their abilities and knowledge are examined in the following: drawing, history of architecture, design, a second language, creative abilities, concepts of spatial proportion, plus mathematics and modelling for the design programme. (Goldschmidt et al 2001:287)

Although only two responding institutions in the United States indicated the use of special architecture aptitude tests, a greater number of institutions had used such a test in the past. The American Institute of Architects and the Association of Collegiate Schools of Architecture sponsored a study as pilot for a national Architecture School Aptitude Test (**ASAT**) in the USA in the late 1950s. It was administered through much of the 1960s by a number of schools for selection. Akin and Erem (2011:347) cite an example of the structure of an ASAT test from 1965:

> Section 1: architectural terminology (20 minutes), Section 2: visual arts interpretation (30 minutes), Section 3: physics (30 minutes), Section 4: solid geometry (20 minutes), Section 5: spatial reasoning – I (six minutes), Section 6: spatial reasoning – II (12 minutes), Section 7: graphic pattern completion (12 minutes).

According to Moore (1970:28) the first four parts were multiple-choice forced-response questions that were machine scored and the last sections were open-ended free-response tasks that were marked by hand. Moore (1970:28) criticised the ASAT for its low predictive value of performance at schools of architecture and argued that its expectations were misplaced. He cites examples of terminology that applicants were expected to know – "[…] capital, cornice, facia, jamb, and the like" (Moore 1970:29) – that students of architecture would surely learn during their studies, but most probably would not be familiar with before.

Unless these terms were made available to applicants to study beforehand, his criticism is justified as most applicants and beginner students, being newcomers to architecture, are not familiar with concepts and terms that describe elements or components of a building. He is also critical of the ASAT format and its appropriateness:

Is there reason to expect that an applicant who knows a few definitions will understand human behavior and translate it into good design? And how can sensitivity to form and space possibly be evaluated on a multiple choice test (where someone else has already figured out the 'correct answers')? (Moore 1970:29)

Moore's own research indicated high and significant correlations between academic performance and three interesting tests that challenged the cognitive judgement of an applicant (1970:31-32).

A responding institution from India commented that no special test for architecture existed at the time of the survey, but considered such a test necessary (Goldschmidt et al 2001:286). In the meantime the Council of Architecture in India has introduced and conducted a National Aptitude Test in Architecture (**NATA**)[10] since 2006 (India Council of Architecture 2017:4). It is explicitly geared as the threshold to admission at institutions that offer five-year degree courses in architecture. It is taken as a one-day paper-based test at centres all over India and aims to facilitate applications to numerous institutions and in so doing avoid applicants having to sit for multiple aptitude tests.

> NATA measures the aptitude of the applicant for specific field of study, i.e. Architecture. The test makes an assessment of drawing and observation skills, sense of proportion, aesthetic sensitivity, Mathematics and critical thinking ability that have been acquired over a long period of time and are related to the specific field of study. (India Council of Architecture 2017:4)

Applicants wishing to take the NATA are required to meet specific academic requirements, including obtaining a satisfactory mark in Mathematics (India Council of Architecture 2017:7). The NATA consists of three sections, namely mathematics that contribute 20% to the final score, general aptitude and drawing that each contribute 40% to the final score. Applicants should attempt to complete two drawing questions that are judged according to the following criteria:

· Ability to sketch a given object proportionately and rendering the same in visually appealing manner;
· Visualising and drawing the effects of light on the object and shadows cast on surroundings;
· Sense of perspective drawing;
· Combining and composing given three dimensional elements to form a building or structural form;
· Creating interesting two dimensional composition using given shapes and forms;
· Creating visual harmony using colours in given composition;
· Understanding of scale and proportions;
· Drawing from memory through pencil sketch on themes from day to day experiences. (India Council of Architecture 2017:6)

It is not uncommon to find that this category includes assessment devices that were informed by or borrowed from other fields, such as education and psychology. The research by Roberts (2004) serves as an example – his thesis studied the relationship between the performance of architecture students in

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10 According to the student advice website Collegedunia (2017): "NATA 2017 was conducted on April 16, 2017 in 2 sections on the same day. The first section was Drawing Test and the second section was General Aptitude & Mathematics. The level of drawing test was difficult as compared to previous year. Whereas, the questions of General Aptitude and Mathematics were easy to moderate. For this year, the exam was organized across 69 centers in India and there was a single center in Dubai as well. The entrance architecture test has gained popularity over past few years and to meet the demands, seats have also increased. Currently, about 24 thousand seats are offered in about 450 recognized institutions across the country, most of which accept NATA scores."

design projects and their disposition towards Wholist-Analytical or Verbaliser-Imager cognitive styles. While this type of testing may seemingly overlap with generic psychometric and aptitude tests, certain established tests may be purposefully chosen for their relevance to the skills required for the study or practice of architecture. In some of these cases evaluation by (external) specialists may be a requirement.

3.7.6. Letters of recommendation

Teachers, or someone familiar with the applicant's work and character, usually write letters of recommendation for selection purposes (Goldschmidt et al 2001:283). The cumulative data indicate that about a fifth of institutions in the United States require letters of recommendation; this number is higher than those who consider special architecture aptitude tests, interviews or portfolios. Only three institutions outside of the United States required references; they were from Canada and the United Kingdom. Goldschmidt et al (2001:287) indicate that a letter of recommendation is part of the standard application form for the latter; the researchers received no revealing comments on this assessment tool.

Abercrombie et al (1969:17) indicate that referee's reports might provide valuable context to an application, but that its value depended on the referee's understanding of architectural education and the profession. This awkwardness is seemingly overcome when referee's reports are required for admission to postgraduate or advanced professional programmes in architecture. In these cases it is now most often required that the reference is prepared by a lecturer who taught the applicant in an undergraduate studio and therefore has specific experience of the applicant's academic and design capabilities. These are usually submitted directly to the institution to ensure that confidentially is maintained.

3.7.7. Essays

Short essays of approximately 500 words typically focus on explaining why the applicant wishes to study architecture. Its purpose is for the assessment of the applicant's ability to clearly communicate ideas and to reason them through (Goldschmidt et al 2001:283). The cumulative data indicate that nine schools in the United States and one in Canada considered such essays. This may be a small percentage of institutions (9.3%), but it is suggested that they are considered with great seriousness by these institutions. "Where longer essays are requested the departments in question are interested in the prospective student's intellectual and logic thinking powers" (2001:287).

Goldschmidt et al (2001:287) point out the importance of good writing and reasoning skills and that several institutions place a high value on the language component of an applicant's academic record or aptitude test. An Australian school indicated that they observed a strong tendency "[…] for those with good English-writing skills to perform better overall in the architecture course than those with lesser English skills" (2001:287).[11] Research by Adewale and Adhuze (2014:74) suggests that more essay-type

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11 Presumably the argument is about language skills, as opposed to skills in a specific language.

questions would be advantageous in the selection of students for architecture programmes at Nigerian Polytechnics, despite the fact that this type of question requires dedicated resources in assessing them.

3.7.8. Personal statements

Statements of intent or personal statements were required by the least number of institutions (6.8%); these were split between Egypt, the United Kingdom and the United States of America. Like the essays, statements are typically required to motivate why an applicant wishes to study architecture, but differ in that the reader mainly assesses the candidate's personal goals, rather than only his or her writing skills (Goldschmidt et al 2001:287). Abercrombie et al (1972:127) indicate that personal statements had positive outcomes in selection results at the Bartlett School of Architecture and one can further speculate that motivation is a critical aspect for any student wishing to pursue a higher education qualification.

3.7.9. Discussion

The research represented in the two surveys provides insight into a worldwide and wide, but probably not representative, sample of the admission procedures and assessment tools used by schools of architecture. Apart from the eight formal categories of assessment tools discussed, Goldschmidt et al (2001:289) remark that a handful of schools are interested in an applicant's non-academic activities, such as community involvement, hobbies, travel and more. These considerations could indicate curiosity, a certain level of societal awareness and compassion, independence or confidence.

The researchers indicate that, although schools intend to admit students with the best potential to succeed, "[…] very few schools make an effort to verify that their criteria indeed result in an optimal intake of students" (Goldschmidt et al 2001:289). They speculate that admission policies are partly influenced by sweeping cultural attitudes towards architecture and higher education and offer the opinion that the nature and orientation of the schools, and the institutions they form part of, influence the admission procedures and selection tools used. Research universities, as an example, generally tend to value academic and scholastic achievements more than schools where design skills and studio performance are considered more indicative of success. Their respective value systems are certainly reflected in the way that assessment tools are considered for selection. As Goldschmidt et al (2001:290) state: "Admission criteria to universities at large and to architectural programs in particular are affected by the orientation of those who have the power to determine admission policies".

It is also clear that resource limitations increasingly determine which assessment tools are used. A scarcity of resources may therefore, at least in part, be responsible for the lack of research into the suitability and efficacy of selection practices.

3.8. SUMMARY

The procedures and assessment tools used for the selection of students for admission into systems of architectural education were investigated in this chapter. It was found that selection is implemented when the number of applicants wishing to enter a school of architecture exceeds the student numbers that available resources are able to accommodate. Student selection raises the expectation that the academic performance of the cohort will be improved and that rates of attrition will decline. As a rule the beginner student is a neophyte to the discipline of architecture and therefore has little prior knowledge of the nature of its education or that of the profession. In the context of a developing economy this is more pronounced for applicants from disadvantaged communities.

Some prominent schools of architecture have in the past aligned their admission procedures to their teaching approach and normative values. In the Beaux-Arts system selection was based on a prescribed portfolio and special architecture tests that required of most applicants to prepare for the entrance competition. At the Bauhaus students were required to submit biographical information with an initial portfolio, but had the opportunity to prepare for delayed selection by completing a prescribed, extended foundation course. The Bartlett School of Architecture weighted assessments of an applicant's academic record with socio-economic considerations, their referee's report and a personal statement; nominated applicants were subsequently invited to attend an interview where a portfolio of creative work could be presented. They experimented with different interview formats and found that, apart from the opportunity for assessment, the interview had other inherent advantages for applicants.

It has been shown that admission procedures cannot be considered universal or standard. In the main, eight assessment tools have been identified in the surveys studied and the literature shows that more than 93% of respondent institutions and all three of the case studied employ multiple tools from this list to effect their procedures. Even in the few countries where special architecture aptitude tests are the national norm, other avenues of entry are available or the test results are used in conjunction with other considerations that skew them as sole benchmarks. Quantitative data suggest that, despite these differences, congruent trends exist and that some assessment tools, particularly the academic record and aptitude tests administered by third parties, are far more popular than the other six assessment tools, but also that the academic record principally acts as an applicant's threshold to higher education.

It is evident that there is little consensus among schools of architecture about the most appropriate tools to use for selection. Moreover, the qualitative responses to the surveys often offered disparate motivations for using the same assessment tool and also indicated that the same assessment tool is considered differently, and with different expectations, by different schools of architecture. This may be due to schools aligning their admission procedures to their academic programmes and specific aspects of its presentation. Nonetheless the literature shows that the suitability or efficacy of selection tools often remain untested or fail to provide the expected outcomes.

The surveys from the literature study include very little on South African schools of architecture. While is not possible to identify individual institutions from the listing per country, only one respondent institution from South Africa is included in the study by Goldschmidt et al (2001) and a second one is added in the cumulative data published in Salama (2015:86). These two institutions represent less than 20% of the total number of schools of architecture currently validated in this country. It can therefore be argued that, for lack of information available, an opportunity exists to investigate the admission procedures and assessment tools used by schools of architecture in South Africa.

3.9. CONCLUSION

The first subproblem was to critically investigate the admission procedures and assessment tools for selection into systems of architectural education worldwide.

The supposition to subproblem one is that schools of architecture worldwide use a variety of differing admission procedures and apply multiple assessment tools during selection. As explicated in the summary above, the literature suggests that schools of architecture vary substantially in their admission procedures and that the vast majority use multiple assessment tools to evaluate applications for admission. The analysis and arguments presented therefore supports the supposition.

Certainly no single means of assessing students for entry into architecture programmes is 100% reliable; as such a combination of different assessment criteria is desirable. (Olweny 2008:5)

CHAPTER 4 SELECTION INTO SCHOOLS OF ARCHITECTURE IN SOUTH AFRICA

4.1. SUBPROBLEM 2

In order to understand the context of the main problem we need to determine and critically investigate the admission procedures and assessment tools for the selection of beginner students into schools of architecture in South Africa.

4.2. SUPPOSITION TO SUBPROBLEM 2

The supposition to subproblem two is that schools of architecture in South Africa use admission procedures and assessment tools for the selection of beginner students that are similar to those used by schools of architecture worldwide.

4.3. OUTLINE OF CHAPTER 4

In this chapter the practice of selection into schools of architecture in South Africa is investigated. Due to a lack of available information on the subject a national survey was conducted to clarify how, and by means of which assessment tools, local schools of architecture select beginner students for admission. The results are analysed in order to establish a framework of local practice. The discussion is ordered from the most-used assessment tool to that least-used, while comparing these with other international practices of selection, as has been set out in Chapter 3. This serves to contextualise local practice and provides the background to tendencies, concerns or items of specific local interest.

4.4. OVERVIEW OF THE RELATED LITERATURE

The research presented in this chapter is informed by, and organised according to, the eight categories of assessment tools identified and published by Goldschmidt et al (2001) and elaborated on in Salama (2015:86). These sources, discussed in Chapter 3, serve as the basis for a substantial portion of the survey that informed the contents of this chapter. Other sources include those of the case studies that were discussed in Chapter 3, especially the research by the AERU at the Bartlett School of Architecture as described by Abercrombie et al (1969). The article *Knocking at the practitioner's door: Job shadowing and the threshold to the architectural professions* (Botes 2015) informed the addition of a ninth assessment tool in the local survey. Lastly the opinions of the ten respondents who participated in the South African survey on behalf of schools of architecture served as primary sources for this chapter.

4.5. SOUTH AFRICAN SURVEY

The cumulative data of the international surveys discussed in Chapter 3 indicate that only two schools from South Africa were listed as respondents (Salama 2015:86). This number represents about 18% of local schools and can therefore not be considered as representative of local selection practices. In addition it has been shown that there is a scarcity of relevant local research and literature on the subject of student selection for admission to programmes in architecture. This served as motivation for the investigation of selection practices at South African schools of architecture through a national survey.

4.5.1. Purpose of the survey

The purpose of the survey was to collect data on the admission procedures and assessment tools used by schools of architecture in South Africa in their selection of beginner students for the 2016 academic year.

4.5.2. Survey methodology

During the last quarter of 2016 a questionnaire was circulated electronically to all schools that, in 2016, presented validated programmes in architecture and architectural technology at public institutions of higher learning in South Africa – see Table 2.3 – in order to obtain permission for participation in a national survey. After written permission was obtained from the relevant heads of department, directors or academic leaders, the questionnaire with supporting documentation was submitted for approval to the Committee for Research Ethics and Integrity at the Faculty of Engineering, Built Environment and Information Technology at UP. Approval was granted in December 2016 (see Appendix 1) and during January 2017 the questionnaire (see Appendix 2) was circulated by e-mail to the ten schools with an invitation to participate in the survey. Responses were received by e-mail to the researcher during the first four months of 2017; respondents provided the researcher with a signed form of informed consent that confirmed their voluntary participation in the survey.

4.5.3. Survey structure

The questionnaire consisted of three main parts: the first (Section 0) dealt with the essential information related to the process of selection, including a brief overview of the procedures followed for the intake of 2016. The second part (Sections 1 to 10) asked respondents to indicate which assessment tools they used and how each contributed to their assessment of an application. This portion was based on the findings of Goldschmidt et al (2001) and included the eight assessment tools identified in their research as adjusted, adapted and augmented for the South African context. A ninth tool – workplace experience – was added to the survey based on the research published in Botes (2015:39-46). Comments were invited on each tool used by an institution. The third part (Sections 11 to 13) requested general information, such as intake numbers (where these were available) and asked for comments on the selectors' perceptions and possibilities for improvement of the procedures followed.

4.5.4. Delimitations and assumptions

The survey investigated the general admission procedures and specific assessment tools used by local schools of architecture for the selection of beginner students for the intake of the 2016 academic year. Advanced students, such as those undertaking postgraduate studies and those applicants undergoing RPL procedures were therefore excluded from the survey.

The survey made provision for respondents who present programmes with degree outcomes at NQF level 7 and those with diploma outcomes at NQF level 6. Respondents that present programmes with both outcomes were requested to clarify whether the selection procedure for these intakes were principally similar, or alternatively were asked to complete separate questionnaires for each academic programme.

The replies from respondents were taken at face value for their apparent meaning and as respondents were personally involved in, or responsible for, selection at the institutions they represented, it was reasonably assumed that they accurately reflected the stance of the institution they represented. This motivates the use of the term 'respondent' to replace the tedious 'respondent institution'. This point is more salient as all of the schools of architecture in South Africa that presented validated programmes in 2016 responded to the invitation to participate in the survey.

In keeping with the requirements for research ethics and integrity, respondent institutions (hereafter respondents) are not identified and the institutions have therefore been randomly allocated a number for the purpose of collating and summarising the data. For the same reason opinions from the questionnaire are quoted anonymously in the subsequent discussion of the survey findings.

4.6. SURVEY FINDINGS

4.6.1. General findings

The first finding of the survey is that all ten of the respondents in South Africa used selection to determine which beginner students were admitted to their programmes in the 2016 academic year. The second finding is that the respondents, on average, used a combination of 4.2 out of nine possible assessment tools for selection. This average is significantly higher than the average combination of 2.44 assessment tools used by schools of architecture internationally, according to the data in Salama (2015:86). The number of assessment tools used by a respondent ranged from three (for three respondents), four (for three respondents), five (for three respondents) to six (for one respondent).

Findings in respect of the assessment tools used by respondents for their respective selection procedures are summarised in Table 4.1 and the subsequent discussion.

TABLE 4.1: Assessment tools used by schools of architecture in South Africa for selecting beginner students in 2016

	Academic records	Portfolios	Personal statements	Interviews	Special architecture tests	Workplace experience #	Written arguments and literacy	Generic aptitude tests	Letters of recommendation	● TOTAL PER RESPONDENT
Respondent 1	●	●	●	●						4
Respondent 2	●	●	●					●		4
Respondent 3	●	●		●		●		●		5
Respondent 4	●	●	●							3
Respondent 5	●	●		●		●	●			5
Respondent 6	●	●	●			●		●		5
Respondent 7	●				●		●			3
Respondent 8	●	●		●	●	●	●			6
Respondent 9	●				●		●			3
Respondent 10	●	●	●		●					4
RESPONDENTS' TOTALS	10	8	5	4	4	4	4	3	0	
University of Pretoria	●	●	●	●	●	●	●	○		7
SOUTH AFRICAN TOTALS	11	9	6	5	5	5	5	3	0	

KEY: ● indicates an assessment tool considered during selection
○ indicates an assessment tool not considered as a rule during selection. It was therefore not included when totals were calculated
# indicates an assessment tool not included in the international surveys

It should be noted that the assessment tools used by the Department of Architecture at UP are indicated separately in Table 4.1, but will only be critically analysed in Chapter 6 and are therefore not included in the discussion of the survey findings that follows. For this reason UP was not formally considered to be a respondent.

4.6.2. Admission procedures

From the reaction of respondents that commented on the procedure followed for admission at their institution, it appears that, as a general rule, applications from prospective students were received and centrally processed at these institutions through their administrative processes. These processes were criticised by some respondents – see section 4.6.14 later in this chapter. Applications were then forwarded to the schools of architecture for selection purposes, but in some instances aspects such as academic rankings and demographic information pertaining to an applicant were by then already assessed through administrative processes that did not necessarily involve academic staff. During the selection process a combination of assessment tools were utilised to determine a ranking or to differentiate between successful and unsuccessful applicants; this process was, in many cases, phased over time and rounds of elimination. The ensuing discussion of assessment tools, based on the survey results, provides an overview of these processes.

4.6.3. Academic record

Data from the two international surveys reported on in Salama (2015:86) indicated that an applicant's high school record was by far the most widely used selection tool among 118 schools of architecture worldwide. Despite its popularity Goldschmidt et al (2001:284-286) record that there was little consensus among respondents on the merit of this assessment tool and that practices in its appraisal varied considerably – see Chapter 3.7.1.

The following analysis relates to Section 1 of the South African survey – see Appendix 2. Respondents were asked if the academic records of applicants were considered during selection for the 2016 academic year. Respondents who indicated that they did use it were asked to provide more detail, including the minimum academic requirements that applicants had to meet, if and how an applicant's academic record was weighted in selection and whether it was considered to be a useful selection tool. Respondents were asked to motivate their opinions.

All of the ten respondents used an applicant's academic record and NSC results for selection purposes. This is not surprising in light of the statutory standing of the NSC and the fact that, in principle, it determines access to higher education in South Africa. The Department of Basic Education (2017) in addition states that the NSC examinations have "[…] become an annual event of major public significance. It not only signifies the culmination of twelve years of formal schooling but the NSC examinations is a barometer of the health of the education system". A learner's NSC results also act as

the basis for admission to studies with higher certificate, diploma[1] and bachelor's degree[2] outcomes (Umalusi 2013).

All ten respondents considered an applicant's results for Grade 12, which is also the NSC results, while eight indicated that they also considered results for Grade 11, the penultimate year of high school in South Africa. Results for the end of the Grade 11 academic year are usually presented when applicants are still in the process of completing their matric at the time when they have to apply for admission to higher education institutions. Eight respondents indicated that the academic record was converted to an average expressed as an Admission Point Score. The formulae for calculating these scores do vary between local institutions (Blignaut & Venter 2011:217-218) and are therefore not always comparable at face value. Seven respondents indicated that they considered results from other tertiary studies if these were available and three indicated that they made exceptions to the minimum requirements for applicants who did not complete their matric in South Africa[3] and for older or transfer students.

Nine of the ten respondents required applicants to have passed Mathematics for the NSC, with the minimum achievement rating required for this subject ranging from 40% to 60%, which differs from the pass requirement of 50% at tertiary education level. The respondents who presented degree programmes required a minimum of either 50% or 60% in this subject. One respondent motivated this requirement by stating that good marks in Mathematics were indicative of a capacity for problem solving.

In South Africa matriculants are required to study two official languages in order to obtain the NSC. One of these must be at home language level in which at least 40% should be obtained, while the other can be at home, thus first, or first additional language level (Department of Basic Education 2017). One of these language subjects must be the language of learning and teaching at the school that the learner attends (Umalusi 2013:14). Eight of the respondents prescribed a minimum mark for language, of which three accepted the minimum of 40%, while four required at least 50% and one 60% or more. Five respondents specified English as a compulsory subject, with two referencing English as the medium of instruction at their institutions. It does however seem that all of the respondent schools use English as the de facto medium of instruction in any case. Two institutions also set minimum expectations in the second language.

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1   For Diploma studies "The minimum admission requirement is the National Senior Certificate with a minimum of 30% in the language of learning and teaching of the higher education institution as certified by Umalusi, the Quality Assurance Council, coupled with an achievement rating of 3 (moderate achievement, 40% - 49%) or better in four (4) recognised 20-credit subjects listed from the designated list. Institution and programme needs may require additional combinations of recognised NSC subjects and levels of achievement." (Department of Basic Education 2017)

2   "To meet the minimum admission requirements to a Bachelor's Degree study at a higher education institution, a candidate must obtain, apart from the National Senior Certificate, an achievement rating of 4 (Adequate Achievement, 50% - 59%) or better in four (4) designated subjects: Accounting, Information Technology, Agricultural Sciences, Languages, Business Studies, Life Sciences, Consumer Studies, Mathematics, Dramatic Arts, Mathematical Literacy, Economics, Music, Engineering Graphics and Design, Physical Sciences, Geography, Religion Studies, History, Visual Arts." (Department of Basic Education 2017)

3   Foreign school leavers are required to obtain exemption for purposes of admission to higher learning institutions in South Africa. The Matriculation Board, an advisory body to Universities South Africa, performs the assessment of academic records for this purpose (Matriculation Board 2017).

Differences were recorded for the weighting of the academic record for the purposes of selection. Four respondents indicated that an applicant's academic record was considered, but not formally weighted with other assessment tools. Three respondents considered this as having equal importance as other assessment tools and only two institutions indicated that academic records played a more significant part than other considerations. One of these respondents opined that the academic record was "[…] most likely the only fair way to accept or deny entry to an applicant on an equitable basis" and added: "An academic record with good performance in languages normally indicates a potentially strong student". One respondent stated that a good academic record was a fair indicator of a student's readiness to undertake studies at an institution of higher education. It was shown in Chapter 3.7.1 that this is a generally held view, but also that this perception is often based on its general accessibility and the fact that school results are widely accepted and understood by society at large.

One respondent considered academic results less important than other factors. Two respondents indicated that an applicant's academic record was augmented with the results of their NBT. The NBT are discussed in the ensuing section of this chapter that deals with generic aptitude tests.

A clear indication was obtained of the respondents' views on how useful academic records are perceived to be for the purposes of selection. Three respondents viewed the academic record as useful, while the other seven thought that it merely had some value. One of them suggested that a good academic record indicated that a student could work hard, but also that it did not indicate creative ability. Another thought that the academic record failed to indicate spatial understanding. It was also highlighted that feeder schools differ substantially and that applicants with good potential may not have had access to good schooling.

For some respondents the role of the academic record in the process of selection was considered more of a procedural matter than being the assessment tool of preference – two respondents viewed the academic record simply as a threshold requirement for further selection through other assessment tools. One respondent explicitly dismissed the value of the academic record for selection as it was found that school results are too unpredictable to be a reliable measure of applicants' interest in the world around them. It was also stated that it failed to measure "maturity, perseverance, enthusiasm for architecture and an ability to develop a sense of aesthetic and appreciation of beauty". The respondent also spelled out that:

> School results are indicative of a good memory, possibly a good sense of interpreting questions, good teachers that know how to prepare students for exams, and some discipline. Although some of these are useful and necessary skills in the studying of and operating within the profession of architecture, it is indicative only.
> […]
> In many instances, for a number of reasons, candidates' scholastic results may not be a true reflection of their abilities, and thus not indicative of their inherent intelligence, creativity or ability to become very good students and architects. This is especially true of students from regions or areas with poor school systems.

This opinion highlights the fact that the legacy of South Africa's political history, and its influence on education, continues to impact negatively on the performance, in particular that of disadvantaged school leavers. It also reminds us that applicants who come from poor communities and under-resourced schools are most likely to be disadvantaged in their academic preparation for tertiary studies, especially in the design disciplines (Saidi & Nazier 2011:185).

It was clear from the survey that academic records were considered jointly with other assessment tools. It is thus deduced that, although this tool provides selectors with some insight into the applicant's abilities, for prospective students of architecture it was not perceived to be the comprehensive benchmark some would have liked it to be. When weighted with other assessment tools that reveal information about applicants beyond the marks or averages they achieved, it principally follows the approach of the AERU who weighted the assessment of academic records with biographical and socio-economic factors at the Bartlett during the 1960s – see Chapter 3.6.3 and Abercrombie et al (1969:17).

It is thus concluded that an applicant's academic record, specifically for the NSC, was used for selection by all local schools of architecture for the 2016 intake. Nine institutions required Mathematics as a school subject and eight of the ten respondents specified minimum achievement ratings for language subjects, with half of all respondents doing so for English. The weighting of the academic record with other tools was disparate; at least four different approaches were recorded. This correlates with some of the findings of the international surveys (Goldschmidt et al 2001:284-286). The local data suggests that the majority of respondents thought that school results had some value as an assessment tool, but that it offered limited insight into an applicant's creative and spatial abilities.

4.6.4. Portfolios

The role of portfolios in architectural practice and education was discussed in Chapter 3.7.3. In the Beaux-Arts system portfolios were used in combination with special architecture tests for entry competitions and portfolio reviews continue to serve as prominent means of assessment for promotion at most schools of architecture. Data from the international surveys indicate that it was the third most popular assessment tool among international schools of architecture – see Table 3.1 – but also that it was used by less than a third of 118 respondents. Goldschmidt et al (2001:283) conclude that portfolios are always weighted with other assessment tools and often presented and discussed at interviews.

The following analysis relates to Section 5 of the local survey. Respondents were asked if portfolios were considered during selection for the 2016 academic year. Those who indicated that they did require portfolios were asked to provide more information, including a description of the portfolio requirements, its features, if format and media were prescribed and how the content was assessed and weighted. Opinions were invited as to how useful portfolios were perceived to be as selection tools.

All but two of the ten respondents required applicants to submit portfolios; accordingly it was the second most used assessment tool among South African schools of architecture. The survey showed that it was generally required that applicants prepare specific content for the portfolios – all of the eight respondents who required portfolios prescribed its content, while two respondents also allowed open portfolios prepared at the applicant's own discretion. The prescribed content featured up to six tasks that included varied combinations of drawings, design tasks, written assessments, model building or object making and problem-solving tasks. A respondent indicated that their brief for the portfolio required of applicants to interpret written instructions in order to develop a design solution to a three-dimensional problem; the solution had to be presented graphically and the conceptual thinking explained textually.

The international surveys clearly found that schools of architecture have different expectations of a portfolio submission. Two subcategories of portfolios were outlined in the survey in order to establish the agendas of local schools of architecture: showcase portfolios, where the outcomes represent a selection of the best work by an applicant, and revelatory portfolios, that may be revealing of an applicant's latent or patent abilities. The intention was to let respondents distinguish between the type of portfolio they require and to consider the crucial difference between one that is foremost considered for its final outcomes, as opposed to the type of portfolio that may be reviewed for the thinking and processes of production the applicant engaged with. The majority of institutions assessed portfolios as revelatory, while one institution purely assessed it as a showcase portfolio that represented the applicant's best work. Another respondent thought that both categories applied to their selection processes.

Five institutions weighted portfolios as being equally important as other assessment tools, while two considered it more significant than other tools and one only considered it, but did not formally allocate a weighting during assessment.

Four respondents indicated that applicants presented their portfolios during selection interviews. By implication the other four respondents who required portfolios only expected it to be submitted. One institution indicated that interviews were previously used to present portfolios, but that it could not be done for the 2016 intake due to the limited availability of resources. Nonetheless it was stated that a portfolio should "[…] ideally be viewed at an interview to verify authenticity and validate thinking [and] reasoning". One respondent, who proved to be the least keen on portfolios, reported that the institution "[…] cannot guarantee authorship and students don't respond to what is requested of them […]". A respondent who did not use portfolios for selection supported this opinion and stated:

> Considering the fact that there is no guarantee that the work in the portfolio was fully or partly produced by the candidate, together with the logistics involved in assessing a large number of applications, negates the extra insight that might be gained over and above what can be learnt from a comprehensive assessment under controlled conditions.

Another opinion, from an institution that invited open portfolios, stated that the portfolio assessment might be skewed by what applicants think is required and added: "Less privileged applicants see technical

drawings as superior examples of ability and leave innovative wire cars or sketches at home, and others cannot transport what they have, so it cannot count absolutely."

A portfolio is time-consuming, not only for the applicant who prepares it, but also for the selectors who have to adjudicate its content. One respondent warned against dividing the assessment of portfolio tasks among individual members of staff as it might compromise holistic appraisal and thereby prejudice applicants. Another respondent required that the portfolio covers should also be designed to reflect the applicant and his or her approach to design.

Six of the eight respondents were sure that portfolios had significant value as useful selection tools, while one thought it had some value. The eighth respondent, who was quoted above, and was less convinced of its contribution for the frustration it caused. Almost all of the respondents particularly mentioned that creative ability was assessed through an applicant's portfolio. "The portfolio can show an applicant's aptitude and patent and latent capacity for drawing, design, creative thinking, visual literacy, conceptual thinking and abstract thinking." Respondents also assessed portfolios to measure skills in problem solving, as an indication of the applicant's curiosity and his or her level of motivation through the effort taken with the portfolio tasks. In addition it was opined that portfolio submissions possibly revealed core design thinking skills; this respondent thought that prescribing basic media was relevant for epistemological reasons and stated that portfolios should be designed to test thinking, rather than training.

In summary portfolios were the second most used assessment tools for selection at schools of architecture in South Africa for the 2016 academic year. They were used to augment other assessment tools in order to gauge a variety of skills and abilities that are pertinent to the architectural disciplines, including creativity, skills in visual literacy and design thinking. These aspects may not be easily revealed without outputs that are specifically intended for this purpose. The authenticity of authorship of the portfolio contents was a concern and it seems that the perceived validity of portfolio submissions increased when there was an opportunity to confirm authorship or to probe an applicant's thinking about the portfolio contents in some way. It is also clear that portfolio requirements need to be carefully designed and considered so as to ensure its relevance and to allow for appropriate assessment of applicants' abilities, whether latent or patent.

4.6.5. Personal statements

It was shown in Chapter 3.6.3 that a personal statement by candidates who applied for admission to the Bartlett School of Architecture in the 1960s correlated significantly with the later performance of selected students (Abercrombie et al 1969:127). The personal statement included biographical information, but most importantly in it applicants motivated why they wanted to pursue studies in architecture. The cumulative data from the international surveys documented in Salama (2015:86) indicate that personal statements are the least used assessment tools – only 6.8% of respondents stated that they considered

such statements. Goldschmidt et al (2001:287) indicate that the assessment of personal statements is more concerned with an applicant's motivation and personal goals than with their writing and language skills, which are more relevant in the section that discusses written arguments and literacy that follows.

The following analysis relates to Section 6 of the South African survey. Respondents were asked if personal statements in textual format, or essays by applicants that explained why they wished to study architecture, were considered during selection for the admission of beginner students for the 2016 academic year. Those who indicated that they did consider such statements were asked to provide more information, including a description of the requirement and how it was assessed and weighted. Opinions were invited as to how useful personal statements were as selection tools.

Considering the limited application of this tool in the international surveys, it was surprising that half of the South African institutions indicated that they considered personal statements for selection. Four of the five institutions considered them as letters of motivation that also served as an indicator of the applicant's understanding of architecture. One respondent motivated this as follows:

> The 'Letter of Motivation' is a good method to understand who the applicant is, what their interests are, and what understandings they have of Architecture. It is an opportunity for applicants to include […] more information that might not be apparent in their portfolios.

Three other responses noted similar opinions. One indicated that the personal statement was strategically used to start the discussion during selection interviews. Another respondent mentioned that applicants often wrote about buildings or sites that they had visited or with which they been impressed. This was viewed in a positive light as it indicated a long-term and active interest in architecture. One respondent additionally read the personal statement as an indication of language proficiency. This aspect overlaps with the purpose of essays, written arguments and literacy assessments that are discussed in a subsequent section of this chapter.

Personal statements received less weighting than most of the other tools probed in the survey. The opinions that were submitted suggest that its main purpose was to assist selectors in accessing (as opposed to assessing) applications, the contexts to which applicants relate and their frames of reference. Two respondents indicated that personal statements were considered, but not formally weighted and two indicated that it was less significantly weighted than other assessment tools. Three respondents thought that it had little value as an assessment tool for selection. One of these respondents commented that the personal statements were often rather naïve and repetitive. Another thought that personal statements had some value and one thought that it had significant value in selection.

It is clear that the value of a personal statement during selection relates to the individual who wrote it and his or her motives for applying for admission. It serves to contextualise applications and may assist in determining the extent of the applicant's frame of reference. It may also serve to indicate an active

interest in the discipline. In this sense it was found that a personal statement supports an application more than it decides its success.

The following four assessment tools – interviews, special architecture tests, workplace experience, and written arguments and literacy – were equally popular and all used by four of the survey's respondents. They are therefore listed alphabetically in the ensuing discussion.

4.6.6. Interviews

The AERU at the Bartlett School of Architecture experimented with different formats for selection interviews and found that it did not produce significantly measurable results (Abercrombie et al 1969:19-25). Nonetheless they used the platform to present portfolios and as an opportunity for applicants to visit the school and get acquainted with aspects thereof (Abercrombie et al 1972:86). Some of the opinions recorded in the international survey by Goldschmidt et al (2001:288) supported the presentation of portfolios at interviews. Objections to this tool include the logistical considerations, including travel distances and the time (and some argue experience) required to conduct interviews. On the other hand some respondents to the international surveys and other authors – see Chapter 3.7.4 – are clear that a selection interview provides an opportunity to access aspects of an applicant's potential that would not otherwise be discovered.

The following analysis relates to Section 4 of the South African survey. Respondents were asked if interviews with applicants, either as face-to-face meetings or via telephone or videoconferencing facilities, were considered during selection of beginner students for the 2016 academic year. Respondents who indicated that they did interview applicants were asked to provide more information, including how interviews were used, who conducted them and if, and how, interviews were weighted with other assessment tools. Respondents were asked to explain if they thought that interviews were useful and were invited to motivate their opinions.

Four, or just less than half of the respondents, indicated that they used interviews as part of selection. All of the institutions that conducted selection interviews also required applicants to submit portfolios. In all cases members of the school's academic staff conducted the interviews, but in one instance a psychologist was added to the panel; this person also oversaw the psychometric tests that this specific institution required applicants to take. It was mentioned by other respondents that the duration of an interview is 15 minutes and it was deduced that interviews were held towards the end of the selection process, or in fact was the final opportunity for selectors to assess applications.

From some responses received it was clear that the interview served more than one purpose and overlapped with the personal statements in that it contextualised applicants to the selectors. A respondent stated that the selection interview focussed less on architectural knowledge (which was tested through

other means), but more on the applicant's insight and the person's sense of self. At one institution an interview was used:

> To check [an] applicant's understanding of what architecture entails, correlate their interests with skills required, gauge [the] level of interest [and] motivation, view [the] portfolio of own creative work, check that linguistic skills correlate [with those presented in other assignments and to] pick up exceptional traits and approaches.

One respondent stated that interviews allowed more mature students with wider worldviews to excel, while another mentioned that the personal development, attitude and confidence of an applicant became apparent, but qualified it by adding: "Not all people interview well, they might be nervous. It is important for the atmosphere to be welcoming in order to get the most out of the interview. Intimidated applicants don't perform well and it's not conducive to the assessment process." An opinion expressed by a respondent that did not conduct interviews for the 2016 intake had previously found that interviews could be misleading and "[…] in terms of logistics, one needs to weigh the time and resources available against the gain in accuracy of the tool in terms of prediction of success".

All the respondents who used interviews indicated that they were weighted with equal importance to other assessment tools and agreed that it had significant value during selection. One respondent's experience showed that applicants with high scores in the portfolio and interview performed better in their studies at the specific institution than those with an equal total score, but made up of a higher academic rating and lower portfolio and interview assessments.

None of the other assessment tools surveyed received such positive feedback from those who used it. Despite the logistical disadvantages and the fact that they are time consuming to conduct, the unanimity of respondents who conducted interviews makes it is clear that it contributed meaningfully to the selection procedure and outcomes at those institutions. This correlates with the case study of the Bartlett and some opinions expressed by respondents in the international surveys – see Chapter 3.6.3 and 3.7.4.

4.6.7. Special architecture tests

Special architecture tests were used in combination with portfolios for the entry competitions in the Beaux-Arts system – see Chapter 3.6.1 – and the cumulative data of two international surveys indicate that it was the fifth most popular of eight assessment tools, used by 19.9% of respondents (Salama 2015:86). These tests are specific to the architectural disciplines and can reveal aptitude for studying architecture and can include tasks that pertain to visual memory, spatial organisation, drawing and design. These tests are often designed for a specific school of architecture and are usually administered by that school. In Chapter 3.7.5 it was found that such tests were conducted on a national basis in India and Sweden.

The following analysis relates to Section 3 of the South African survey. Respondents were asked if the outcomes of special architecture tests were considered during selection for the admission of beginner

students for the 2016 academic year. Those who indicated that they did consider such test results were asked to provide more information, including a brief description, which aspects were tested and how it was assessed and weighted. Opinions were invited on how useful special tests were as selection tools.

Four of the ten respondents indicated that they required applicants to take special architecture aptitude tests. The survey results indicated that one such a test consisted of a thirty-minute drawing test where the applicant had to demonstrate an ability to draw and visualise objects from different points of view. At the opposite, and lengthier, end of the spectrum was a five-hour test that consisted of a two-hour paper followed by a three-hour online test taken under supervised conditions.

All of the respondents that used special tests indicated that they used it to assess three-dimensional abilities and creative potential; three indicated that visual communication skills were included and two pointed out linguistic communication skills (as written arguments and literacy were embedded in these tests). One respondent indicated that general knowledge was included and two indicated that the tests they conducted in-house also tested a basic proficiency in numeracy. One mentioned that general logic and another "Logic in terms of constructing things" were assessed.

Two institutions indicated that the special architecture aptitude tests were weighted equally with that of the other assessment tools, while for the other two these tests were the only tools that carried real weight in the selection outcomes. This was motivated by the fact that a special test allowed for a more accurate demonstration of the skills required for architectural studies. While one respondent thought that the test had some value as a useful assessment tool, the three other respondents who used them were convinced that it had significant value. One of the latter thought that "The test ranking allows for a dispassionate approach that is seen as more rigorous than a 'subjective' evaluation of a portfolio" and another explained its value as follows:

> […] it can be tailored to assess candidates for possible suitability and fit with the approach and objectives of a specific architectural learning site, […] it provides a good platform for comparative assessment, and […] it can be developed and implemented in a way that makes it logistically possible within the ambit and available resources at the specific [school of architecture].

Such opinions make it clear that bespoke assessments carried more weight at some schools of architecture than generic indicators of academic or other merit. It is of notable interest that even subjects that are principally covered in the NSC curriculum, especially Mathematics, were re-tested by least at two respondents. It is, however, not clear if this was intended as a more appropriate means of assessing the application of mathematical knowledge, or if it indicated distrust in the national school system's teaching and assessment standards. At the same time none of the respondents that took special tests required applicants to take the NBT – the other platform that could assess specific mathematical skills. One respondent who used special tests also conducted interviews and combined the two in sequence; this approach had the advantage that applicants do not have to travel to the institution on more than one occasion.

To sum up, one should not be surprised that schools of architecture designed mechanisms to reveal skills and test areas of knowledge that they value or found lacking in other means of assessment. The survey indicates that respondents valued the fact that they could devise tests with a high level of specificity directed at their particular academic programmes and normative positions. It was also revealed to be an effective use of resources as institutions could tailor the test and its presentation. Like interviews it does require of applicants to visit the school of architecture and therefore has similar advantages to applicants who can use the opportunity to familiarise themselves with the school, its people and facilities.

4.6.8. Workplace experience

Workplace experience, also known as job-shadowing, was not an assessment tool that was included in the international surveys. The researcher observed its potential as an assessment tool – see Botes (2015) – and therefore included it in the local survey.

Alexander and Dlamini (2012:830) argue that there is a neglect of career assessment and counselling which contributes to the high dropout and failure rates at institutions for higher education in South Africa, especially for those students from marginalised backgrounds. Abercrombie et al (1969:17) and Nelson (1974:83) mention that most schoolteachers and school vocational councillors had a limited understanding of the many facets involved in the practice of architecture and that they are therefore, as a rule, not capable of offering a great deal of assistance to a learner who is interested in pursuing studies in the field. Nelson (1974:83) also argued that one of the best ways for a prospective student to learn about the profession is through part-time work or an internship. Campaigns such as 'Take a girl child to work' – see SACAP (2016c) – has recently created awareness among South Africans of the value of workplace experience.

Considering the mysterious 'black box' of architectural education (Banham 1990:22-25) and that architects are 'hidden professionals' in South Africa (Janse van Rensburg 2015:7), it is imperative that prospective students of architecture get an opportunity to inform themselves of the outcomes associated with the programme and career they wish to pursue.

> […] it was observed that those students who had prior exposure to practitioners through school job shadowing, seemed surer of their decision and more committed to their studies. Not surprisingly, career satisfaction is regarded as a core measure of life satisfaction or, in borrowing from Professor Roger Fisher, one should aspire to a 'good fit' – in this instance between an individual and his/her chosen career path (and therefore his/her field of study). (Botes 2015:40-41):

Workplace experience thus offers applicants the opportunity to confirm their career choices based on first-hand experience. It creates an opportunity to observe and interact with architects at work, view their projects and the nature of the architectural practice as a place of work. This is all the more important as an architect's office usually differs from the working environment of other professionals, such as legal or medical practitioners.

The following analysis relates to Section 9 of the South African survey. Respondents were asked if applicants were required to job-shadow an architect or to gain first-hand workplace experience during selection for the admission of beginner students for the 2016 academic year. Those who indicated that they did require such experience were asked to provide more information, including a description of the requirements and how the content was assessed and weighted. Opinions were invited as to how useful workplace experience was considered as a selection tool.

Four respondents indicated that workplace experience was required. One respondent stated that it was not an absolute requirement, but one that was strongly recommended, while another explained that a visit to a construction site could serve as a last resort if the applicant could not gain access to a practicing architect or technologist. Three institutions required written confirmation from the architect or practice that the applicant had visited them. In addition two required some insight into the nature of the applicant's exposure during the practice visit – one asked that the applicant give a brief description of the experience while the other asked the practitioner to provide an overview thereof. Another respondent required that the applicant discuss aspects of a career in architecture with the practitioner. Additional requirements included that the applicant make drawings of the practice's projects, the office environment and possible buildings sites that they might have visited as part of the job-shadowing assignment.

One respondent stated that the experience is referred to and probed at the subsequent selection interview and another respondent expected it to be mentioned in the applicant's personal statement essay if it had made a significant impression on him or her. Two respondents (or half of those who used the tool) weighted workplace experience with less significance than other tools.

One respondent stated that it was just a minimum requirement and that it indicated to the applicant what an architect might do, but that it did not indicate what the applicant would be able to do. This respondent thought that workplace experience was of little value in the selection process. Of the remaining two respondents, one each thought it was equal to other considerations and that it was considered, but not formally allocated a weighting. It was thought to have some value in selection by one respondent, and significant value by two respondents. One of these motivated this opinion by stating that a strong response by the applicant indicated "[…] interest, motivation and [an] understanding of the chosen career".

A respondent warned that, despite its inherent value, the requirement for workplace experience could be exclusionary in cases where applicants from remote or rural areas may not have access to architects' offices in their area, but added that "Experienced assessors will ignore this aspect when they realised the applicant's place of origins". One institution that did not formally require workplace experience from applicants mentioned that it was nonetheless discussed at interviews. In this context it served as an indication of how serious the applicant was and how much research the applicant did through their own initiative. Another respondent who did not consider workplace experience necessary for selection volunteered a similar opinion and thus negated the formal requirement of such an assignment.

It is clear that institutions that used workplace experience as an assessment tool during selection do so in order to better inform applicants about their possible study and career choices, even when it serves only as a recommended exercise that is not formally weighted. It had the advantage that it offered applicants who visit an architect's office first-hand experience of the nature of professional practice and the outcomes associated with the academic programme they wished to pursue. When one considers that, as a rule, beginner students are neophytes to architecture (Abercrombie et al 1969:2; Sandrock 1960:8) and that many applicants, especially those from disadvantaged backgrounds, may not understand what architecture entails – see Oluwa (2017:52) and SACAP (2016a:6) – this tool becomes more relevant to a post-colonial and developing economic African context. As was the case with interviews and special architecture tests, logistics and travel distances may prove challenging to some applicants. On the other hand it could be argued that the value of workplace experience is greater than the demerits that the difficulties pose.

4.6.9. Written arguments and literacy

This assessment tool was referred to as essays in the international surveys reported on in Goldschmidt et al (2001) and Salama (2015:86). Because there is an overlap, and possible confusion, with the personal statement assessment tool, its heading in the survey form was changed to reflect its purpose more accurately. Goldschmidt et al (2001:283) indicated that short essays of about 500 words, or one page, were used to assess an applicant's communication and reasoning abilities. While only 9.3% of international respondents used this tool, Goldschmidt et al (2001:287) showed that more respondents appreciated good writing and reasoning skills and that several institutions indicated that they value the language component in other assessment tools, such as academic records or aptitude tests, highly.

The following analysis relates to Section 7 of the South African survey. Respondents were asked if aspects of written arguments and literacy were considered during selection for the 2016 academic year. Respondents who indicated that they did use it were asked to provide more information, including a description, if and how these textual outputs were weighted with other tools. Respondents were asked to explain if they thought that it was useful to consider these tools during selection and were invited to motivate their opinions.

Four respondents considered written arguments and aspects of literacy during selection. Three of these indicated that it was part of other assessment tools, either as part of the portfolio requirements or embedded in a special architecture aptitude test. The two respondents who indicated that it formed part of the selection test did mark linguistic communication skills as an aspect that was assessed in their tests, while the institution that included it in the portfolio required of applicants to explain the conceptual approach to one of their design submissions in writing. The fourth respondent indicated that written arguments were separately assessed in an assignment that asked applicants to write an essay about a chosen or favourite building from their hometown. This approach made the task more accessible and in

addition required an opinion to be offered and described, argued or defended. The value of a submission of this nature by a prospective student of architecture is self-evident.

One respondent did not indicate how written arguments were weighted as a separate concern, but earlier indicated that the test of which it formed part of was, in effect, the only assessment tool that determined selection results. Two other respondents applied it while having equal importance with other assessment tools and one indicated that it was considered, but not formally weighted. This institution also considered it as having some value, while the other three respondents thought it had significant value in the assessment of applications.

While only four local schools of architecture indicated that they used such textual constructs as a separate assessment tool, more consider language and reasoning skills that may have been embedded in other tools and considerations. In the discussion of the academic record earlier in this chapter a respondent was quoted where it was indicated that good results in language subjects usually indicated a potentially strong student of architecture. This institution did not indicate that they considered written arguments separately, but they did require a written argument as part of the portfolio. It has also already been shown that minimum achievement ratings in at least one, but some cases two, South African languages were required by eight of the ten respondents. It therefore seems that aspects of literacy and an applicant's abilities in linguistic construction and communication are indeed reflected on, albeit not always as a distinct category.

4.6.10. Generic aptitude tests

Generic aptitude tests include general scholastic aptitude tests and psychometric tests that examine a range of cognitive and scholastic abilities. They are generic and thus not limited to applicants for architecture. External bodies or practitioners, such as vocational councillors or psychologists, often administer these tests. This assessment tool proved to be the second most used in the international surveys, with only academic records being used by more schools of architecture. The cumulative data in Salama (2015:86) indicate extensive use of this assessment tool in the United States of America.

The following analysis relates to Section 2 of the South African survey. Respondents were asked if the outcomes of generic aptitude tests were considered during selection for the admission of beginner students for the 2016 academic year. Institutions that indicated that they did consider such tests were asked which tests were used and requested to provide more information, including a brief description, which aspects were tested and how it was assessed and weighted. Opinions and motivations were invited on how useful generic tests were as selection tools.

This assessment tool proved to have the least number of users in the local survey. Three respondents indicated that they considered generic aptitude tests. Two of the three respondents required of applicants to take the NBT in all three domains, namely academic literacy, quantitative literacy and for the section on

mathematics. It was reasoned that the NBT was a good way of testing cognitive ability, especially for "[…] weaker students overlooked by the NSC system". A respondent to the survey opined that the NBT results served as confirmation of the applicant's abilities if they were consistent with the academic record. According to the National Benchmark Tests Project (NBTP 2016:12-14) the NBT results are deemed to be indicative of a student's readiness to cope with tertiary study and are intended to complement the NSC results for purposes of comparison and calibration.

> The tests are criterion-referenced, i.e. they are aimed at assessing students' academic and quantitative literacy and mathematics performance against standard levels of performance regarded by experts in the fields as being acceptable for entry into higher education in the three fields. (NBTP 2016:12)

An added advantage of the NBT system is the general accessibility of test venues. There were eighty-nine such venues across South Africa and fifteen in the neighbouring Southern African Development Community countries where the tests could be taken for the 2016 academic year (NBTP 2016:4).

One of the institutions that required NBT also required psychometric testing, while the third only required psychometric testing. At both universities that required psychometric tests they were administered by specialised units and it was required that applicants attend a test session on the respective campuses. One respondent commented that this arrangement was not ideal for applicants who have to travel long distances and that it negatively affected the number of international applicants who could be considered for placement. The hope was expressed that psychometric testing could be done online in future. It was also noted that, in both of the respondent's instances, applicants were expected to pay the cost of the psychometric test in addition to the standard university application fee; in both cases this amounted to costs that were significantly higher than that for the NBT. It was stated by one respondent that the psychometric results gave the institution insight into an applicant's social behaviour and, moreover, served to advise the school of architecture about potential gaps in cognitive areas and thus allowed for the development of mitigating up-skilling programmes if and when they were required.

All three respondents that considered the results of generic aptitude tests as a rule considered it as having equal weighting with that of other assessment tools. Two of these respondents thought that it had significant value in selection, with one stating: "A general aptitude test such as the NBT is seen as a good mechanism for testing applied cognitive abilities beyond the prescribed curricula of various schooling systems." The third respondent was not sure of the value of the psychometric test battery as its results were not available to the school of architecture.

Like some of the other mechanisms, generic aptitude tests were used to give selectors a better indication of the applicants' abilities (or, in certain cases, of their shortcomings). Ultimately the value lay in either augmenting NSC results, or, that it provided an additional lens or set of lenses through which applicants could be viewed. The low level of interest in this tool among local institutions was surprising when one considers how popular it was in the international surveys. The fact that one respondent was unable to access the results of psychometric tests creates some doubt as to its value in the selection procedure.

4.6.11. Letters of recommendation

Data from Salama (2015:86) indicated that letters of recommendation were used by only 10.2% of international respondents and that the majority of these were from the United States of America. Abercrombie et al (1969:17) highlighted the fact that the value of such recommendations depended on the degree of knowledge the referee had on matters of architectural education. It was also shown in Chapter 3.7.6 that such recommendations are often used for admission to postgraduate programmes instead.

The following finding relates to Section 8 of the South African survey. Respondents were asked if letters of recommendation were considered during the selection of beginner students for the 2016 academic year. Respondents that indicated that they did request such recommendations were asked to provide a description thereof and indicate if and how these letters were weighted and whether it was considered to be a useful assessment tool.

None of the local respondents indicated that they required letters of recommendation, but one mentioned that they did pay attention to such recommendations if applicants included them in their submissions. No other findings were made with respect to letters of recommendation.

4.6.12. Other aspects

The following analysis relates to Section 11 of the questionnaire. Respondents were asked about the value of selection at the institution they represented, whether formal or informal research was conducted on the success of selection and the history of selection for the programmes in architecture.

Two respondents were of opinion that, at best, their selection procedure had the function of checking candidates against a necessary threshold, while seven thought that, in addition to checking candidates against a necessary threshold, it also rendered modest predictions of candidates' future performance as students. Only one institution proved to be certain that the selection procedure they followed rendered reliable predictions of candidates' future performance in that school of architecture; in this case the response was based on research through monitoring of records or analysis. For the most part, namely for seven of the ten respondents, opinions were based on the individual respondent's own impressions and overall perceptions, while two other respondents, apart from the one indicated above, based their opinions on research and analysis. One respondent mentioned that the institution was busy investigating software solutions that would make it possible to track student performance in a holistic manner. A respondent from an institution that did not conduct any formal or informal research into selection stated that "It was necessary and much needed".

Selection procedures followed by schools of architecture were, for seven respondents, unique in the institution, while two respondents indicated that their procedures were also used for a limited number of

other, presumably related, academic programmes at their institutions. One respondent did not know if the selection procedure was unique.

While eight of the respondents could not say when selection was first introduced for the architecture programme at their institutions, one answered that it was first used for the intake of 1989 and another that it was for the 2008 intake, although the latter answer suggests that that this only relates to the intake for which the current procedure was first used.

Respondents generally felt that good academic results across the board were a good measure of success at their institution. Five of the ten respondents ranked this aspect first, while two ranked it as the second most important measure and two more ranked it third most important. The personal development of a student received the second highest ranking as an overall indicator of success, followed, in order, by the development of professional skills, completing the course in the minimum prescribed time and the outcomes of national and international student competitions. Academic results in design only was placed sixth overall, with one respondent adding that students that develop a social conscience was considered an additional measure of success.

Overall this section of the survey indicated that the academic results of students of architecture were considered more indicative of success than academic results for school were. It is also of interest that respondents' perceptions of the success of their selection procedures proved to be more significant than the monitoring of results through research.

4.6.13. Numbers and demographics

The following analysis relates to Section 12 of the questionnaire. Respondents were asked to indicate the number of applications they received for the 2016 academic year, how this compared to previous years, the size of the first year cohort and if aspects of demographics were considered during the selection process.

While four respondents were unable to indicate the total number of applications they received for 2016, the numbers for the six institutions that did provide figures ranged from 300 to 1 862, with an average number of 1 128 per institution that provided figures. Nine respondents were able to indicate how the number of applications for the 2016 academic year related to previous numbers: five indicated that numbers were lower than in previous years, while one thought it was similar and three that it was higher than before.

Institutions were asked to indicate how many selected students started their studies in architecture as beginner or new students in 2016. Numbers ranged from 40 (for the smallest intake) to 96 (for the largest intake), with an average of 67. It was thus established that a total of 671 students began studies in architecture in South Africa in the 2016 academic year. Four respondents indicated that their intake was

higher than in previous years, four indicated that it was similar and two that it was lower than before. All ten of the respondents indicated that they limited the number of students who were admitted annually.

In the international survey Goldschmidt et al (2001:289) noted that "[…] some schools go to extreme pain in order to ensure that candidates of diverse backgrounds and abilities are identified and offered places." In view of the transformation agenda discussed in Chapter 2.5.8, the local survey asked respondents if demographic data played a role in the composition of the 2016 cohort. Four respondents, that is less than half, indicated that it did, with one each indicating gender and population group as factors. The latter respondent stated that it was important to "achieve demographic transformation of the student cohort". Two institutions used multiple indicators, with one combining population group and gender and the other population group, gender, nationality, age and whether an applicant came from an urban or rural area. In this instance the institution assigned all applicants with a disadvantage factor to signify these considerations. This follows the principle of weighting the academic record for socio-economic and other factors that as recorded by Abercrombie et al (1969:17). In the South African context this should be read as an endeavour to address the need for transformation of the academy and the profession. The success and sustainability of this institution's approach was not addressed in the survey.

It is clear that the demand for places in schools of architecture far outnumber the number of available placements – even the school with the smallest first year studio received applications from more than seven times their intake quota. This emphasises the need to select students for admission into schools of architecture and validates the research into selection practices in principle.

4.6.14. Looking forward

The following analysis relates to Section 13 of the questionnaire. Respondents were asked how they would change, improve, refine or revise their current selection process. They were invited to discuss or briefly motivate their responses.

While the scope of answers in this section varied considerably, some trends did emerge. Three of the ten respondents indicated that the current selection regime worked "relatively well", although there would always be room to adjust and refine the procedure. Six institutions suggested minor tweaks in order to improve their existing processes. This included, in three instances, increasing the online component of selection, either as a cost-saving measure, to streamline the process or to promote more sustainable practices. One respondent mentioned that online submission of portfolios would have cost benefits to applicants. An institution that conducted psychometric testing would prefer that this aspect also be made available online.

The neophyte argument was raised by a respondent who would like to see the portfolio requirements revised so as to be in line with applicants' contexts and their level of understanding at the time of their

application. It remains a challenge to test aptitude for a specific programme, such as architecture, if the applicant has a very limited frame of reference and cannot reasonably expected to know more or better.

Three institutions mentioned that the centralised administrative component of selection was sluggish and that the institutions' admissions departments took too long to process applications. It was suggested that the process be streamlined to speed it up. One respondent made particular mention that this delayed the distribution of their selection requirements to applicants. On the other hand, one head of a department bemoaned the fact that potentially good applications were only lodged after the closing date and that it was problematic to consider these with fairness to other applicants.

Four respondents indicated that they would prefer to initiate major changes to their existing selection procedures. One was considering adding a visual, aural/auditory, read/write and kinaesthetic (VARK) questionnaire and another wished for interviews, even if it meant that they had to be conducted via videoconference. It was also proposed by another respondent that selection be scheduled to overlap with a winter school through which some applicants could then be automatically accepted if they proved suitable. A respondent who only considers final NSC results indicated that other provisional results should preferably be included in future; presumably this will allow for a more efficient process with earlier results, even if they were made conditional to the upcoming final NSC results.

Three institutions raised concerns over coaching for selection, with one noting that "many privileged applicants seek coaching in order to have good applications". All three of these respondents considered a change in format that would allow for tests on campus to minimise the impact of coaching efforts, while in addition, one thought it would also eliminate queries about the authorship of portfolios. It should be noted that institutions that conducted special architecture tests or required a combination of portfolios and special architecture tests did not raise these issues. It is presumed that the former concern is addressed when tests are conducted under supervision, while the latter combination presumably made it possible to compare work prepared at home with the outputs of a test taken in a controlled environment. Obviously there are cost and other logistical implications when it is required that applicants attend selection tests or interviews at an institution; these concerns seem to be overshadowed by the need for authentic and fair assessment.

Two respondents thought that the most equitable selection system would likely be to allow applicants to study architecture for a semester so as to "[…] assess how their skills, cognitive abilities, creativity and perseverance develop, and, inversely, provide them with a reality-check of what architecture and studying architecture entails". This effectively amounts to delayed selection, an approach that was followed at the Bauhaus – see Chapter 3.6.2 – and also recorded at other schools by Goldschmidt et al (2001:288). One local respondent opined: "[…] the best possible solution, if we could attain it, is a well-designed introductory programme lasting 6 months, with a possible 6 month's internship". The obvious concern with this approach is the high number of applications that some institutions receive – four respondents

indicated that they received more than a thousand applications for 2016 – and that considerable resources would be required to sustain such an undertaking, especially with regard to the design studio.

While there may not be consensus on all matters, it is clear that respondents had informed opinions and that they were aware of the strengths and possible shortcomings of their respective selection procedures. It was also clear that aspects that some were trying to address had already been resolved by others. A frustration with administrative and bureaucratic processes was evident, as was a desire for authentic assessment and opportunities for fair judgement. Unfortunately it was also evident that no shortcut existed and that resources – both those of the school and the applicant's – were major considerations in the design of selection procedures. This often had to be weighed up against other aspirations to find a middle ground or to create a context for fair assessment.

4.7. DISCUSSION

The data collected through the survey suggest that, in principle, selection was necessitated by the fact that applications received by schools of architecture in South Africa for the 2016 academic year outnumbered the number of students that were finally selected and allowed to register. Although all respondents did not, for whatever reason, provide the number of applications they received for 2016, the six respondents that did provide numbers received between 300 and 1 862 applications – amounting to an average of 1 128 per institution – while the intake for all ten institutions varied between 40 and 96 beginner students – an average of 67 students per respondent school. This approximates to an average acceptance rate of less than 6% of applicants. Assuming that the intake per institution was in line with available resources, it is therefore concluded that selective admission was necessary.

While the undersupply of available places can be ascribed to the high demand placed on resources by studio presentation – see Chapter 3.5 – the high level of oversubscription by applicants is surprising considering that the literature suggests that architecture is not a profession that many school leavers are familiar with (Sandrock 1960:8; Abercrombie et al 1969:2; Nelson 1974:83; Janse van Rensburg 2015:7). At the same time one should bear in mind that, according to statistical trends, not all of the 671 students who began their studies in architecture in 2016 in South Africa will graduate. This is due to the high attrition rate that is associated with programmes in architecture; rates of attrition are especially high during the first year of study (Kemp 1991:1; Wits CUBES 2008:3; Janse van Rensburg 2015:156).

The survey results indicate that all of the respondents selected applicants for admission and that all of the respondents considered multiple assessment tools, even if they valued the contribution of some of these more than others. Respondents used a combination of between three and six assessment tools, with an average of 4.2 of the nine tools per institution. This average is substantially higher than the combination of 2.44 recorded for international respondents in Salama (2015:86). These findings support the opinion of Olweny (2008:5) when he stated: "Certainly no single means of assessing students for entry into

architecture programmes is 100% reliable; as such a combination of different assessment criteria is desirable."

The summary in Table 4.1 provides only broad strokes of the survey findings as the qualitative findings suggest intrinsic differences in the approaches and value judgements of respondents, even if they proved to use the same assessment tools. This is in accordance with the findings of the international surveys – see Chapter 3.7.9. Some trends did emerge from the local survey results. While all of the institutions considered an applicant's academic record, seven of the ten respondents thought that academic records were not significantly useful as assessment tools and that it merely had some value. Nine of the ten respondents required of applicants to have taken and passed Mathematics for the NSC, while eight had minimum requirements for the applicant's language subject, or subjects, in the NSC. Aspects that the academic record failed to reveal were assessed through other means, with eight respondents using a revelatory portfolio with prescribed contents in combination with other considerations. It is of notable interest that showcase portfolios were not widely used by respondents and it may be argued that such formats are probably more suitable to studies in the visual arts than for architecture. The list of add-ons included various groupings of the remaining assessment tools, that were, in order of popularity: personal statements, interviews, special architecture tests, proof of workplace experience, written arguments and generic aptitude tests. For the most part opinions about the value of the assessment tools were not unanimous, except for the value of selection interviews that was regarded highly by those who used them, albeit that there were only four respondents that did.

Table 4.1 indicates that only two institutions, namely respondents 7 and 9, in principle used the same assessment tools. These two schools were the only respondents that did not require portfolios for selection. In fact, both largely based their selection decisions on comprehensive special architecture tests of their own design. At closer inspection the differences between their respective approaches also become evident.

The survey indicates that only three of the ten institutions conducted formal research to measure the performance of students (and, by implication, the success of their selection procedures). The majority, namely seven respondents, did think that the selection regime they followed was suitable for checking candidates against a necessary threshold, but it might additionally render modest predictions of candidates' future performance. Their opinions were based on impressions and perceptions. This aspect correlated with the findings of the international survey, namely that only limited research is conducted with regard to selection and its outcomes.

Four respondents wished, in future, to introduce interviews or on-campus assessments and two wished to avoid the trend of applicants being coached for selection. It was clear that there was an ongoing tussle between the need for assessment of the authentic evidence and the limitations imposed by the availability of resources and other logistical challenges, including travel distances in a country where all of the

schools of architecture are located in five of the nine provinces. It was therefore not surprising that three respondents wished to conduct at least some assessment through online procedures.

As was indicated in the international surveys, the availability of resources has a significant impact on selection. The head of a school remarked that the time and other resources invested in selecting students should be weighed up against the its proven validity and students' performance. Two other respondents indicated that the recent omission of specific assessment tools was due to a lack of resources, while another pointed out that selection was affected by #FeesMustFall protests that prevented some assessments from taking place.

It was encouraging that six of the ten respondents indicated that they would implement only minor changes to their selection procedure if they were given the opportunity to do so. This is possibly an indication that institutions attempted to find a good fit between the applicants they admit and their curriculum objectives. In some instances respondents had made substantial effort to adapt or develop assessment tools so as to address the specific concerns or pedagogic approach of that school. With reference to SACAP's requirement that schools nurture their unique characteristics (SACAP 2012:3), such selection practices contribute positively to a school's identity being reinforced.

4.8. RESEARCHER'S COMMENTS ON THE SURVEY FINDINGS

The survey was intended to collect data on selection by schools of architecture in South Africa in order to establish a framework of local practice. While this was primarily achieved, some aspects remain unresolved because the design of the questionnaire did not allow for it at the time. An example is the demographic composition of the cohort for 2016. Three respondents indicated that they considered the population group of applicants for selection purposes (a fourth only considered gender), but the success of the eminent transformation agenda during selection was thus not addressed in the survey. The fact that the only publically available data on the demographic composition of student bodies at schools of architecture in South Africa are out of date – the last report in this regard was published in 2008 on behalf of SACAP by the Centre for Urban and Built Environment Studies at the University of the Witwatersrand (Wits CUBES 2008) – and thus any attempts to determine the status quo for transformation purposes cannot be accurately determined from the information gathered.

Respondents were not explicitly asked to formulate the normative position of the schools of architecture they represented, although the questionnaire, in section 11, provided for respondents to indicate what they considered to be measures of success for their students. With hindsight more exact expressions of the value system of each school of architecture would have provided insight into the approach and rationale of a school's selection procedure.

The questionnaire did not provide for respondents to motivate why they did not use specific assessment tools. Although some participants volunteered opinions, it would have been beneficial to also harvest opinions as to why certain tools were not used, as opposed to just asking why some were used.

4.9. SUMMARY

It is concluded that schools of architecture in South Africa receive far more applications than the number of places they have available for students. Students are therefore selected for admission through multiple assessment tools that require of applicants to undergo assessment in more aspects and formats than was established for international respondents in Chapter 3. Apart from academic record as the most used assessment tool, the order of popularity differed substantially from those recorded in the international surveys. No local school required letters of recommendation and generic aptitude tests, which were used by about half of the international respondents, and these proved to be the least used by local schools. Portfolios were used by far more South African schools than was the case elsewhere and a new assessment tool emerged in the form of workplace experience.

There is no outright agreement among local respondents about the value of assessment tools for selection. As was shown for the international surveys, disparate motives support the use of the same assessment tool and the same assessment tools are valued and applied differently by individual schools. Similarly the majority of South African respondents do not conduct ongoing research or analysis of the success of their selection decisions and opinions are most often based on perception.

4.10. CONCLUSION

The second subproblem was to determine and critically investigate the admission procedures and assessment tools for the selection of beginner students into schools of architecture in South Africa.

The supposition to subproblem two is that schools of architecture in South Africa use admission procedures and assessment tools for the selection of beginner students that are similar to those used by schools of architecture worldwide. The survey results determined the admission procedures and assessment tools used by local schools of architecture and provided a framework for local selection practise, as summarised above. South African schools of architecture do follow some of the admission procedures and assessment tools that schools of architecture worldwide use, but also approach some aspects in very different ways to accommodate aspects pertinent to the local context and the realities of the locale and its history.

Since each architecture school is unique, equations derived from one school cannot be simply adopted to analyse the potential of students applying for admission to any other school. Any school that wishes to maximize the quality and diversity of its student body should conduct its own inquiry. (Domer 1981:25)

CHAPTER 5 SELECTION PRACTICES FOR ADMISSION TO STUDIES IN ARCHITECTURE AT THE UNIVERSITY OF PRETORIA: 1971-2006

5.1. SUBPROBLEM 3

In order to understand the context of the main problem we need to critically examine the trajectory of historical selection practices for the admission of beginner students in architecture at the University of Pretoria from 1971 until 2006.

5.2. SUPPOSITIONS TO SUBPROBLEM 3

The first supposition to subproblem three is that the trajectory of historical selection practices for the admission of beginner students in architecture at the University of Pretoria between 1971 and 1994 were based on research findings and were compatible with and analogous to teaching and learning in the programme for which students were selected.

The second supposition to subproblem three is that the trajectory of historical selection practices for the admission of beginner students in architecture at the University of Pretoria between 1995 and 2006 was informed by managerial policies and were general and not specifically aligned with teaching and learning in the programme for which students were selected.

5.3. OUTLINE OF CHAPTER 5

In the previous chapters it was established how, and in some instances why, schools of architecture, including those in South Africa, at some time selected, or continue to select, beginner students for

admission to studies in architecture. The major case study undertaken for this thesis is introduced in this chapter. The focus turns to the selection praxes for the admission of beginner students in architecture at UP, where, as a rule, students have been admitted by selection for over forty-five years. The case study is introduced by an overview of the early years of the School when no selection for admission was done. The case study is subsequently divided into three chronological episodes according to the concerns that directed selection and the procedures employed for its implementation and operation. While these episodes form part of a continuous and cumulative, albeit not always linear, narrative, they are in many ways incongruous.

Selection praxes for the first two episodes, covering the years between 1971 and 2006, are discussed in this chapter. The episodes are contextualised in terms of the pertinent structural and regulatory frameworks and the academic concerns that, directly or indirectly, impacted the approach, procedures followed for and outcomes of the selection processes.

5.4. OVERVIEW OF THE RELATED LITERATURE

A number of pertinent informants were identified for this case study of the trajectory of the selection of beginner students in architecture for admission to UP between 1971 and 2006. These include general aspects such as the academic context at the Department, the regulatory framework in which guidelines for the professional and educational outcomes were defined and the requirements that an applicant had to meet in order that they be admitted to the programme in architecture. The normative position of the School at a specific time and an outline of the core curriculum render the context in which selection was practiced. Ultimately the outcomes of the selection procedure are relevant as an indicator of its successes and failures.

The research presented in this chapter benefits hugely from a limited number of primary sources that specifically deal with architectural education at UP. The dissertation by Sandrock (1960), entitled *Architectural education with special reference to the University of Pretoria*, provides insight into the academic activities of the Department of Architecture at UP (hereafter the Department) in the post-war period. Paradigms and the resultant shifts in the educational landscape are equally dependent on the personalities of those who lead, teach and learn in the School. The reflections of Gerneke (1994), Britz (2011) and the reminiscences of early graduates of the School presented in Steenkamp (2003) paint backdrops for the early years of the School in Pretoria. Of equal importance are the essays by Fisher (1998) on the third vernacular and Gerneke (1998) on the Brazilian influence, both published in the festschrift that marked the golden jubilee of the Department. This milestone also saw a special edition of *Architecture South Africa* with essays by Bakker (1994) and Le Roux (1994). The recollections of lecturers who penned articles about the subjects they taught capture nuances that can easily escape an archive of official documents. The writings and musings of especially Wegelin (2005) on Construction,

Bakker (1997) on the History of the Environment and Fisher and Clarke (2011) on Earth Studies and Resource Efficient Design are therefore much-valued.

Some published documents and unpublished archival material shed light on the Department's normative position and track changes in the pedagogic approach over time. These include statements by Heads of the Department (Burger 1983), reports prepared for and following accreditation or validation visits (CAA 1994; Department of Architecture and Landscape Architecture 1999; Department of Architecture 2003) and insightful narratives that outline the position of the School (Fisher & Le Roux 1993).

Some sources pertinently address the selection of students for studies in architecture at the institution. The thesis by Herholdt (1972), commissioned by the Department in the late 1960s, proved to be an invaluable source rich in qualitative and quantitative data for the years before selection was formally introduced. Moreover, this study unpacks the intentions, trials and procedures that formed the basis for the introduction of selection in the Department. An in-house report by Prof. Johan Kemp (1991) reviewed the first two decades of selection at the Department and thus ensures that the research initiated in the late 1960s can be tracked until the early 1990s. This continuity is, in no small way, possible because of the extensive archive of the Department where Kemp's report is held. Several other archival documents from the collections of the Department contextualise the selection project. They include the files kept by Prof. Burger that record procedural material for selection, including regulations, instructions, schedules and assessment sheets from 1971 and later (Departement Argitektuur 1971) and his data files that track the selection results and academic progress of students (Departement Argitektuur 1983a, 1983b). The archived correspondence of subsequent Heads of the Department attest not only to meticulous administration, but also reveal the strategic goals and practical details of selection procedures (Departement Argitektuur 1991a, 1991b, 1994a, 1994b, 1996; Departement Argitektuur en Landskapargitektuur 1998, 1999, 2000).

The institution's official history, documented and serialised as *Ad Destinatum* (UP 1960a, 1987a, 1996a, 2002), is a helpful general reference for matters pertaining to UP. The university's yearbooks, accessed in the University of Pretoria's archives, were of more value as an annual record of regulations and with summaries of the institution's curricula. On both counts they allow the researcher to track any changes, dramatic or discreet, over time (TUC 1930; UP 1940, 1944, 1971, 1973, 1976, 1983, 1985, 1987b, 1990, 1995, 1997, 1999, 2001, 2002, 2003, 2004, 2011d, 2016b).

5.5. BEFORE SELECTION (1929-1970)

5.5.1. The founding of a school of architecture in Pretoria

Studies in architecture were initiated at UP in 1929, when the institution was still known as the TUC, following a decision by the Secretary of Education that the education of architects and quantity surveyors

would in future be a function of universities and not technical colleges (ISAA 1941:14). The programme in architecture for a part-time diploma was listed for the first time in the TUC's yearbook for 1930 (TUC 1930:87-89) and Herbert (1975:14-15) explains that the students of the Pretoria Technical College took the diploma course offered by Wits, which the Minister of Education only formally approved in 1929. From 1932 a formal agreement existed between Wits and UP according to which Wits prescribed the syllabi and conducted the examinations in architecture and UP did the same for quantity surveying, as "[…] it was considered doubtful whether sufficient justification existed for the establishment of two schools of Architecture and of Quantity Surveying in centres so near to each other" (ISAA 1941:14).

Towards the end of the second five-year cycle of the agreement UP announced that it desired to establish a Chair of Architecture and thus, in future, be able to present its own courses in architecture. A delegation that included architect Gerard Moerdyk (1890-1958) – who served as Chairman of the UP Council from 1935 until 1942 (UP 1960a:102) – presented UP's position to the ISAA in November 1941 (ISAA 1941:1-13). Following negotiations the decision to establish a school of architecture independent from Wits was subsequently ratified by the UP Council on 28 May 1942 (UP 1960a:142-143).

The architect A.L. (Att) Meiring (1904-1979), a practicing architect (see Appendix 3 for biographical information), was appointed to the new Chair of Architecture and as Head of the Department of Architecture and Quantity Surveying, an entity in the Faculty of Science, from 1 March 1943 (UP 1960a:142-143).

5.5.2. Regulatory framework (1929-1970)

The promulgation of The Architects and Quantity Surveyors Act (No. 18 of 1927) set in motion the regulation of the education of architects and quantity surveyors in the Union of South Africa. Two years later, in 1929, Dr S.F.N. Gie, the Secretary of Education, motivated in a memorandum that the education of architects and quantity surveyors would in future be a function of universities, as opposed to the that of technical colleges (UP 1960a:142), which served as impetus to initiate studies in architecture at the TUC.

In 1932 UP was appointed as an examining authority in both architecture and quantity surveying by the Minister of Education (ISAA 1941:2), although it only exercised, in accordance with the agreement with Wits, its obligations to the latter for about a decade. The fact that it already had been appointed as an examining body in both fields of study bolstered the institution's case when wishing to establish an independent school of architecture in the early 1940s.

The promulgation of the Architects' Act (No. 35 of 1970) determined, along with revisions to the regulation of the profession, a prescribed minimum duration of five years of study for graduates wishing to register as architects-in-training, with an additional two years of practice experience (Theron 1985:65). The regulatory framework changes would especially affect the duration of the courses presented by UP.

5.5.3. Academic context (1929-1970)

A number of factors, apart from the significant influence of Meiring, contributed to the forming of the character of the new school in Pretoria. As the school was established two years before the end of the Second World War, the economic realities of the War years, and their aftermath, was evident, if not formative (Barker 2012:138). Steenkamp (2003:5-6) explains that the character of the school, "[…] was greatly influenced by a relief from stress following World War II and a tremendous optimism and excitement about the future among students". It partly fuelled an approach of simplicity and economy to architectural education that resulted in an emphasis on pragmatic design (Barker 2012:100).

The notion of an independent school of architecture, at least in the early years, prevailed over dogmas. Despite some students' expectations that the new school would offer them the opportunity to study architecture in Afrikaans, most of the lectures in the early years were presented in English (TUC 1930:98) by a largely English-speaking teaching corps (Fisher 1998:129; Steenkamp 2003:4), this despite the institution's official policy to firstly serve the needs of the Afrikaans speaking community (UP 1940:37-38). The school, in later decades, became known as the 'first' Afrikaans school of architecture; this became more pronounced during the 1950s (Steenkamp 2003:5, 8) and when a 'second' Afrikaans school of architecture was established in Bloemfontein in 1955 (Joubert 1997:50). This label undoubtedly influenced the view that the School served Afrikaner hegemony and thereby contributed to the ideals of the regime of the day.

Before 1943 the Department was housed in the Student Union Club Hall, designed by Moerdyk, on the Hatfield campus. Between 1943 and 1957 the School was moved to Vermeulen Street (now Madiba Street) in the inner city of Pretoria, and initially housed in the University's old Extramural Building and later in the Kerry Building across the street (UP 1960a:283). Gerneke (1994:24) asserts that this locale – "right in the centre of town" – was a great advantage to teaching and learning and that its accessibility had a positive influence on the School and its spirit. This benefit was lost when the School moved back to the campus in Hatfield in 1957. After sojourns in a variety of locales on the campus the Department finally moved into their new home – a Modernist curtain walled building on the Hatfield campus designed in 1960 by Meiring and his staff (Meiring 1961).

Archival records indicate that it was in 1944 that the first students to qualify were awarded the Diploma in Architecture by UP; all three (O.G. Verhoef, F.L. Papendorf and H.P.F. Meyer) were recorded as having commenced their studies in the 1930s when the agreement with Wits was still in place. The first woman to complete her studies was Irma Vermeulen (née Moerdyk) (1923-2013), who was awarded the Diploma in Architecture in April 1948. The first Bachelor of Architecture degree was awarded to H.J. Kok in April 1949. In the following years notable graduates were J.C. (Jan) van Wijk (1926-2005), Johan de Ridder (1927-2013) and G.T. (Gabriël/Gawie) Fagan in 1952 (Departement Argitektuur 1983b).

Men clearly dominated the profession, the School and the university. An overtly patriarchal attitude is reflected in regulations that were explicitly written with only male gender descriptors (TUC 1930:87; UP 1990:87) and is supported by the experiences of female students and architects. The recollections of Shelagh Nation, who graduated with a BArch in 1958, as recorded in Karusseit (2017), serve to illustrate examples of blatant chauvinism during her studies and in her professional life.

5.5.4. Academic intentions (1929-1970)

Chipkin (1993:278), in his review of Johannesburg's architecture, provides an introductory glance at the early graduates of the Pretoria School:

> The Pretoria architects, more cohesive and better disciplined than their Johannesburg confreres, were also imbued, like the architects of Finland, with greater regional sensitivity. […] They were an unquestioning professional elite, many of whom came out of the new School of Architecture at Pretoria University, imbued with the ethos of modernity and renewal under the observant eyes of the new political patronage that emerged after 1948 when the National Party came to power.

The School's early leaning towards a regionalist adaptation of Modern Movement ideals was also the result of the physical attributes of the city itself. Pretoria is located in a long valley of the Magaliesberg mountain range and has a remarkably moderate and pleasant climate (Fisher 1998:135). These conditions enabled the School to develop a distinct identity that embraced elements of Brazilian modernism. Gerneke (1998:215-216) speculates why Pretoria became the locus of the Brazilian influence and concludes:

> It is perhaps too easy to read political overtones in design. Most likely the young Pretoria architects simply rejected the traditionalists – they were primed for a fresh approach by their admiration of Le Corbusier, Gropius, Mies van der Rohe and other Modern masters and, later, the Brazilians. What is more, the Transvaal Group had broken fallow land a decade earlier, creating a seedbed for new design, which later led to a Transvaal mutation of the Modern Movement via an affinity with the bold Brazilian school.

The teaching staff, carefully selected by Meiring, further promoted this emerging system of values (Barker 2012:102). Tutors, who were sympathetic to Modernist ideals and its local manifestations, contributed to the emergence of a Pretoria Regionalism. They included Norman Eaton, Gordon McIntosh, Hellmut Stauch (1910-1970), Robert Cole Bowen (1904-1976) and Basil South (1915-1952) (Fisher 1998:127-129).

Wegelin (2005:88), with reference to the course termed Building Construction offered 1943 and 1960, explains that lecturers conveyed their knowledge and experience autocratically. Students were expected to learn and copy construction details. Gerneke (1994:24) explains that Cole Bowen:

> […] taught us his type of economic courtyard house of which he had done a few excellent ones: suburban, corrugated iron monopitch, strictly on a 3'4" (standard window) grid. We were forced to work accurately, according to (his) detailed anthropomorphic data: furniture sizes, sanitary fittings,

even the size of folded sheets for linen cupboards, the minimum height to hang a long evening dress. One never needed to look up sizes again.

Influential figures like Stauch and Cole Bowen had left by the early 1950s and South passed away in 1952, leaving a void and, at least for a period, Meiring as the only full-time member of staff (Steenkamp 2003:8). Gerneke (1994:24) asserts that, "With hindsight it seems as if the creativity and fervor of the early days of the Pretoria school fizzled out, at least for a period, after the first decade", to which Britz (2011) adds: "It came to a point where there was very little discipline and hardly any teaching took place". According to Britz (2011) a group of disgruntled alumni in the early 1960s campaigned for the removal of the, by then, long serving head, who Gerneke (1994:24) criticises for "keeping a low profile at the school".

On Meiring's eventual retirement Prof. A.P. (Alewyn) Burger (see Appendix 3 for biographical information) was appointed to the Chair in 1967 (UP 1987a:68-69). As many of the old guard had left with Meiring, Burger had to rebuild the staff component and he devoted himself to reorganise and focus the Department in its academic offering as well as its administration (Wegelin 2005:89).

5.5.5. Curriculum (1929-1970)

Up to the early 1960s students could enrol for either the part-time diploma or full-time degree course – Table 5.1 provides an overview of the core curriculum for 1930, 1944 and 1964 respectively. It was required of students who studied towards the part-time diploma to be employed in the office of an architect (UP 1960b:204). Steenkamp (2003:3), who interviewed a number of people who had been students in the first decade of the School's existence, explains that:

> Because of financial difficulties being experienced during World War II (1939-1945), it was not uncommon for students to change courses from the degree to the part-time diploma course so as to be able to work and thereby sustain themselves. The diploma students had early morning lectures and could be in their offices by 9 o'clock in the morning. Lectures resumed at 5 o'clock in the afternoon. They followed the same curriculum and did the same projects as the students studying full-time.

The part-time diploma course in architecture was discontinued in 1961 (anecdotally, the year in which the Union became a Republic and left the Commonwealth) and replaced by an eight year, part-time degree course (UP 1963:210-212); this option was discontinued in 1966 (UP 1987a:68). The minimum duration of the full-time degree course was initially five years (TUC 1930:87), but it was extended to six years in 1961 to comply with a decision by the Board of Education of the ISAA (UP 1971:24-25; ISAA 1959:48).

5.5.6. Requirements for admission (1929-1970)

The yearbook of the TUC for 1930 states that the diploma studies in architecture had a minimum duration of five years. The prerequisites for admission obliged candidates to have matriculated, or, alternatively, that the approval of the Senate should have been obtained should the applicant have a certificate of exemption from the Federal Council on Architectural Education (TUC 1930:87).

TABLE 5.1: Core curriculum for architecture at UP in 1930, 1944 and 1964 (TUC 1930:88; UP 1944:94-96, 1963:208-209)

TYPE	Part-time diploma	Full-time degree, part-time diploma	Full-time degree
YEAR	1930	1944	1964
1	Building Design Elementary Building Construction Freehand Drawing Graphic Presentation History of Architecture	Studio Work And Design Building Construction Geometric Drawings Applied Mathematics History of Architecture Freehand Drawing Theory of Architecture Colour History of the Fine Arts Mathematics*	Design Building Construction History of Architecture Applied Mathematics Mathematics or Physics
2	Building Construction Building Design Building Theory Freehand Drawing or Model Making History of Architecture	Design Building Construction Building Theory History of Architecture Site Surveying Theory of Architecture Colour Geology*	Design Building Construction History of Architecture Building Theory Sewerage and Water Supply Philosophy or Mathematics or Geology
3	Building Construction Building Design Building Theory History of Architecture Sanitation and Hygiene	Design Building Construction Building Theory History of Architecture Applied Hygiene Building Equipment Theory of Architecture Colour	Design Building Construction History of Architecture Building Theory Quantities Building Finance Electrotechnology and Air Conditioning
4	Building Construction Building Design Estimates and Quantities Properties of Building Materials Specifications	Design Building Theory Acoustics Specifications Building Law City Planning	Design Building Construction Applied Building Theory Acoustics Specifications Site Surveying City Planning
5	Building Construction Building Design Professional Practice Structural Design Layout of Grounds and Towns	Design Building Construction Building Theory Professional Practice Estimates and Building Finance City Planning	Design Building Construction Professional Practice City Planning Estimates and Building Finance Two of the following: Industrial Phycology, Preparatory Accounting, Preparatory Business Economics, Arbitration and Reporting
6	[not applicable]	[not applicable]	Practical year with a dissertation

* Indicates subjects only applicable to the 1944-degree course; the remainder applied to both the degree and diploma.

By 1944, after the agreement with Wits was cancelled, a pass in matric Mathematics was added to the pre-existing admission requirements (UP 1944:94). In addition, prospective students were subsequently advised that a science subject in the matriculation year was recommended (UP 1960b:204). These requirements would only next be amended by the mid 1970s, after selection for admission was introduced.

5.5.7. Student numbers and indicators (1929-1970)

The size of the average cohort between 1930 and 1940 was around 25 students (ISAA 1941:14); this increased to above 30 between 1953 and 1959 and dropped to a low of eight in 1962 (Herholdt 1972:5). Only a sixth of the number of students who started their studies in 1947 eventually graduated (Barker 2012:138)

Sandrock (1960:11-12) recorded an average rate of attrition of 43.5% among students who first registered for the degree course between 1949 and 1951, while only 6.5%of students completed their studies in the minimum period of five years. Herholdt (1972:5) provides an overview of student numbers and rates of attrition for the period 1955 to 1968; he lists marked dropout rates for the cohorts of the late 1950s and a subsequent peak in this rate at 72.8% in 1961. On average just more than 40% of first year students did not complete the first year of study between 1955 and 1968. He shows that a decline in the number of students who registered for the course compounded the issue during the economic slump from 1960 to 1964. Student numbers in the first year of study almost doubled in the late 1960s, prompting the Department to review the procedures for admission.

5.6. EPISODE 1: SELECTION (1971-1994)

The first episode of selection at the Department of Architecture at UP was based largely on the research for a doctoral thesis (Herholdt 1972) in psychology. While this research served as the major informant of selection practices from its introduction until 1994, a process of rationalisation was implemented in the mid-1980s that gave cause for revisions and omissions from the original selection procedure. For the sake of clarity the first episode is therefore divided into two parts, namely from 1971 until 1984 in Episode 1a, followed by Episode 1b that covers the years between 1985 and 1994. Although these time-frames have specific cut-off points between academic years, there is also a strong sense that they are part of a continuous argument and timeline in the establishment of a culture of selection at the Department.

5.7. EPISODE 1a: THE INTRODUCTION OF SELECTION (1971-1984)

5.7.1. Regulatory framework (1971-1984)

The promulgation of the Architects' Act 1970 (No. 35 of 1970) set the requirement for the minimum duration of study prescribed for students wanting to register as architects-in-training to five years of full-time study, with the requirement for an additional two years of practice experience (Theron 1985:65). UP thus, in 1974, once again reduced the number of years back from six to five by doing away with the year of practical work experience as Work Integrated Learning and moving the design dissertation (previously required in the sixth year of study) to the fifth year of study. Students were in future required to work in practices during university recesses (UP 1976:36).

5.7.2. Academic context (1971-1984)

In 1971 the name of the Department changed to the Department of Architecture when the Department of Quantity Surveying was established as a separate entity. Meiring's glass-box building from 1960 on the Hatfield campus outgrew the needs of the users and major additions and alterations were commissioned and completed in 1973. Burger's academic reforms had a positive effect on the academic ethos of the Department. Within the first years of his tenure two new academic programmes, in landscape architecture and building sciences (Afrikaans: *boukunde*), were initiated and selection was introduced for the first time (UP 1987a:67-70).

5.7.3. Academic intentions (1971-1984)

An economic boom from the late 1960s to the mid-1980s saw double-digit growth rates in the economic reporting of the local building industry (Wegelin 2005:88). At UP the academic approach during this period had a scientific bias with the focus on the development of the science and practice of building materials and construction methods, and the impact of climate on buildings that laid the foundation for future research in sustainability (Fisher & Clarke 2011:19). The Department was equipped with a laboratory and equipment for geotechnical tests, for the measuring of the thermal and acoustic behaviour of materials as well as the analysis of structural components and their strengths (Wegelin 2005:89). In addition the Department worked closely with the Council for Scientific and Industrial Research (**CSIR**) and its National Building Research Institute (**NBRI**) (Burger 1983:43). Wegelin (2005:89) contextualises the approach:

> [Construction details were no longer simply 'learnt', but rather thought through as part of the scientific design process. The manufacturing and detailing of windows, for example, would be discussed, bearing in mind the influence of the shape and position of the window so as to highlight the impact on the quality of light and behaviour in the space, also the advantages and disadvantages of different hinges or [the influences of] opening sections on airflow and cleaning – thus on health and ergonomics. The construction detail, as a pre-eminent form of thinking, was advanced as an active tool available to the designer. Standard details were frowned upon.][1] Translated from the original Afrikaans text in Wegelin (2005:89)

Holm (1993:2) adds:

> An understanding of materials and the use of tools have always been self-evident, and can be seen in Tukkie [UP] designs, especially in the evolution of detail. Architecture as art rests on the solid foundation of workmanship. The fact that this is the case in work of ex-Tukkies [alumni of UP] is possibly related to the fact that most of the representatives of the old guard came from a rural background, where a sense of practicality prevailed.

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1 "*Konstruksiedetails word nie meer net 'geleer' nie maar moet uitgedink word as deel van die wetenskaplike ontwerpproses. So sal die vervaardiging en inbou van vensters behandel word met gedagtes oor die invloed van venstervorm en -posisie op ligkwaliteit en termiese gedrag in die vertrek, en die voor- en nadele van verskillend geskarnierde of skuiwende oopmaakdele op lugvloei en skoonmaak, dus op gesondheid en ergonomie. Die konstruksiedetail, by uitstek 'n vorm van dink, word bevorder as 'n aktiewe werktuig tot die beskikking van die ontwerper. Geblikte details word verdag.*" Wegelin (2005:89)

2 "*Die ideaal is om gegradueerdes te lewer wat in argitektuur die teorie beheers, probleme kan oplos, prioriteite kan bepaal,*

With P.J. (Philip / Phlip) van Rooyen, Burger broadened the scope of teaching in the history subjects. They redeveloped the syllabi and the History of Architecture modules were renamed History of the Environment [Afrikaans: *Omgewingsgeskiedenis*] so as to reflect a more encompassing reading and study of the spatial artefact within its broader cultural contexts, as opposed to the foregoing focus on a stylistic history. This realignment would, over subsequent decades, develop to be one of the School's strengths and laid the foundation for scholarly enquiry and formal research by members of staff (Bakker 1997:1). The early 1980s also saw a concern for the urban context starting to manifest strongly in the School's final year projects (Le Roux 1994:17-18).

The scope of the academic investigations was thus broadened and an academic-scientific approach to architectural education was encouraged and entrenched. Burger (1983:41) states unequivocally that it had been decided that architectural education at UP will have an academic, rather than professional, grounding that offers the opportunity for the study of the discipline of architecture instead of schooling students for a specific career. He also defined the Department's pedagogic ideal and the skills graduates should achieve as follows:

> [The ideal is produce graduates who, in architecture, have command of the theory, can solve problems, define priorities, convey ideas in words and through images, are eager to learn, respect the community and environment, can act in a team as members or leaders, and have integrity.] [2]
> Translated from the original Afrikaans text in Burger (1983:42)

> [At the end of their course students should be able to prove that:
> 1. they are capable of analysing, resolving and presenting an advanced architectural problem to others;
> 2. in their design: consider the users of buildings, the community and the environment; demonstrate that they know how it might be built; achieve a balance between cultural, visual, technical, economical and other factors;
> 3. they are prepared for continuous study.] [3] Translated from the original Afrikaans text in Burger (1983:42)

During Burger's tenure a strong studio culture was (re)established – this would come to characterise teaching and learning in the School for decades to come.

5.7.4. Curriculum (1971-1984)

In comparison with earlier versions, a distinct academic approach is discernible in the core curriculum of 1970s, but it would mature and be streamlined by 1983 when a semester system replaced the year course arrangement of earlier years (Kemp 1991:23). These shifts are reflected in Table 5.2.

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2 "*Die ideaal is om gegradueerdes te lewer wat in argitektuur die teorie beheers, probleme kan oplos, prioriteite kan bepaal, gedagtes in woorde en beelde kan oordra, weetgierig is, die gemeenskap en omgewing respekteer, in 'n span as lid of leier kan optree en oor integriteit beskik.*" Burger (1983:42)

3 "*Studente moet aan die einde van die kursus kan bewys dat hulle:*
   1. *in staat is om 'n gevorderde argitektoniese probleem te ontleed, op te los en aan ander voor te stel;*
   2. *in hulle ontwerpe: die gebruikers van die geboue, die gemeenskap en die omgewing in ag geneem het; toon dat hulle weet hoe dit gebou kan word; 'n balans tussen die kulturele, visuele, tegniese, ekonomiese en ander faktore bereik het;*
   3. *voorberei is op volgehoue studie.*" Burger (1983:42)

TABLE 5.2: Core curriculum for architecture at UP in 1971, 1976 and 1983 (UP 1971:24-25, 1976:36-37, 1983:40-41)

TYPE	Full-time degree - BArch	Full-time degree – BArch	Full-time degree - BArch
YEAR	1971	1976	1983
1	Design Building Technology Applied Mathematics Introduction to Building Science	Design Building Technology Applied Mathematics History of the Environment Site Surveying	Design [2] Building Technology [2] History of the Environment [1] Theory of Structures [2] Site Surveying [1]
2	Design Building Technology Theory of Structures History of the Environment Building Services Quantities Site Surveying	Design Building Technology Theory of Structures History of the Environment Building Services Quantities	Design [2] Building Technology [2] History of the Environment [2] Theory of Structures [2] Building Services [1] Quantities [1]
3	Design Building Technology Theory of Structures History of the Environment Building Services Building Finance	Design Building Technology Theory of Structures History of the Environment Building Services Building Finance Housing	Design [2] Building Technology [2] History of the Environment [2] Theory of Structures [2] Building Services [2] City Planning [1]
4	Design Building Technology Theory of Structures History of the Environment Building Services Professional Practice Landscape Planning Acoustics	Design Building Technology Theory of Structures History of the Environment Building Services Professional Practice Landscape Planning Acoustics	Design [2] Building Technology [2] History of the Environment [1] Building Services [1] Mercantile Law [1] Landscape Architecture [1]
5	Design Building Technology Professional Practice City Planning Housing One of the following: Industrial Phycology, Urban Sociology or another approved elective module	Design Building Technology Professional Practice City Planning Office Practice One of the following: Industrial Phycology, Urban Sociology or another approved elective module	Design [1] Building Technology [1] Professional Practice [1] Office Practice [1]
6	Practical year with an oral examination on practical work	not applicable	not applicable

[2] Indicates the number of semester courses per subject stream in an academic year.

5.7.5. Requirements for admission (1971-1984)

Until 1976 the minimum requirements for admission to the degree in architecture at UP required an applicant to have obtained a matriculation certificate or a certificate of matriculation exemption with a pass mark in Mathematics (UP 1971:24) and a science subject as a recommendation. The subject Physical Science (combining the studies of Physics and Chemistry) was formally introduced as a requirement for admission in 1976 (UP 1976:5). Additional changes to the secondary school curriculum for the senior certificate also affected the published requirements. A tiered system of academic grading was introduced, with the principal impact that a higher matriculation mark was required for a subject passed on the Standard Grade than that for the Higher Grade (UP 1976:5-6), with the latter considered to be academically more challenging than the former.

5.7.6. Research on selection

Kemp (1991:14) indicates that the number of new enrolments increased in the late 1960s, with a jump from 48 applications for the 1967 academic year to 83 for 1968. This served as incentive for Burger to approach the Department of Psychology at UP for assistance with research on the selection of future applicants. Wynand Van der Merwe Herholdt (1940-2007) was recommended for the task.

It is apparent that Burger was unconvinced that selection for admission to the architecture programme should be solely based on an applicant's matriculation results, as using the academic record as sole determinant would have been a much easier option to implement. The decision to initiate a research project on the selection of beginner students in architecture was therefore in keeping with the emerging academic-scientific outlook that would come to characterise the period of Burger's leadership. Apart from the physical limitation of available resources to accommodate all applicants, Kemp (1991:1-2) reasons that the research was further motivated by the fact that selection was not a common practice at the time and a frame of reference was thus lacking on which to base any decisions. Other considerations that contributed to the research initiative were aspirations to academic excellence and the high rates of student attrition previously discussed, especially that of the first year of study, and the subsequent financial losses to students, their families and the taxpayer who subsidises tertiary studies through the state.

Herholdt's ensuing research culminated in a doctoral thesis (Herholdt 1972) that he described as a scientific approach to selection for a selected and specific academic programme (Herholdt 1972:12-17). His psychometrics-based study relied on a task-analysis where the learning activities of students of architecture, specifically during the first year of study, were analysed (1972:101-108). A process of determining which psychological tests were available to measure the qualities he identified followed. The tests were reviewed and early results were used to establish predictive indicators based on regression equations, followed by validation and cross-validation with prospective students (respectively in 1969 and 1970) and re-cross-validation (1972:199-208). Validation cohorts were monitored throughout their first year of study and their academic results were used to adjust forecasts and to calculate multiple correlation coefficients between the predicted and actual outcomes.

5.7.7. Selection implemented in 1971

As a very high predictive validity was achieved with the data for the validation groups, selection was formally introduced for the cohort of the 1971 academic year (Kemp 1991:10) and new regulations that refer to the selection procedure were subsequently published in the yearbook of the Faculty (UP 1973:3).

5.7.8. Selection procedure (1971-1984)

Herholdt's procedure for selection employed a combination of assessment tools and resulted in a ten-point scale – see Figure 5.1 – that served to predict a first-year student's possible academic success (Herholdt 1972:167).
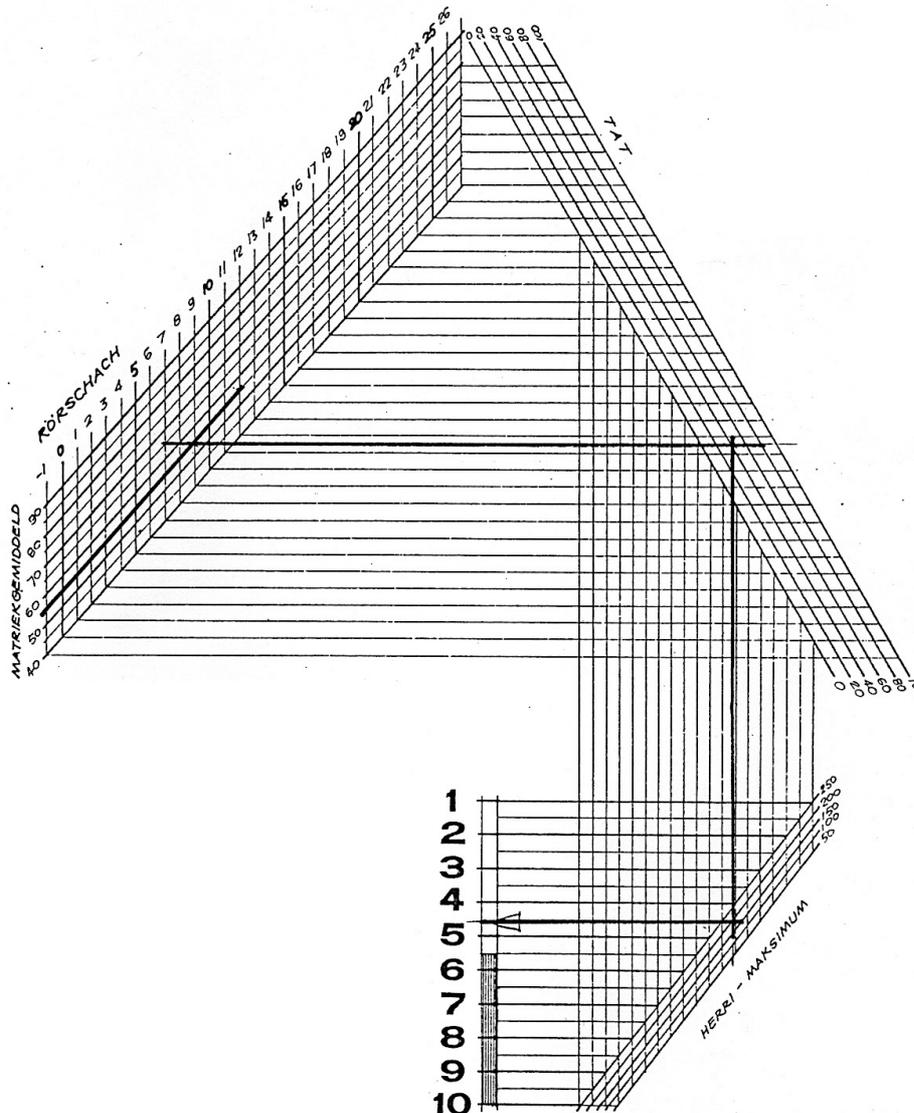
FIGURE 5.1 Example of a nomogram logging an applicant's results, clockwise from the left, for matric average, Rorschach Test, Thematic Appreciation Test (TAT) and Herri Maximum Test, finally translated to a ten-point scale to predict a first-year student's possible academic success (Kemp 1991:17)

This system was used until 1984 with only minor tweaks and slight improvements (Kemp 1991:1). The discussion that follows provides an analysis of the development and implementation of the assessment tools used for the admission of beginner students of architecture at UP during the period 1971 until 1984.

5.7.9. Academic record (1971-1984)

The inclusion of matriculation results in Herholdt's selection procedure was motivated by the fact that it was generally accepted as the best single indicator of academic success at tertiary level (Herholdt 1972:163), a rationale also recorded by Goldschmidt et al (2001:284-285) – see Chapter 3.7.1. Herholdt's study considered an applicant's matriculation results on the basis of the average of four subjects, these being Afrikaans and English – the two official languages of South Africa during the years of Apartheid – Mathematics and the recommended science subject. As Physical Science was initially not an explicit requirement for admission it might be substituted by Biology (Herholdt 1972:163-164). The choice of matriculation subjects included in the research was informed by earlier studies that found correlations between results in specific school subjects and success in particular study programmes at university level (Herholdt 1972:26-31), although these studies did not include architecture.

It is of specific interest that Herholdt found school results in the language subject of Afrikaans – the first language of 88.7% of the validation group – to have significant correlation with the overall criteria for success. This was contrary to his expectation that Mathematics and the science subject would prove to be the most meaningful indicators. In an attempt to explain these findings, Herholdt (1972:185-187) reasoned that strong linguistic skills might be indicative of versatility on the part of applicants, an attribute that could serve students well.

Herholdt concluded that the average of the four prescribed matriculation subjects mentioned above proved to be the second best predictor of academic success in the first year of study (Herholdt 1972:211). An applicant's academic record therefore became an important point of reference for the selection of beginner students in subsequent years.

5.7.10. Special architecture tests (1971-1984)

Although largely based on psychometric practice, the battery of tests that Herholdt investigated, researched and implemented was specifically aimed at first year students of architecture at UP. With this level of specificity they therefore qualify as special architecture tests – see Chapter 3.7.5 – and are not categorised as generic aptitude tests.

The National Institute for Personnel Research developed many of the tests that Herholdt considered and finally implemented (Herholdt 1972:109-114). According to Louw and Foster (1991:72) the National Institute for Personnel Research "was formed in 1946 to supply industry with information and research regarding labour utilisation." The wartime Aptitude Tests Section of the South African Air Force is considered to be the forerunner of the Institute that would later become part of the CSIR. With its tests and test batteries, most of the Institute's early work dealt with the selection of personnel for specific positions that required specific skills and aptitude. According to an advertisement in New Scientist magazine of 25 April 1974, the National Institute for Personnel Research:

"[…] carries out research into all the circumstances that contribute to the productivity and happiness of man at work. These include the characteristics of the work, the fitness of the man for the job, the fitness of the job for the man, manpower problems and work maladjustments such as absenteeism and accidents [sic]" (CSIR 1974:199).

The advertisement also states that its work is undertaken on a contract basis for commerce and industry, but that it is backed up by basic research into human abilities, attitudes and brain function.

Herholdt (1972:101-107) relied on a task-analysis of the curriculum for the first year of study in architecture. As an example, he states in his summation for Design, the major studio module:

[Success in the Design course requires that a student has (or has the potential for) a number of basic abilities and skills. Artistic aptitude is seemingly an important prerequisite. Also requisite is the ability to portray three-dimensional objects on a two-dimensional plane. The latter skill is associated with the ability to communicate ideas graphically. The design process is a creative art-form that must be continually tempered by concerns for what is practically feasible and usable. The student must also be predisposed with an above average organisational ability so as to meet these requirements for integration.][4] Translated from the original Afrikaans text in Herholdt (1972:105-106)

The task-analysis was used to deduce the qualities required to successfully complete the first year of study. He concluded that these qualities were dependent on the following abilities: a general intellectual capacity, arithmetical ability, deductive and inductive reasoning, three-dimensional representation, creativity, artistic inclination, perseverance, willpower and an active mindset (Herholdt 1972:108).

Psychological tests were paired with these qualities and where necessary, adaptations of standard techniques were used. These tests served as the basis for establishing an analogous relationship between selection and the course. Five assessments were found to have the highest intercorrelating predictive value: the Mental Alertness Test (testing general intellectual ability), the Arithmetic Ability Test, the Pauli Tests (perseverance), the Thematic Appreciation Test (also known as the TAT, testing active mind-sets) and the Rorschach test scored according to the Perceptanalytic Executive Scale (for determining creativity and ambition) (Herholdt 1972:165, 209). Surprisingly the Rorschach test was customised to enable presenting it to groups (Herholdt 1972:144), but its inclusion should not be a surprise as Herholdt obtained his master's degree in psychology from UP in 1967 with a dissertation on the validity of the Rorschach colour theory on the basis of psychophysical measurement (UP 1972:14).

The instruction manual for the Rorschach test (unnumbered page entitled 'Rorschach-Aanwysings' [Rorschach Instructions] in Departement Argitektuur 1971) explains how the test was announced to applicants sitting for selection tests:

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4 "*Sukses in die Ontwerp-kursus vereis 'n aantal basiese vermoëns en vaardighede (of ten minste die potensiaal daarvoor) van die student. Kunsaanleg is blykbaar 'n belangrike voorvereiste. Die vermoë om deur middel van tekeninge driedimensionele voorwerpe op 'n tweedimensionele vlak te kan projekteer, kom ook ter sprake. Laasgenoemde gaan hier gepaard met die vermoë om idees grafies te kan kommunikeer. Die ontwerpproses is 'n kreatiewe kunsvorm wat egter deurentyd getemper moet word deur die vereistes van praktiese uitvoerbaarheid en bruikbaarheid. Om te voldoen aan dié eise van integrasie behoort die student ook oor 'n bo-gemiddelde organisatoriese ingesteldheid te beskik.*" Herholdt (1972:105-106)

We are going to project a series of ink blots one at a time on the screen. These blots do not really represent anything; however, people see certain things in the blots. You are to look at each blot and then write down what you see in that blot. There are no correct or incorrect answers.

The number of each blot will be announced and you must list and describe briefly (not more than) [added by hand in ink] the first five things you see. You must, for instance, not only answer 'a horse', but must write down more about the horse as it appears to you. Number each of your impressions as follows in the relevant columns on your answer sheet: [explain again on the blackboard][5]

Please note that your first impressions are important. Finally you must remember to indicate which section of the blot you use, as follows: [explain again on the blackboard]

You must not write in the columns on the right hand side of the answer sheet. Raise your hand if you need more paper. A time limit of 5 minutes per blot will be allowed. Are there any questions?

Herholdt's specific adaptation of the Rorschach technique for presentation to groups was found to be the highest predictor of academic success in the first year, followed by the average of the four prescribed matriculation subjects (Herholdt 1972:211).

The battery of psychometric tests was supplemented by a question that required applicants to make "a realistic drawing of a person performing any action" and "a realistic perspective drawing of a house" (undated assignment in Departement Argitektuur 1971). This drawing test, intended to gage artistic aptitude and an applicant's ability to communicate ideas graphically, replaced standard tests that Herholdt investigated but, during the validation cycles, found to be unreliable indicators of their specific goals (Herholdt 1972:214). It was later, at least in 1976 and 1984,[6] augmented by a design question that read: "Design and draw a machine that makes beds and changes the bed linen" (undated assignment in Departement Argitektuur 1971). No assessment record or other reference could be traced for this assignment and it likely that it was used as a means to organise the schedule for marking while applicants were being kept occupied.

Applicants also had to complete a personal questionnaire that was designed to disclose aspects of the applicant's family, their socio-economic circumstances, the number of children in the family and the position of the applicant relative to other siblings. It also probed for information about the applicant's hobbies and leisure-time activities, leadership positions held at school, achievements in sport or academics and the like (Herholdt 1972:213). Similar contextual information was used to assess the submissions of applicants to the Bartlett School of Architecture during the 1960s by the AERU – see Chapter 3.6.3.

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5   Parenthesis translated from the Afrikaans "*beduie weer op die swartbord*" (Departement Argitektuur 1971).

6   Prof. Karel Bakker, from the 1976 cohort, clearly remembered the assignment for the machine that made beds (personal communication, 27 September 2011). According to the selection schedule for 1984 (in envelope marked 'Verwerking' in Departement Argitektuur 1971) one hour was allocated to 'Masjien' on Monday 9 January between Questionnaire 2 and the Rorschach test.

5.7.11. Interviews (1971-1984)

The final stage of the selection process involved interviews with applicants. These interviews were initially held on the fourth (and at the time the last) day of selection in January ('Reglement' S.966/70 in Departement Argitektuur 1971), but by 1984 at least two and a half days were spent on interviews (see selection schedule for 1984 in envelope marked 'Verwerking' in Departement Argitektuur 1971). Herholdt (1972:214) stated that the aim of the interviews was to consider a candidate's underlying motivation for wanting to pursue a career in architecture and to verify evidence of an active interest in the discipline. The test result sheet (see Figure 5.2) and the nomogram (see Figure 5.1), with graphic summaries of the applicant's school results and test scores, served as references for the panel of interviewers.
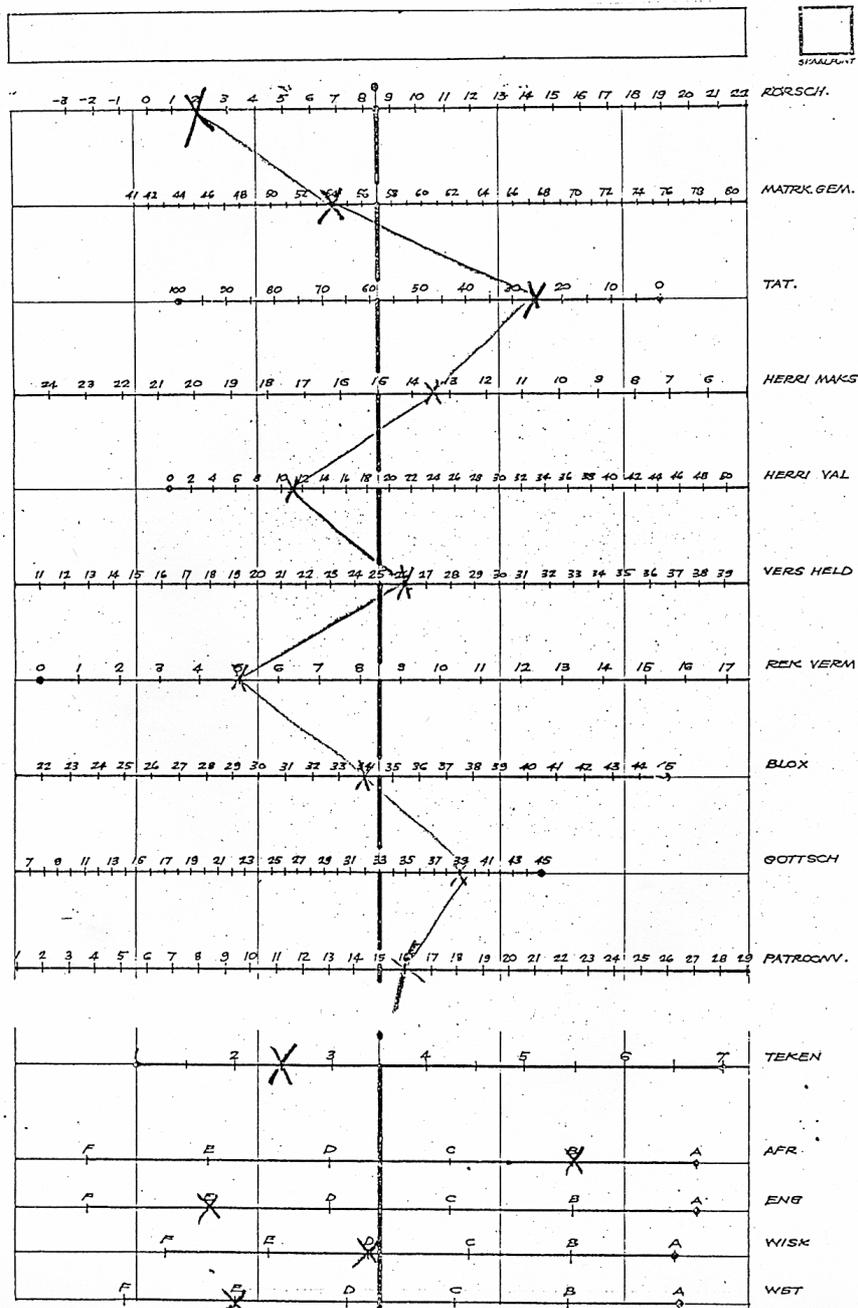

FIGURE 5.2 Example of a test result sheet showing an applicant's scores in the test battery (per row), followed by an assessment of the drawing test and four matriculation subjects at the bottom (Kemp 1991:16)

Again these procedures correlate with some of the formats tested by AERU at the Bartlett School of Architecture, as previously discussed in Chapter 3.6.3. While an interview with a panel of selectors is certainly rather generic in its format, some South African references[7] to the AERU research at the Bartlett indicates that there was a lot of interest from educators at local schools of architecture in the work of the unit.

The data sheets that summarised the selection assessments (Departement Argitektuur 1983a) indicate that both Burger and Herholdt scored the interview sessions while the selection schedule for 1984 (in envelope marked 'Verwerking' in Departement Argitektuur 1971) indicates that at least two other senior members of staff from the Department participated.[8] It is noticeable that the selection committee, who also conducted interviews as a panel, was made up of the most senior members of staff (Kemp 1991:28). For the selection of 1984 it was recorded that the Dean, Prof. P.J. Zietsman, sat on the committee (cover letter to Departement Argitektuur 1984).

5.7.12. Outcomes (1971-1984)

One should bear in mind that, at the time, only white applicants, who represented a very narrow band of the total population of South Africa, were allowed to pursue studies at UP. The groups who participated in the validation and cross-validation (respectively in 1969 and 1970) were dominated by students and applicants who were mostly Afrikaans speaking (respectively 88.7% and 77.4%) and male (respectively 90.6% and 82.3%) (Herholdt 1972:169, 195). They should therefore be considered to be a homogenous group that represented a small portion of the total population of the country.

It is of interest to note that a drop in the number of applications between 1977 and 1983 did not warrant any refusals, with the result that no selection took place (Departement Argitektuur 1984:1). For statistical continuity the cohorts were put through the motion of all the test procedures and never-the-less their progress was monitored (Departement Argitektuur 1982). Following the seven-year hiatus between 1977 and 1983 when selection tests were conducted only for the sake of statistical continuity, additional tests, such as the perceptual battery of the Blox Test (Herholdt 1972:113) that were initially included but not weighted in the predictive scaling, were dropped in 1984.

In the report on selection for the 1984 cohort, it is mentioned that the number of psychological tests were reduced to allow Prof. Herholdt to deal with them in one afternoon (Departement Argitektuur 1984:1). Apart from Herholdt, who was best qualified to assess the Rorschach, at least four members of staff were

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7 University of Natal (1973:23-24) records part of a paper presented by Prof. Rodney Harber and Brian Kearney at the architecture teachers' seminar in which Kearney states: "I quote to you from the Abercrombie Report which is to my knowledge the only substantial report on selective and accurate performance […] Studies at the Bartlett School report that and indicate that first of all the candidate's statement is more reliable than anything else and interviews can all be useful in assisting the process of selection."

8 For the interviews early in 1984 the initials listed are APB (Burger), DH (Dieter Holm) and PVR/TJK (Philip van Rooyen/Johan Kemp). Herholdt (WH) is listed to assist with three tests, including the Rorschach.

assigned to assist with Rorschach assessment (see selection schedule for 1984 in envelope marked 'Verwerking' in Departement Argitektuur 1971).

Painstaking records were kept of each student's progress (Departement Argitektuur 1983a) and therefore selection could be refined over time as more statistical data became available. For example, Herri Tests replaced the Pauli Tests, from 1976 the drawing test replaced the Herri's results in scaling predictions, while a second predictive scale was introduced to forecast academic achievement at the end of the third year of study (Kemp 1991:20).

The most significant impact of this system was that attrition during the first year of study dropped from an average of 42% (1955-1964) to 10% (1971-1986) according to Kemp (1991:21-22), including the period between 1977 and 1983 when no selection was done. This average represents a meaningful improvement, but for some years it reached 16% (1972), 18% (1978 and 1980) and 14% (1984) according to the analysis in Kemp (1991:21). The rate of graduation and throughput equally fluctuated, with low figures recorded for many of the years that no selection was done but the progress of students was recorded for statistical continuity. Graduation rates of 60% and above were achieved for the cohorts who commenced their studies in 1971, 1974 and the early 1980s (Kemp 1991:22). On the whole these figures showed improvement when compared to the figures recorded in Sandrock (1960:11-12) and Herholdt (1972:5) for the preceding periods before selection was implemented.

5.8. EPISODE 1b: RATIONALISATION OF PROCEDURES (1985-1994)

5.8.1. Regulatory framework (1985-1994)

The first democratic elections were held in South Africa in April 1994. Following this significant shift, revised policies and statutory frameworks that specifically affected the architect's profession and the educational landscape followed in the decade subsequent to 1994. These aspects are therefore discussed in the next episode – see Chapter 5.11.1. In the meantime the Architects' Act of 1970 and its requirements remained in place.

5.8.2. Academic context (1985-1994)

Curriculum changes were implemented for the 1987 academic year that was, in all probability, initiated by Burger's resignation in 1984. Prof. Dieter Holm (see Appendix 3 for biographical information) succeeded him as Head of Department in 1985 (UP 1996a:202). As was previously the case when there was a change of leadership, the staff component also changed and six, mostly young, new lecturers were appointed in 1986 (Kemp 1991:23). Far from the major reforms that Burger had to introduce in the late 1960s, the changes were evolutionary and a product of the certainty that the School had established over the course of the foregoing years. The academic competence and rigour that characterised Burger's era

was continued and augmented by Holm's research experience and the newly appointed young talent, many of whom had an interest in the theoretical discourse of architecture.

In his reflection Prof. Hans Wegelin (2005:90-91) lists a number of influences that eventually started to undermine the overtly scientific confidence that typified the 1970s and early 1980s. These included the political instability in South Africa during the last years of the Apartheid regime and the inevitable knock-on effect on the South African economy, and therefore also the construction industry; the emergence of the digital revolution and the ensuing access to knowledge, information and products; the arrival of practicable software for drafting on affordable personal computers that initiated the shift from the drawing board to the keyboard.

During the early 1990s the long overdue, and inevitable, changes in the political climate (and subsequently also in the academic landscape) forced UP to implement a number of reforms in an attempt to adapt to a country on the threshold of democratic elections. The Department was criticised for the lack of diversity in the staff and student corpus (CAA 1994:5), which was also evident in the institution as a whole:

> At the beginning of the 1990s the general perception of the University [of Pretoria], seen externally, was that it was an extremely conservative, mainly white and Afrikaans-medium institution, largely oriented toward tuition with less emphasis on research, fairly introverted and, in its community service, oriented mainly toward the needs of white and more specifically Afrikaans-speaking people. Seen internally, there was a large measure of self-satisfaction that the University's size in student numbers and sustained growth automatically presupposed a high academic status. (UP 2002:7)

One of these reforms addressed the introduction of English as a language of instruction "if the number of students in the relevant courses justified this" (UP 2002:7).

5.8.3. Academic intentions (1985-1994)

Under Holm there was a determined effort to move from a technical tradition towards a more rounded design school (CAA 1994:4). By 1993, the year the Department celebrated its golden jubilee (UP 2002:192), it was apparent that the traditional strengths of the Department were supplemented with competencies that were not always earlier evident. Fisher and Le Roux (1993:24), with reference to the fifth year students' dissertation projects, state:

> The latest documents speak of thoroughness and academic rigour. This derives from a longstanding tradition. A Tukkies 'skripsie' [UP dissertation] is recognizably such. The academic style of the writing is due to the discipline and skills acquired in the Environmental History coursework. The theoretical foundation is a more recent development and is witness to the success of the Design Theory coursework developed over the past six years. Needless to say, technical documentation remains of the high standard for which we are famous (notorious?) and which makes our graduates highly sought in practice […].

Bakker (1994:16), in his reflection on the golden jubilee of the Department, added:

The Pretoria School of Architecture subscribes to an Ecosystemic point of view. Within such a viewpoint one could argue that divergent architectural approaches are valid parts of the whole of architecture and can (hopefully) all be employed to attain meaningful synthesis.

The Department declared its objectives to the Commonwealth Association of Architects (**CAA**) as follows:

We focus on the following teaching and research:
- Ecosystemic thinking in Environmental History and Design Theory
- Context conscious design informed by holism
- A systems approach to sustainable development
- Environmentally responsive design on a regional basis
- Advancement of the rural environment. (CAA 1994:3)

These statements were reaffirmed by the Department's normative declaration that "Emphasis is on the broad discipline of architecture, of which practice is but a component. We are not training practitioners but preparing critical graduates who may go into practice" (Fisher & Le Roux 1993:24). It was also generally accepted that students would extend the duration of their studies beyond the minimum prescribed five years as the majority "[…] choose to undertake a period of practical experience in architectural practice before completing their academic studies" (CAA 1994:3).

International recognition of the Department's academic programmes followed the first democratic elections in South Africa held in 1994.

Directly after the establishment of the first full South African Democracy, a representative of the department, Roger Fisher, was granted observer status at the 14th General Assembly of the Commonwealth Association of Architects (CAA) held in Mauritius in April 1994. While in progress, news came through of South Africa's re-admission to the Commonwealth and arrangements were immediately made for the international accreditation of the professional degree course in Architecture. A joint visit of the South African Council of Architects (SACA) and CAA was arranged for September of that year and so the Pretoria School of Architecture was the first school in South Africa under the new political dispensation to achieve international recognition, and in terms of an agreement negotiated by SACA with the Royal Institute of British Architects (RIBA), was also accredited by RIBA in 1995. (UP 2002:193)

During the last official years of Apartheid the aforesaid, and imminent, changes would only marginally affect the admission process and selection procedures.

5.8.4. Curriculum (1985-1994)

The changes introduced in 1987 refined the curriculum and involved other departments in the presentation of some modules. The applied theory course became independent from the studio module in Design when a new subject stream in Design Theory was introduced. The philosophy of culture introduced into the History of the Environment subject stream was articulated as a separate module in the history stream and presented by the Department of Philosophy (UP 1987a:99-101). The modules in Theory of Structures were transferred from mostly Departmental presentation to become the responsibility the Department of Civil Engineering (Kemp 1991:23).

Building Technology was finally renamed Building Science in 1987, a shift that underscored the scientific approach established over the course of the preceding two decades. A good example of this approach was the new syllabus in the field of sustainability for Building Science in the fourth year of study that was developed by Holm (Fisher & Clarke 2011:19). Fisher and Clarke (2011:19-22) also explain that the work on thermal performance initiated in the 1970s came to fruition in the research studies of the members of staff, specifically that by Holm (1985), Kemp (1988) and Wegelin (1988), who would later followed by Irurah (1997), Gibberd (2003) and others.

Minor changes were introduced in 1993, "[…] leading to a better balance and dovetailing of coursework […]" (Fisher & Le Roux 1993:24). Table 5.3 summarises the core curriculum for the period from 1985 to 1994.

TABLE 5.3: Core curriculum for architecture at UP in 1985, 1987 and 1994 (UP 1985:78-79, 1987b:83-84, 1994:92-93)

TYPE	Full-time degree – BArch	Full-time degree – BArch	Full-time degree – BArch
YEAR	1985	1987	1994
1	Design [2] Building Technology [2] History of the Environment [1] Theory of Structures [2] Site Surveying [1]	Design [2] Building Science [2] History of the Environment [1] Theory of Structures [2] Design Theory [1]	Design [2] Building Science [2] History of the Environment [1] Theory of Structures [2] Design Theory [1]
2	Design [2] Building Technology [2] History of the Environment [2] Theory of Structures [2] Building Services [1] Quantities [1]	Design [2] Building Science [2] History of the Environment [2] Theory of Structures [2] Building Climate [1] Design Theory [1]	Design [2] Building Science [2] History of the Environment [1] Theory of Structures [2] Building Climate [2] Design Theory [1]
3	Design [2] Building Technology [2] History of the Environment [2] Theory of Structures [2] Building Services [2] Building Economy [1] City Planning [1]	Design [2] Building Science [2] History of the Environment [2] Theory of Structures [2] Building Climate [2] Design Theory [1]	Design [2] Building Science [2] History of the Environment [1] Theory of Structures [2] Building Climate [2] Design Theory [1]
4	Design [2] Building Technology [2] History of the Environment [1] Building Services [1] Mercantile Law [1] Landscape Architecture [1]	Design [2] Building Science [2] History of the Environment [2] Building Climate [1] Practice Management [2] Design Theory [1] City Planning	Design [2] Building Science [2] History of the Environment [1] Practice Management [2] Design Theory [1] An approved elective module [2]
5	Design [1] Building Technology [1] Professional Practice [1] Office Practice [1] An approved elective module [2]	Design [2] Building Science [2] Practice Management [2] An approved elective module [2]	Design [2] Building Science [2] Practice Management [2] History of the Environment [1] Design Theory [1]

[2]   Indicates the number of semester courses per subject stream in an academic year.

5.8.5. Requirements for admission (1985-1994)

From 1987 onwards, the minimum admission requirements for Mathematics and Physical Science were raised from the previous requirements that expected a matriculant to pass to at least a D symbol (50%) on the Higher Grade (Kemp 1991:23). This move is indicative of the aspirations that were associated with academic accomplishment and thus raised the bar for applicants to and students in the Department.

5.8.6. Selection procedure (1985-1994)

Herholdt's selection regime was heavily curtailed for the intake of 1985 and 1986, after which a rationalised procedure was introduced from the intake of the 1987 academic year to align selection with the revised curriculum (Kemp 1991:18-24). Herholdt's continued involvement with the selection procedure was certainly pivotal to its success, at least as far as the marking of the Rorschach test was concerned; nonetheless, he was occasionally replaced by another member of the Department's academic staff (Kemp 1991:28). This was in all probability necessitated by Herholdt's managerial responsibilities as Director for Personnel (later Human Resources) at UP, a fulltime position that he was appointed to in 1985 (UP 1996a:483).

In 1987 the Department of Landscape Architecture became an independent entity (UP 1996a:224). Despite provision having been made for the selection of students in landscape architecture from 1971, it only became necessary to implement selection by 1990 when interest had so grown that the annual intake had to be limited to 20 students (UP 1996a:225). From correspondence it is clear that their selection was done with, and on the same basis as for those of the applicants for studies in architecture (Departement Argitektuur 1991b).

Selective admission was still required as the number of applications exceeded the number of available places in the architecture programme; for the early 1990s an average of 70 applications were received annually while resources allowed for an intake of 40 students, according to CAA (1994:3). The discussion that follows concentrates on the changes that were introduced as a means of rationalising the assessment tools used for the admission of beginner students in architecture at UP during the period from 1985 until 1994.

5.8.7. Academic record (1985-1994)

An applicant's academic record was still considered on the basis of the average of four subjects, namely the two official language subjects, as well as those of Mathematics and Physical Science. In addition to the implementation of the higher requirements for admission, the course content was updated and stricter requirements for promotion to the following year of study were implemented. Coupled with these higher standards, supplementary examinations were done away with, except for the first semester of the first year of study, and ancillary examinations were only allowed in exceptional cases.

From 1992 onwards, academic records for Standard 9 (at the time the penultimate year of high school, now known as Grade 11) became the basis for academic consideration as the closing date for applications moved forward to 30 June of the year preceding study. This allowed selection to be done during the last half of the academic as well as calendar year, instead of in the month just before students were expected to register for the first time. Despite the seemingly practical sensibleness of this decision, it provided a new challenge that Holm writes about to the Dean:

[All of our experience in selection depends on matriculation results. The reliability of selection is impeded with standard nine results as reference, as is the extent with which we, as a Department, can vouch for it. The new procedure can, to a degree, be viewed as an experiment, except for the fact that no concurrent control group exists.][9] Translated from the original Afrikaans in Departement Argitektuur (1991b:1).

Notwithstanding his objection, the prominence given to an applicant's academic record was carried forward and would in subsequent years dominate selection at UP. The differentiation between the applicant's academic record at the time of application (usually lodged while the applicant was still completing his or her secondary schooling) and the final matriculation results were also considered by Abercrombie et al (1969:17) at the Bartlett School of Architecture – see Chapter 3.6.3.

5.8.8. Special architecture tests (1985-1994)

In 1985 the predictive scales that were used to forecast an applicant's possible future academic success fell away (Kemp 1991:18), seemingly as places were already being filled from the top of the order of assessments. In 1985 and 1986 only the Rorschach test from the original battery and the drawing test were retained. From 1985 onwards, questionnaires on applicants' interests were added (Kemp 1991:15); from an archived example (undated 'Belangstellingsvraelys' in Departement Argitektuur 1971) the first section thereof entailed a series of general knowledge questions that were also scored on revised test result sheets (Figure 5.3).

From 1987 until 1994 only the Rorschach and drawing tests, the personal questionnaire and a revised questionnaire on applicants' interests were used. Herholdt's findings, specifically on the predictive value of the Rorschach test and the average mark for the four matriculation subjects, served as justification. Kemp (1991:24) reasons that the omission of the additional tests was inconsequential as they contributed little to the selection results when one considers the time and effort required for their assessment. In many instances they served only to inform the predictive scaling forecast, which was no longer in use.

Concerns were however raised about the consistency of the marking of the Rorschach test by a panel of different assessors, presumably under the guidance of Herholdt as regulations stipulated that a registered industrial psychologist was responsible for psychological testing (see, for example, Departement Argitektuur 1991a). Kemp (1991:37) recommended that the possibility be investigated to shorten the duration of the one-hour long Rorschach test. It is unclear if this would have made the assessment easier.

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9   "*Ons hele ondervinding berus op keuring met matrikulasie-uitslae as basis. Met standerd nege uitslae as basis verminder die betroubaarheid van die keuring en die mate waartoe ons as Departement daarvoor kan instaan. Die nuwe prosedure kan in 'n mate as 'n eksperiment beskou word, behalwe dat daar nie 'n gelyktydige kontrolegroep bestaan nie.*" (Departement Argitektuur 1991b:1).

FIGURE 5.3 Example of a test result sheet from 1987 showing an applicant's scores in the drawing test, average for matric and the four matriculation subjects individually, followed by general knowledge, the Rorschach and a block for general comments. The result was summarised at the right bottom of the sheet (Kemp 1991:26)

5.8.9. Interviews (1985-1994)

As in previous years, panel interviews concluded the selection process. The newly added questionnaire on an applicant's interests provided an easy platform for the selectors to engage with applicants during the interview (Kemp 1991:24-25).

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5.8.10. Outcomes (1985-1994)

Kemp (1991:30) reviews the outcomes for the period between 1987 and 1990. It is noticeable that attrition during the first semester of the first year of study became negligible at 1.28%, effectively ensuring that the student body grew by an average of just over 35 first year students per year between 1987 and 1990. The percentage of female students commencing their studies at the Department drastically changed from the previous episode, when they comprised barely 10% of the cross-validation group in 1970 (Herholdt 1972:169). By 1990 the genders were equally represented with 17 male and 17 female students in the first year of study, with a clear trend towards an increasing number of female students.

On the face of it the intake lists for the same period indicates that all students admitted to the Department were white and, by deduction according to their surnames, mostly Afrikaans speaking. The policy to include English as a language of instruction was only implemented in 1994 (UP 2002:7) and would only start to impact teaching in the subsequent decade and after the first democratic elections of 1994.

In concluding his review of the first twenty years of selection at the Department, Kemp (1991:37-38) expressed the need for younger members to serve on the selection committee and that there should be continued efforts to find tests to access and assess creativity, synthesis and holism. While noting that fine-tuning would be required, especially to accommodate a future student body of greater diversity, he made a strong case for continuing the selection programme based on his statistical analysis of the academic indicators since 1971. He attributed the successes of the selection procedure to the higher admission requirements and the fact that, after twenty years, the culture of selection was firmly established and the selectors understood its procedures.

5.8.11. Discussion: Episode 1 (1971-1994)

Research on the selection of architecture students at the University of Pretoria was prompted in the late 1960s by a significant jump in the number of applications received. Between 1971 and 1994, Herholdt's research informed a selection programme that was used to predict which applicants (from the narrow band who had access to the University under the Apartheid regime) had a high probability of passing their first year of study in architecture at UP.

The selection procedure considered three types of assessment tools: academic record, special architecture tests that included a battery of particular psychometrics-based tests, and interviews. Scientifically pragmatic assessment procedures mapped aspects of an applicant's scores as a graphic summary that served to inform a panel of selectors during the final stage of selection interviews. Success in the first year of study was, at least initially, empirically predicted to identify those applicants with a high probability of passing. The relationship between the primary signifiers – notably the Rorschach test and final school results – as well as all the subsets, especially during the earlier period of implementation, was empirically driven and continuously monitored through statistical analysis of students' results throughout

their studies. This process aligned the selection procedure with the academic-scientific approach followed by the Department at the time and established their mutual compatibility.

The academic restructuring in 1987 brought about several discreet changes that collectively raised expectations and streamlined the screening process for selection and continued its statistical successes from the previous episode. On the other hand it also brought an end to the experimentation evident in the earlier years, as documented in Herholdt's research.

While the research initially established an analogous relationship between selection and studies in architecture at the institution, its assumptions relied on deduction at an arm's length and its long-term compatibility was limited by its inherent procedures that responded to the narrow group of research subjects who had access to higher education at UP at the time.

5.9. EPISODE 2: INTERREGNUM (1995-2006)

The second episode of this case study, for the period between 1995 and 2006, is viewed as an interim period or a period of discontinuity or intermission (Latin: *interregnum*) for the selection of beginner students for admission to architecture at UP. The discipline-specific procedure developed during the preceding episode was lost in a universal approach while the academic offering and the managerial structures of the institution were being recalibrated in response to reforms of the political, educational and professional landscapes under a new democratic dispensation after the 1994 elections.

5.9.1. Regulatory framework (1995-2006)

Through political transformation the regulation of the architect's profession in South Africa changed substantially after 1994. The South African Qualifications Authority (**SAQA**) Act (No. 58 of 1995), and subsequently the National Qualifications Framework Act (No. 67 of 2008), laid the groundwork for the establishment of an integrated NQF in order to register, regulate and articulate all qualifications and by so doing facilitating access to, and progression within, career paths to accelerate the redress of previous discriminatory practices (SAQA 2017).

According to the National Commission on Higher Education, academic programmes, as redefined, were required to adhere to the values of interdisciplinarity, relevance and responsiveness, efficiency, portability and coherence (Council on Higher Education 2001:46). Some of these values were clearly not represented in the regulatory framework that guided the education or practice of architects before 2000, when the Architectural Profession Act (No. 44 of 2000) and the Landscape Architectural Professions Act (No. 45 of 2000) were promulgated. The former established SACAP as statutory successor of the South African Council for Architects and mandated it with an oversight role that included the validation of academic programmes related to the architectural profession, the registration of practitioners in four main

categories of registration,[10] the protection of the public interest through the administration of a code of conduct and eventually by the identification of the scope of work registered professionals were deemed competent and capable of performing (SACAP 2017).

Rob Young-Pugh (2005:35) assesses these developments as follows:

> The new statutory legislation provides a powerful tool for the democratization and regularization of the profession, and addresses changes in the design process. The system discourages the growth of an unregistered informal sector within the parameters of a democratic and antimonopolistic dispensation, yet establishes an expectation for professionalism at all levels of architectural service provision. The hierarchical nature of the registration categories allows for vertical mobility based on work experience or formal training and can thus accommodate an educational system that has exit points at various levels.

The pre-existing legal definition of the profession was thus broadened and redefined. The new legislative framework had a substantial impact on the revised curriculum and the structure of the academic programmes.

5.9.2. Academic context (1995-2006)

Following years of escalating political and economic isolation during the era of Apartheid, especially since the mid-1980s, the last decade of the twentieth century brought radical policy changes that resulted from the first democratically elected government's reform of higher education. This set in motion the re-integration of the Departments of Architecture and Landscape Architecture as part of restructuring in the Division for Environmental Design and Management (UP 2002:192). Simultaneously, the University mandated that academic programmes respond to new policies that called for the promotion of interdisciplinary learning to avoid "wasteful overlap and duplication of programmes and qualifications" (Council on Higher Education 2001:87). The impending implementation of an integrated framework for qualifications – the NQF – had substantial impact on the regulatory framework within which academic programmes and their outcomes were defined. The shift is summarised in UP (2001:4):

> In 2000 the University of Pretoria started to phase in a new system of education and learning which corresponds with the required guidelines of SAQA (the South African Qualifications Authority) and the NQF (National Qualifications Framework). In this system programmes are offered which are outcomes-based, student-centred and market-orientated. The new system is being implemented in the School for the Built Environment during 2001.

The possibility that generic curriculum components might in future be presented in an interdisciplinary fashion was hinted at by Prof. Schalk W. le Roux three years before it would become a reality, albeit that at the time he made reference to the programmes in architecture, landscape architecture and town and

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10 Four main categories of registration were acknowledged, namely: architect, senior architectural technologist, architectural technologist and architectural draughtsperson, all with either a professional or candidate designation. Under the previous Architects' Act 1970 (No. 35 of 1970) provision was only made for the registration category of architect (and architect-in-training that was the equivalent of a candidate under current legislation).

regional planning. He argued that such a move might be motivated by a need to sidestep an exaggerated sense of specialisation at undergraduate level in these disciplines (Le Roux 1994:17).

The spirit of this era is précised in a statement by the Head to the visiting boards of South African Council of Architects, the RIBA and the CAA: "Like the rest of the country we are in a state of flux and continually having to assess our position and circumstances" (Department of Architecture and Landscape Architecture 1999:2).

Prof. le Roux (see Appendix 3 for biographical information) succeeded Holm as Head of Department in 1997. In the same year the School was renamed to the Department of Architecture and Landscape Architecture (UP 2002:193-194) and Prof. Roger C. Fisher was appointed as its curriculum co-ordinator. During Le Roux's tenure the curriculum would be revised in its totality to provide for interdisciplinary learning and teaching aligned with the expected regulatory frameworks. It was again reviewed when the programme in interior design was assigned to the Department. Subsequently the name reverted back to the Department of Architecture in 2001 (UP 2001:1); in the pro forma for external communication the name was followed by a subheading with the names of the three programmes in alphabetical order: Architecture, Interior Architecture, Landscape Architecture – see Figure 5.4.

FIGURE 5.4 An example of the Department of Architecture's identity with the names of the three programmes in alphabetical order used as a subheading; this advertisement was published on the back cover of the 'Design 100' issue of *Image & Text* that celebrated the sixtieth anniversary of the Department (Fisher 2003:2). Design by Glowing Asparagus Design.

There were also practical implications of the new integrated curriculum structure. The generic first year of study presented the Department with double the number of students previously accommodated in this studio, totalling 120 for the combined three programmes. Lemmer (2004:362) emphasises that this meant that the lecturer to student ration was less than favourable and that the workload in the combined studio and in all of those subjects that formed part of the core generic curriculum increased substantially, including the duration of assessments, whether these were portfolio reviews, oral examinations or written papers.

Le Roux's tenure as Head ended in 2003 and Prof. 'Ora Joubert (see Appendix 3 for biographical information) was appointed to succeed him. Due to her pre-existing appointment as Head of the School in Bloemfontein, she could only commence her appointment in September of 2004. In the interim Fisher (see Appendix 3 for biographical information) was appointed as acting Head for the first eight months of the 2004 academic year.

5.9.3. Academic intentions (1995-2006)

The new Bachelor of Science in Architecture qualification aimed to produce "[…] graduates who have a clear, continuous and growing understanding of the discipline, who enjoy the opportunity of continued studies toward the professional status of their discipline and are able to move into related professional fields" (Lemmer 2004:357) including the related architectural disciplines (such as landscape architecture), project management, urban design, environmental management and others (UP 2003:2).

The established contextual[11] approach followed in the Department's design and history streams ideally suited the interdisciplinary agenda. Bakker (1997:4) explains:

> Students of the various disciplines involved in the course cross the traditional boundaries brought
> about by specialisation into the various professional disciplines, and are exposed to the relationships
> existing between the professions, together with the intertwined and unitary nature of the theory and
> processes involved in the making of the built environment.

Although Le Roux declared: "We are a new department with changed and changing profiles of professional skills" (Department of Architecture and Landscape Architecture 1999:4), the School's pre-existing interest in and research on sustainability in the built environment was strengthened by the ecological focus of the programme in landscape architecture. As a result Resource Efficient Design (Fisher & Clarke 2011:19) across various design scales and systems was further entrenched as a core concern of the Department (Wegelin 2005:91). It was also explicitly formulated in the outcomes for the critical cross-field and exit level competencies expected of graduates in the BSc programmes. This included:

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11 "Within this perspective key artefacts, like works of architecture, are read within a wider text of synchronic but paradigmatically bound abstract thought and concurrent cultural endeavours like art, music, literature and the like, together with the possibilities and restraints posed by concrete contexts. The meaning extracted on the synchronic level may then be applied diachronically within the disciplines which form part of the architecture course as a whole." (Bakker 1997:1)

Using the human and natural sciences and technologies effectively and critically, showing responsibility towards the environment and well-being of others [and] Demonstrating and understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation. (Lemmer 2004:358)

The pedagogic approach in the construction subject stream had to be revised as the principles of techne and building technology had to be extended to include all three scales of design that were to be taught. This, together with a larger student body, required a recalibration of the foregoing approach of teaching canonical knowledge in a subject that was one of the historical strong suits of the Department. Inevitably an approach of teaching typical principles, illustrated through an exemplar, evolved. This revised outlook also presented the opportunity to formally introduce historical and indigenous aspects of the knowledge of construction; it also required a more purposeful interaction and integration with the studio components of the programmes (Wegelin 2005:91-92).

5.9.4. Curriculum (1995-2006)

Shortly after his appointment as curriculum co-ordinator in 1997 Fisher undertook a study tour to the United Kingdom and the Netherlands to investigate interdisciplinary teaching at, among others, the Universities of Bath, Greenwich, Delft and Wageningen (Fisher 1997). As no local precedent existed, the aim was to resolve the restructuring of the programmes in architecture and landscape architecture in anticipation of the proposed new tiered categories of professional registration that would eventually be legislated in 2000.

The obvious commonality between the two programmes was found in the studio-based teaching of spatial design and therefore the requirements of international accrediting bodies (notably the RIBA and the CAA that stipulated that at least half of all formal learning should be studio-based) were pivotal in resolving the new structure. Based on the shared premises that design is the core task of designers in the built environment and that spatial design is founded equally in the natural sciences and humanities, a core curriculum was designed that provided for secondary design skills development and courses in professional practice. Moreover, limited resources were available to accommodate the combined student body and any future changes had to emphasise effective presentation (Lemmer 2004:356).

The new curriculum allowed for three-year undergraduate degrees, followed by master's programmes by coursework over two years (incidentally corresponding with the first two cycles of the Bologna process). These changes were approved for implementation and progressively phased in. In 1999, the year of the first new enrolments in the new undergraduate programmes in architecture and landscape architecture, a major restructuring of all faculties at the University of Pretoria was announced that resulted in the programme in interior design being integrated in the Department, as well as the Division for Environmental Design and Management to be renamed the School for the Built Environment and moved to the newly constituted Faculty of Engineering, Built Environment and Information Technology (UP 2002:192).

The curriculum was again adjusted so as to accommodate the interior design stream. The result was that all three of the Department's academic programmes – architecture, interior architecture and landscape architecture – shared an equifinal, homologous structure with a generic first year of study. In Design and Construction, which replaced Building Science (UP 1999:93), the content became progressively more programme specific after the generic first year of study. From the second year onwards:

> […] the disciplines split up in terms of Design and certain discipline specific modules, where the course content distinguishes the profession. However, certain modules, which are relevant and of value to all specialisations, are taken by all students, for example history and theory of design in the built and made environment. Furthermore, an integration of theory and design is emphasised. Design projects are assigned where students from the various disciplines may participate together. (Lemmer 2004:357)

Teaching in the new interdisciplinary framework was fully integrated by 2001 and the phasing out of the five year degree in architecture and four year degrees in landscape architecture and interior design was completed by 2003 (UP 2003:12-14, 19-21, 26-28). Table 5.4 indicates the components of the generic core curriculum with those for the new undergraduate programmes in architecture – BSc(Arch), Landscape Architecture – BSc(LArch) and Interior Architecture BSc(Int) as presented in 2003.

The last major reform to the course structure was implemented in 2004 when the two-year professional postgraduate degrees by coursework was divided into a one-year honours degree, followed by a one-year professional master's degree (UP 2004:11-18). The distinct structure of the Department's academic offering, without the typical division between the programmes into professional silos, would become a strength of the Department and the main element in distinguishing it from other schools of architecture in the country.

The revised curriculum addressed the perceived shortcomings in applicants' schooling by introducing language instruction for the purpose of academic literacy in the first year of study, while providing a new subject stream – Earth Studies – that was overtly concerned with the environment, the reciprocation between natural systems and designed space, as well as Resource Efficient Design framed within an ecotropic[12] approach (Fisher & Clarke 2011:19). A computer laboratory was established to facilitate the transfer of digital skills (in the Design Communication modules in the second year of study) and the History of the Environment subjects were realigned with special attention being paid to Africa (Department of Architecture and Landscape Architecture 1999:4).

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12 "To think ecosytemically is to think of systems as nested, each as part of a larger system; made up of sub-systems and in turn as a part of a supra-system. These sub-systems can develop properties that are emergent and are thus uniquely properties of the supra-system and not found in the sub-systems. We can thus speak of the ecology of building materials as biologists would use the term, and understand the term and see each element as part of a larger whole which impacts on other sub- and supra-systems. We propose that design that has such a fit be termed 'ecotropic', rather than 'green' or 'sustainable'." (Fisher & Clarke 2011:20)

TABLE 5.4: Course diagram of the core curriculum for the undergraduate degrees in 2003 after UP (2003:11-28)

Core Generic

YEAR	SEMESTER	PRACTICE MANAGEMENT	PROGRAMME SPECIFIC	EARTH STUDIES	CONSTRUCTION	DESIGN	ENVIRONMENTAL STUDIES	HISTORY OF THE ENVIRONMENT	DESIGN COMMUNICATION
1	1			AAL 110	KON 110	ONT 100	OML 110	OMG 110	ACADEMIC LITERACY
1	2	CIL 120	STU 120		KON 120	ONT 100	OML 120	OMG 120	ACADEMIC LITERACY
2	1			AAL 210			OML 210	OMG 210	OKU 210
2	2						OML 220	OMG 220	OKU 220
3	1	BER 310					OML 310	OMG 310	
3	2	PRS 320		AAL 320			OML 320	OMG 320	

BSc(Arch) — THEORY OF STRUCTURES

YEAR	SEMESTER	PRACTICE MANAGEMENT	PROGRAMME SPECIFIC	EARTH STUDIES	CONSTRUCTION	DESIGN	ENVIRONMENTAL STUDIES	HISTORY OF THE ENVIRONMENT	DESIGN COMMUNICATION
2	1		STU 211		KON 211	ONT 210			
2	2		STU 221	GGY 363 / GKD 225	KON 220	ONT 220			
3	1		STU 311		KON 310	ONT 310			GGY 283
3	2		STU 321		KON 321	ONT 320			

BSc(LArch) — PLANT SCIENCE

YEAR	SEMESTER	PRACTICE MANAGEMENT	PROGRAMME SPECIFIC	EARTH STUDIES	CONSTRUCTION	DESIGN	ENVIRONMENTAL STUDIES	HISTORY OF THE ENVIRONMENT	DESIGN COMMUNICATION
2	1		PWT 212		KON 212	ONT 212			
2	2		PWT 222	GGY 363 / GKD 225	KON 220	ONT 222			
3	1		PWT 312		KON 310	ONT 312			GGY 283
3	2		PWT 322		KON 322	ONT 322			

BSc(Int) — MATERIAL STUDIES

YEAR	SEMESTER	PRACTICE MANAGEMENT	PROGRAMME SPECIFIC	EARTH STUDIES	CONSTRUCTION	DESIGN	ENVIRONMENTAL STUDIES	HISTORY OF THE ENVIRONMENT	DESIGN COMMUNICATION
2	1		TKS 251 / TKS 252		KON 211	ONT 213			
2	2		TKS 261 / TKS 262	AAL 223	KON 223	ONT 223			
3	1		MST 313		KON 313	ONT 313			OKU 313
3	2		TKS 361 / MST 323		KON 323	ONT 323			

LEGEND:

AAL: Earth Studies
BER: Business Law
CIL: Computer and Information Literacy
GGY: Geomorphology of the Built Environment
GKD: General Soil Science
KON: Construction
MST: Material Science
OKU: Design Communication
OMG: History of the Environment
OML: Environmental Studies
ONT: Design
PRS: Practice Management
PWT: Plant Science
STU: Theory of Structures
TKS: Textiles

The new curriculum was fully implemented by the end of Le Roux's tenure as Head in 2003. He also inspired a renewed spirit of academic optimism as the coalition between the three programmes became the hallmark of the School and informed an ethos of interdisciplinary thinking and doing. It can also be argued that the programme in architecture benefitted the most from the alliance as it could relate and absorb from the scale, core concerns and specific content of the other two programmes.

5.9.5. Requirements for admission (1995-2006)

During 1994 the Faculty Board approved a new selection procedure for the 1995 intake. The motivation stated that the rationalisation was in keeping with the Division's directive for more uniformity and that administrative arrangements would be simplified without sacrificing standards (Departement Argitektuur 1994a:1). The regulation reversed the higher admission requirements for Mathematics and Physical Science, but retained these as prescribed subjects for admission. The minimum requirements thus reverted back to a certificate of matriculation exemption with university admission and at least 40% in both Mathematics and Physical Science on the Higher Grade or, alternatively, 50%[13] on the Standard Grade (UP 1997:82).

At the same time a scoring system for selection was introduced to express an applicant's academic achievement at school in a simplified numeric format. The new scoring system took account of an applicant's results for either Standard 9 or their final matriculation results. It favoured the four designated subjects required for admission and was summarised in a letter to prospective students as follows:

> Points are awarded in accordance with your achievement in each subject passed. The calculation is done in accordance with the following table:

Symbols	Higher Grade	Standard Grade
A symbol (80% and higher)	5	4
B symbol (70% to 79%)	4	3
C symbol (60% to 69%)	3	2
D symbol (50% to 59%)	2	1
E symbol (40% to 49%)	1	0

> The formula used to calculate your selection mark is as follows: The value you obtained for First Language, plus best Second Language, plus Mathematics plus Physical Science are multiplied by two. The points you obtain for the other subjects are added once only. The sum of these points is your selection mark. (UP 1996b:1)

Under the administration of the new Faculty of Engineering, Built Environment and Information Technology from 2000 onwards, all of the six matriculation subjects equally contributed to an applicant's academic rating in a system that became known as the Matriculation Score (colloquially abbreviated to M Score). It assigned the same values to symbols achieved in school subjects as those quoted above, but omitted the weighting of the prerequisite subjects in order to obtain a maximum possible score of thirty, i.e. six subjects with a maximum value of five points per subject.

This generic Matriculation Score served as the benchmark for the selection of beginner students until 2006. The Following example serves to illustrate how it was calculated:

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13 The requirement for an applicant's minimum achievement for Mathematics and Physical Science on the Standard was pinned at 60% for the 1995 and 1996 academic years. This was lowered to 50 from 1997 onwards (UP 1995:74, 1997:82).

Calculate the M score by adding the points awarded per subject according to the following formula:
First language + Mathematics + Physical Science + best three of the remaining subjects
Example of M Score Calculation

PRESCRIBED SUBJECTS	SYMBOL	POINTS
First Language HG	A	5
Mathematics HG	C	3
Physical Science HG	B	4
BEST THREE OF THE REMAINING SUBJECTS		
Second Language HG	B	4
for example Biology SG	D	1
for example Accounting SG	A	4
TOTAL M SCORE		**21**

Only six values are used in this formula, which means that the maximum possible M Score is 30 for six distinctions (above 80%) on the Higher Grade. (Department of Architecture [sa]:2)

By 1997 provision was made for four categories of applicants, namely matriculants, applicants who applied to transfer from other programmes or institutions, non-South African citizens and historically disadvantaged applicants. The latter served as affirmative action[14] and a quota system was used to determine the number of applicants per category that would be admitted. The Matriculation Score differentiated between the categories of applicants, but also required a higher Matriculation Score for Grade 11 results than for the final school year in Grade 12. The quotas and the minimum Matriculation Score required for admission were annually reviewed; for the 2006 academic year the minimum Matriculation Score was 20 out of a possible 30 for Grade 11 and a score of 18 for Grade 12. The requirements for historically disadvantaged applicants were respectively two points lower on each count (UP 2006:1).

There was, however, no guarantee that an applicant who met the requirements would be admitted to the Department. As places were filled from the top of the list based on Matriculation Scores, only those applicants who were among the top academic achievers in their respective categories were considered and successful applicants typically had a high academic capacity (Lemmer 2004:358) based on their school results.

5.9.6. Selection procedure (1995-2006)

The rationalised selection procedure, based on Herholdt's research and streamlined in 1987, was discontinued after the intake for 1994 (Departement Argitektuur 1994b:1). As Herholdt's research was informed by a homogenous group of white participants who were mostly male and Afrikaans speaking, the basis for selection was not representative of the desired demographic composition of a student body and it did not reflect the values of the new democratic South Africa. Other factors also contributed to the demise of the system: it was already evident that problems existed with the assessment of the Rorschach

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14 Collins English Dictionary (2007:27) explains affirmative action as a policy or programme designed to counter discrimination and indicates that the British equivalent is positive discrimination.

test (Kemp 1991:37), one of the primary assessment tools of the procedure. This was amplified by Herholdt's lessening availability to assist with selection during his tenure as Director for Personnel. The second key indicator, academic record based on an applicant's matriculation results, had also been statistically devalued when it was replaced with Standard 9 marks two years before.

There was also significant pressure for a more unified admissions policy from both the University (Department of Architecture and Landscape Architecture 1999:4) and the newly established Division for Environmental Design and Management, whose influence was bolstered when Prof. H.M. Siglé was appointed as its first fulltime Director in 1997 (UP 2002:192). In this context, and despite far-reaching changes to curricula and the programme structures, the selection of first year students reverted principally to a generic assessment by institutional academic administration of an applicant's academic record.

5.9.7. Academic record (1995-2006)

From 1995 selection outcomes hinged on two generic formulae: firstly the applicant's Matriculation Score; secondly the annually revised cut-off score that took into account the number of applicants and the available number of places for new students (Departement Argitektuur 1996). These factors in combination effectively meant that meeting the minimum Matriculation Score provisionally guaranteed admission to the applicants who had obtained the best results in the four subjects, or from the 2000 academic year for all of the six prescribed matriculation subjects. Any places that became available were allocated to applicants, most often those who were still on the waiting list, after the final matriculation results became available and before the new academic year commenced (Departement Argitektuur 1994b:1-3).

After the re-integration of the programmes in architecture and landscape architecture in 1997, this system was also adopted to select applicants for landscape architecture and, from 2000, those for interior design. As the number of applications for the three programmes differed, the variable cut-off scores also fluctuated to fill the regulated 60 places available for architecture students and 30 each for those in interior and landscape architecture respectively.

As a result of the admission policy applicants who were not among the top academic achievers in their respective categories were simply not considered for admission. The process of selection was thus consigned to a largely administrative process where the applicant's academic record became the decisive assessment tool.

5.9.8. Interviews (1995-2006)

Informal interviews were used to fill any last possible available places in January of the year in which new students commenced their studies. This meant that only a small portion of applicants was interviewed. It would seem that the January interviews were specifically geared to consider historically disadvantaged

applicants, but from the archived selection lists it is clear that these numbers remained considerably lower than those for other categories of applicants (Departement Argitektuur en Landskapargitektuur 1998:1-4, 1999:3, 2000:1-3).

5.9.9. Outcomes (1995-2006)

In terms of the academic indicators the Matriculation Score was a mixed success: attrition among first year students in the generic first year of study fluctuated (11.8% in 2003, 17.7% in 2004, 7.3% in 2006), but remained more than double that of the average for all new first year students studying at the University of Pretoria for the corresponding period. More than 80% of students who took the final examination in Design at the end of first year passed (UP 2011a:25-44), but the rate of graduation was lower than the average for three year qualifications at UP (UP 2011b).

It is also clear that, at times, an excess number of students was admitted to compensate for trends in attrition and in an effort to address demographic inequity that resulted from the policy of using the nonspecific Matriculation Score. The remarkably high intake of 91 first year students in the architecture programme (instead of the allocated 60 places) for the intake of 2004 serves as an example of this practice (UP 2011a:37).

From the admission data it is clear that the number of applications for the undergraduate programme in architecture was increasing. The 205 applications for architecture in the 2000 academic year increased to 559 for 2005 and 622 for 2006 (Department of Architecture 2011). The variable cut-off score for architecture was therefore adjusted to an all-time high of 26 out of a possible 30,[15] which was incongruous with the published minimum requirements for admission that called for a Matriculation Score of 18 for Grade 12 (UP 2006:1). This high cut-off score guaranteed admission in the first round to 52 applicants, of whom 73.1% were female and only one was a previously disadvantaged individual. This was slightly adjusted at the time of registration, without doubt a circumstance attributable to the interview cycle in January, but even then 62.3% of the cohort was female (Department of Architecture 2006:1-2) and only six were previously disadvantaged students (UP 2011b:1).

The result of using the Matriculation Score as the primary assessment tool was therefore that it skewed the demographics of the student body by admitting more white female applicants than any other group. Paradoxically this group also presented the highest rates of failure and attrition for the undergraduate programmes in the period between 2003 and 2006, estimated at a combined rate of over 50% compared to less than 20% for their male counterparts (Department of Architecture 2006). This alone indicates that

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15 This meant that in order to be selected, a matriculant's overall achievement for six subjects could only be four symbols away from six distinctions on the Higher Grade. To illustrate the effect of the high variable cut-off score, an applicant with a Matriculation Score of 25 was placed on the waiting list and subsequently not considered for selection based on the following marks obtained in seven subjects on the higher grade: 81%, 80%, 74%, 72%, 70%, 71% and 68%. The lowest mark achieved in this example, namely 68%, was not taken into account in this calculation as the formula provided only for the six subjects required to matriculate (Department of Architecture 2005:16).

the admission policy was not entirely compatible with the study programme. While the Matriculation Score, on the face of it, provided an equitable basis to measure academic achievements during the final years of schooling, a mechanism for contextualising an applicant's academic achievement in terms of his or her own potential was lacking, any assessment of the applicant's abilities other than the outcomes prescribed for the matriculation subjects was unable to be expressed. The generic formula also did not account for any other contextual informants, such as geographic and socio-economic realities that continue to plague the South African basic education system through remnants of the historic inequalities carried over from the Apartheid era and its education policies that favoured and funded white learners above others.

The quotas allocated to historically disadvantaged applicants in the regulation for selection was much lower than for the other categories, amounting to a mere 5% of the intake for 2006, as opposed to 80% for the general category of matriculants (UP 2006:2). It is therefore not surprising that few candidates of colour were admitted, although the selection records indicate that the Department admitted more historically disadvantaged applicants than the regulated quotas provided for (Departement Argitektuur en Landskapargitektuur 1998:1-4, 1999:3, 2000:1-3). Between 2003 and 2006 applicants of colour on average made up 10.7% of the intake in the architecture programme (UP 2011b:1).

5.9.10. Discussion: Episode 2 (1995-2006)

The first selection system, informed by research based on the performance of a homogenous group of white and mostly male applicants, lost its credibility after 1994. Apart from the change in socio-political value systems, its demise was driven by managerial decisions resulting from the first democratically elected government's reform of higher education, but indirectly the indicators on which it relied had over time already been diluted. In the interim, and possibly for lack of other means, selection reverted to the applicant's academic record amidst far-reaching changes in managerial and academic frameworks, including curricula. Following the incorporation of the programmes in landscape and interior architecture into the Department, new policies standardised the Matriculation Score as the primary basis of selective admission. This effectively meant that all applicants to the design programmes in the built environment were selected with the same generic aggregate used for admission to other programmes across the institution (Department of Architecture and Landscape Architecture 1999:4).

During the interregnum from 1995 until 2006 the selection project was paused as institutional policy dictated uniform means of admission through selection. Programme specific selection that called for the coordination of individual qualities with the requirements for a specific course was lost as the means for admission reverted to general selection in accordance with the terms as previously defined by Herholdt (1972:11).

5.10.   SUMMARY

The critical analysis of the trajectory of historical selection practices for the admission of beginner students in architecture at the University of Pretoria can, for the period under review, be divided into two main episodes, with the first stretching from 1971 until 1994 and the second from 1995 until 2006.

A number of informants served to contextualise these episodes of selection, including regulatory frameworks, requirements for admission, the academic context and intentions of the Department and how it influenced the core curricula at specific times. The assessment tools and the major outcomes of the respective episodes of selection were reviewed so as to investigate if and how compatible selection was with the academic offering.

For the episode covering 1971 to 1994 it was found that through the research informing selection an analogous and compatible relationship was established between selective admissions and the teaching and learning in the programme for which students were selected. During the episode covering 1995 to 2006 this trend was reversed as admission policies were centralised and directed by managerial decisions in an effort to adapt to changing contexts and expectations, with the result that selection became general and nonspecific.

5.11.   CONCLUSION

The third subproblem was to critically examine the trajectory of historical selection practices for the admission of beginner students in architecture at the University of Pretoria from 1971 until 2006.

The first supposition to subproblem three is that the trajectory of historical selection practices for the admission of beginner students in architecture at the University of Pretoria between 1971 and 1994 were based on research and were compatible with and analogous to teaching and learning in the programme for which students were selected.

The second supposition to subproblem three is that the trajectory of historical selection practices for the admission of beginner students in architecture at the University of Pretoria between 1995 and 2006 was informed by managerial policies and were general and not specifically aligned with teaching and learning in the programme for which students were selected.

As indicated in the summary above the analysis of the two episodes presented in this chapter affirm and support both of these suppositions.

To be able to criticise we must listen – especially to the first year student who may be able to help us to re-mythologise our thought processes to such an extent that we will be able to teach with conviction. (Le Roux 2006:99)

CHAPTER 6 SELECTION PRACTICES FOR ADMISSION TO STUDIES IN ARCHITECTURE AT THE UNIVERSITY OF PRETORIA: 2007-2016

6.1. SUBPROBLEM 4

In order to understand the context of the main problem we need to critically examine the trajectory of selection practices for the admission of beginner students in architecture at the University of Pretoria from 2007 until 2016.

6.2. SUPPOSITIONS TO SUBPROBLEM 4

The supposition to subproblem four is that the selection practices for the admission of beginner students in architecture at the University of Pretoria between 2007 and 2016 were specific to, and had a positive interrelationship with, teaching and learning in the programme for which students were selected.

6.3. OUTLINE OF CHAPTER 6

The major case study undertaken for this thesis is concluded in this chapter with the discussion of the most recent episode of the selection of beginner students in architecture at UP for the period between 2007 and 2016. During this time the researcher was responsible for the selection of beginner students in architecture at the Institution. As in the preceding chapter, this episode is again contextualised in terms of regulatory and academic indicators that framed selection practice, albeit that these indicators did not substantially change from those of the foregoing episode. The approach to selection, the procedures in general and the range of assessment tools employed did however change dramatically. The thinking

behind these changes, their implementation and application are discussed and contextualised; the results of review instruments for these procedures and the outcomes thereof are reflected on in this chapter.

6.4. OVERVIEW OF THE RELATED LITERATURE

The pertinent sources referred to in this chapter relate to the University, the Department and the procedures for the selection of beginner students in architecture that are reflected on in this chapter. For the former the admission regulation (UP 2007) that changed the procedures from those discussed in the foregoing chapter to the current one seems most significant. As in the previous episodes the official yearbooks of UP were very helpful in outlining the curriculum of the School. In this chapter specific reference is made of the 2016 course plan as documented in UP (2016a). Official statistics prepared by the Bureau for Institutional Research and Planning and its successor, the Department of Institutional Planning, provided the researcher with insights – those with which academic members of staff do not often engage (UP 2011a, 2011b, 2017a, 2017b).

Documents that relate to the visiting boards for the validation of the programmes offered by the Department have assisted the researcher in compiling notes on the academic context and intentions of the Department at various intervals. These include documents prepared by the Department (Department of Architecture 2012a, 2012b, 2017a, 2017b) for validation cycles and the official reports from validation bodies, such as the one by SACAP, CHE, CAA and RIBA (2008). In these instances the archive of the Department has proven to be invaluable as many of the sources consulted are housed there, including the researcher's earlier enquiries (Department of Architecture 2005, 2006) that shaped many of the procedures that are now in place. It is also the repository for the secondary data sources that were consulted, such as the annual student questionnaires (Department of Architecture 2016c, 2016d).

The memorandum that summarised the review of the procedures for selection at the Department proved its worth (Department of Architecture 2015b) as it précised the writing of this research. The pro forma documentation that records the selection procedures for the intake of the 2016 academic year, as archived in Department of Architecture (2015a), assisted as an aide memoir in creating a narrative thread as it was read as the culmination of efforts over a decade. Finally, references to aspects argued in earlier chapters of this thesis are again perused here.

6.5. EPISODE 3: SELECTION (2007-2016)

The academic year that launches this episode, 2007, saw the first intake of students who were selected according to a new selection procedure for admission to studies in architecture at UP. Enquiries and informal research that informed the procedure were initiated early in 2005 and put into practice late in 2006 when the cohort for 2007 was selected.

6.5.1. Regulatory framework (2007-2016)

The regulatory framework that was implemented following the promulgation of the Architectural Profession Act (No. 44 of 2000) – see Chapter 5.9.1 – had not substantially changed for the duration of the episode under review. Minor changes were made to the threshold for the registration of senior architectural technologists to differentiate between qualifications at NQF level 7 (see Table 2.2). Other developments, including the identification of work by the different categories of registered professionals and an ongoing debacle on the guidelines for professional fees (SACAP 2017), have had little direct impact on architectural education in South Africa.

6.5.2. Academic context (2007-2016)

The public debate, and outcry from some quarters, following Prof. 'Ora Joubert's inaugural address in 2004 placed the School, and the architectural profession in South Africa, in the spotlight. Her critique of "[…] the passé, stylistically dubious, climatologically irresponsible, superfluously decorated, clumsily proportioned and downright ugly buildings […]" (Burger 2006:41) generated awareness of the significance of contextually responsible design and stressed its value beyond the superficial and trendy. In many ways this echoed the values of the regionalist approach that characterised the School during its early years – see Chapter 5.5.4 – and was reinforced when the book she edited and convened, *10+ years 100+ buildings: Architecture in a democratic South Africa* (Joubert 2009), was published to great acclaim.

Joubert's tenure ended in August 2008 and once again Prof. Roger C. Fisher was appointed as acting Head until the appointment of Prof. Karel A. Bakker (1956-2014, see Appendix 3 for other biographical information) as Head was made official on 1 January 2009.

Bakker had a special interest in the architectural histories of African societies. Through his work with the International Council on Monuments and Sites (**ICOMOS**) and as advisor and consultant on world heritage projects, notably in Mauritius, Zanzibar, Uganda and Tanzania (Clarke 2014), the School built strong connections with these and other countries on the African continent and beyond. This was especially evident when the School co-hosted the international conference of the African Perspectives series under the banner *The African City Centre: [Re]sourced* (Bakker 2010). As an alumnus of the Department and long-serving lecturer he was intimately familiar with the academic and administrative workings of the institution and the School. This was advantageous at a time when the availability of financial resources was severely limited due to a worldwide economic collapse and a recession in the South African economy.

When Bakker passed away in November 2014 UP again called on Fisher to stand in as Head of Department. This ensured continuity and was reassuring to the members of staff and the student body. Prof. Chrisna du Plessis (see Appendix 3 for biographical information) was finally appointed as Head of Department at the beginning of October 2015, the same month that students started protesting against increased tuition fees at universities across South Africa. The first wave of protests culminated in a

student march to the seat of power, the Union Buildings in Pretoria, on 23 October 2015 (Nkosi 2015), after which the President of South Africa announced that university fees would not be increased for the following academic year. As the #FeesMustFall campaign continues at the time of writing, and in a climate of growing political uncertainty, resources at higher institutions of learning in South Africa remain severely strained. For academic members of staff the emphasis on research, which provides the institution with additional streams of funding, finally prevailed over their involvement in architectural practice. Inevitably it means that the chasm between the branches of architectural knowledge in practice, on the one side, and education and research, on the other, widens.

6.5.3. Academic intentions (2007-2016)

The strengths and points of interest of the School, cumulatively developed over the latter half of the twentieth century and discussed in the previous chapter, gained depth and traction during the decade under review. One can hardly imagine functioning in singular professional silos almost twenty years after Fisher's curriculum was implemented and on the eve of the Department's seventy-fifth anniversary in 2018. The final report by the visiting validation boards in 2008 already stated:

> The nature and character of the Architecture Department is strongly influenced by its broad spectrum of three integrated disciplines, Architecture, Landscape Architecture and Interior Design. These form a generic core underlying the structure and delivery of curriculum. Ecological and regional concerns are identified for exploration and development in student design projects in a way that is technically thorough and socially and environmentally responsible. (SACAP, CHE, CAA & RIBA 2008:6)

A review of the generic first year of study commenced in 2008 so as to give more prominence to the foundation skills upon which subsequent courses in the three disciplines could build (Botes 2012:125). It ensured an improved horizontal and vertical integration between studio-based projects and theory-based teaching and learning. Interdisciplinarity was further entrenched when, during Joubert's tenure, the generic design syllabus was extended to the middle of the second year of study so as to "[…] continue emphasising the correspondence between the three design disciplines" (UP 2007:69-70).

Bakker, writing to the SACAP visiting board in 2012, summarised the approach to teaching in the Department as having a golden thread that he defined as:

> An encompassing study of the discipline, academic rigour, a non-flag following independence in formulating what architecture – and the role of architecture – could be, an attempt to achieve and maintain dynamic balance in the architectural dualisms of art and science, theory and praxis, past and future, and a striving towards an integrative, traditive, generative design approach that results in a facilitating, contextually relevant architecture that sustains culture and social evolution. (Department of Architecture 2012a:4)

He added:

The Department's approach is eco-systemic and equifinal – rather than being eclectic, there is a directed search for appropriate theory and methodology for diverse problematiques. The Department believes in rounded education rather than training. The tuition in design is problem driven. A tradition of ecological, regional and historic concerns manifest in design explorations that are generative rather than formalistically, stylistically or iconically driven. The Department wants to retain its reputation for expertise in the techne of architecture to, within a broader normative position, underscore and direct the exploration and assessment of design responses, particularly at exit levels. Tectonics, as opposed to facile technical resolution, are encouraged throughout all the years of study. (Department of Architecture 2012a:4)

The Department's position, that it prepares students through an emphasis on a scholarly education, rather than through an exclusively vocational training, was repeated to the same panel (Department of Architecture 2012b:63).

Over the past decade teaching and research in the Department have increasingly been allied to defined research fields. Although it impacts more directly on the postgraduate programmes, it has unavoidably spilt over to the undergraduate courses. The concerns of the three fields of research were outlined as follows in Department of Architecture (2016b:1):

ENVIRONMENTAL POTENTIAL: The balance between human development needs and the environment's potential to serve or provide for these needs. Social consideration, environmental responsibility and economic equitability that results in regenerative design and development approaches, sustainable building methods, recycling and reuse of material, community benefits and environmental restoration.

HERITAGE AND CULTURAL LANDSCAPES: Diachronic and synchronic understanding and analysis of the ecology of the cultural environment with application in the design of the built environment. Solutions focus on appropriate building form and space referenced to the legal heritage frameworks and current best practice. Theory of the relationship between human and landscape and of heritage conservation. Recording, investigation, interpretation, representation and design response within the built environment regarding places, structures and artefacts of cultural significance and heritage value.

HUMAN SETTLEMENTS AND URBANISM: Investigation into the current socio-spatial conditions of our urban environments that are influenced by economic migration, political redress and environmental distress. Design and intervention strategies are aimed at the enablement of emergent social structures and the integration into existing urban and natural processes with potential emotional ownership and reinvestment by the inhabitants. Engagement with communities of interest contributes to a participatory research process underpinning these investigations.

Within this broad framework the academic offering of the Department has been subject to ongoing review, also under the leadership of Du Plessis whose extensive experience in sustainability in the built environment and the development of human settlements as sustainable social-ecological systems is contributing to the School's endeavours in these fields. Important aspects pertaining to the formal curriculum for this period are discussed in the following section.

6.5.4. Curriculum (2007-2016)

During the period under review the curriculum saw some evolutionary changes and refinements, rather than the major revisions of the 1990s – see Chapter 5.9.4. The changes affected institution-wide advances in Computer and Information Literacy through which new courses in Academic Information Management in the first year of study were introduced. A Joint Community-based Project was introduced into all undergraduate academic programmes offered by the Faculty of Engineering, Built Environment and Information Technology at UP with the following objectives:

1. The execution of a community related project aimed at achieving a beneficial impact on a chosen section of society, preferably but not exclusively, by engagement with a section of society which is different from the student's own social background.
2. The development of an awareness of personal, social and cultural values, an attitude to be of service, and an understanding of social issues, for the purpose of being a responsible professional.
3. The development of important multidisciplinary and life skills, such as communication, interpersonal and leadership skills. (UP 2016a:83)

The ongoing research in human settlements by Dr Carin Combrinck (2015), like that of Prof. Amira Osman before her, has opened more opportunities for active engagements with communities such as those living in informal settlements. As a result, at the time of writing, community projects similar to the Joint Community-based Project are being implemented in all years of study, to involve students from the undergraduate and professional postgraduate programmes. It is foreseen that this initiative will, in future, be even more explicitly defined as a component of the curriculum.

Minor structural adjustments were required to accommodate effective resource deployment and to underscore especially horizontal integration between the studio and other modules presented in each year of study. Where Design was previously presented as two semester courses per academic year, it has now been configured for yearlong presentation so as to facilitate more continuity in the studio. The applied components of theory have been reassigned to the studio-coordinators in an effort to improve integration between design explorations and architectural theory. Effectively this has led to the courses in History of the Environment and Environmental Studies to be combined during the first two years of study. Logistical considerations and the balancing of credit values influenced other changes.

From 2009 onwards the requirements for promotion to the second and third years of study were raised and supplementary examinations were reintroduced for some first year courses (excluding Design) so as to assist students with the transition to tertiary learning (UP 2009:11, 13-14). Partly motivated by the prevailing economic climate, supplementary examinations were extended to some second year courses (excluding Design) in 2011 as an incentive to accommodate deserving students (UP 2011d:11-12).

Table 6.1 provides a summary of the core curriculum presented in 2016 with the components of the generic core curriculum indicated with those for the undergraduate programmes in architecture (BScArch), Landscape Architecture (BScLArch) and Interior Architecture (BScInt).

TABLE 6.1: Course diagram of the core curriculum for the undergraduate degrees in 2016 after UP (2016a:14-33)

Core Generic

Year	Sem	Practice Management	Programme Specific	Earth Studies	Construction	Design	Environmental Studies	History of the Environment	Design Communication
1	1	AIM 101		AAL 110	KON 111	ONT 100 INCLUDING APPLIED THEORY	OML 110		ELECTIVE
1	2	AIM 102			KON 121		OML 120		OKU 120
2	1	JCP 201		AAL 210	KON 210		OML 210		
2	2				KON 220		OML 220		
3	1	BER 310			KON 310		OML 310	OMG 310	OKU 313
3	2	PJS 320		AAL 320				OMG 320	

BScArch — THEORY OF STRUCTURES

Year	Sem	Practice Management	Programme Specific	Earth Studies	Construction	Design	Environmental Studies	History of the Environment	Design Communication
2	1		STU 211			ONT 200 INCLUDING APPLIED THEORY			
2	2		STU 221	GGY 265 AAL 224					
3	1		STU 311			ONT 300 INCLUDING APPLIED THEORY			
3	2		STU 321		KON 320'A'		OML 320'A'		

BScLArch — LANDSCAPE ARCHITECTURE

Year	Sem	Practice Management	Programme Specific	Earth Studies	Construction	Design	Environmental Studies	History of the Environment	Design Communication
2	1		LAN 212			ONT 202 INCLUDING APPLIED THEORY			
2	2		LAN 222	GGY 265 GKD 250					
3	1		PWT 312			ONT 203 INCLUDING APPLIED THEORY			
3	2		PWT 322		KON 320'L'		OML 320'L'		

BScInt — MATERIAL STUDIES

Year	Sem	Practice Management	Programme Specific	Earth Studies	Construction	Design	Environmental Studies	History of the Environment	Design Communication
2	1		TKS 212			ONT 203 INCLUDING APPLIED THEORY			
2	2		MST 223	AAL 223 AAL 224					
3	1		MST 313			ONT 303 INCLUDING APPLIED THEORY			
3	2		MST 323		KON 320'I'		OML 320'I'		

LEGEND:

AIM:	Academic Information Management	LAN:	Landscape architecture	PJS:	Practice Management
AAL:	Earth Studies	MST:	Material Science	PWT:	Plant Science
BER:	Business Law	OKU:	Design Communication	STU:	Theory of Structures
GGY:	Geomorphology of the Built Environment	OMG:	History of the Environment	TKS:	Textiles
GKD:	General Soil Science	OML:	Environmental Studies		
KON:	Construction	ONT:	Design		

In summary the curricular principles for the core subject courses, other than Design, offered to undergraduate students in 2016 were outlined as follows:

> EARTH STUDIES: We think eco-systemically – that is to think of a system as nested, each as part of a larger system; made up of sub-systems and a part of a supra-system. These sub-systems can develop properties that are emergent properties and are properties of the supra-system. Properties of the subsystems do not predict those of the supra-system nor does that supra-system necessarily directly reflect the properties of their embodied subsystems. All things are natural, as so, subject to natural law. This includes human activities. (Department of Architecture 2017b:8, based on a portion of Fisher & Clarke 2011:20)

CONSTRUCTION: The study of construction theory, materials and methods is seen as an extension of the design process to enable the designer to give built form, tangible expression and realisation to an architectural concept. (Department of Architecture 2017b:18)

HISTORY OF THE ENVIRONMENT: The study of the history of the environment is seen as a process wherein past cultural production can be understood synchronically in context, as well as diachronically in order that such understanding may be utilised in the construction of new culture, and specifically architectural discourse, cultural landscapes, place, settlement and architecture. (Department of Architecture 2017b:36)

ENVIRONMENTAL STUDIES: Architectural theory is seen as the staging post, the provisional place of reflection and a continuous project. It is omnipresent – every designer knowingly or not uses some intersection of theory every time they design, document, discuss or speculate. (Department of Architecture 2017b:50)

The aim of any selection procedure is ultimately align with, and facilitate access to, these principles.

6.5.5. Requirements for admission (2007-2016)

For the 2007 and 2008 academic years the minimum requirements for admission remained unchanged from those of the previous episode, namely a certificate of matriculation exemption with university admission and at least 40% in both Mathematics and Physical Science on the Higher Grade or, alternatively, 50% on the Standard Grade (UP 2007:1). In addition the required Matriculation Score was 20 for Grade 11 and 18 out of a possible 30 for Grade 12. For historically disadvantaged applicants these scores remained two points lower on each count.

These requirements were reviewed from the intake of 2009 onwards as the first applicants who matriculated with a NSC under the Outcomes Based Educational (**OBE**) system completed their schooling in 2008. OBE was the first major policy innovation in basic education by the democratic government and its grading system was adopted as the basis for the new APS that replaced the Matriculation Score as an indicator of overall academic achievement. With this revised system allowance was also made for different levels of higher education outcomes that a matriculant may pursue based on subject choice and academic achievements – see Chapter 4.6.3. The NSC differentiates between admission to studies with higher certificate, diploma and bachelor's degree outcomes; the latter category has been a minimum requirement for admission to the programmes offered by the Department.

The following example illustrates the new rating system and the calculation of the APS:

Points for marks obtained in end-of-year exams are as follows:

MARK OBTAINED	RATING	POINTS
80-100%	Outstanding achievement	7
70-79%	Meritorious achievement	6
60-69%	Substantial achievement	5
50-59%	Adequate achievement	4
40-49%	Moderate achievement	3
30-39%	Elementary achievement	2
0-29%	Not achieved	1

Calculate the APS by adding the points awarded per subject according to the following formula:
Language of University instruction + Other language + Mathematics + Physical Science +
two other subjects (excluding Life Orientation)

Example of APS Calculation

PRESCRIBED SUBJECTS	SYMBOL	POINTS
SUBJECT GROUP A		
Home Language	82	7
Language at First Additional Level	65	5
Mathematics	58	4
Life Orientation	72	-
SUBJECT GROUP B		
Physical Science	63	5
OTHER SUBJECTS		
for example Life Sciences	76	6
for example Accounting	55	4
TOTAL APS		31

Only six values are used in this formula, which means that the maximum possible APS is 42 for six subjects passed with an Outstanding Achievement rating (above 80%).

Although a minimum rating of 4 (50%) in Life Orientation is required for obtaining a National Senior Certificate with admission for degree purposes, this subject it is not taken into consideration in the calculation of the APS. (Department of Architecture [sa]:2)

The minimum APS required for admission was benchmarked at 27[1] out of a possible 42, while the subject requirements were standardised to a minimum of 50% in both Mathematics and Physical Science as the previous system of Higher and Standard Grade fell away in OBE. A language requirement was added that set the bar at 60% for either of the languages of instruction at UP. This was mostly informed by the traditive view held in the Department that value language skills. In all probability this position stems from Herholdt's (1972:186-187) findings – see Chapter 5.7.9. No distinction is made between the requirements set for an applicant's results for Grade 11 or Grade 12 as was previously the case. These minimum requirements for admission have since been retained.

1   For the sake of context, an applicant should have an APS of at least 35 to be considered for admission to the programmes of the School for Engineering at UP (UP 2016b:1-2).

The intake was revised for the 2015 and subsequent academic years to align it with the available resources at the time and to address a 'bottleneck' between the previous higher intake for the undergraduate programmes and lower intake for the professional postgraduate programmes (Department of Architecture 2017a:6). Subsequently the number of places allocated to the combined first year has been 100 (as apposed to the previous number of 120), of which half still goes to the programme in architecture and the remainder is equally split between landscape architecture and interior architecture.

6.5.6. Renewed interest in selection specific to the programme in architecture

The academic records of applicants, expressed as a Matriculation Score since 2000, served as benchmark to determine the selection of beginner students in architecture at UP during the previous episode of this case study. Joubert, like her predecessors – Burger, when he commissioned research on selection in the late 1960s, Holm[2] and Le Roux[3] – expressed her concern about using an academic record as the sole basis for selection and appointed the researcher to review the procedure for undergraduate selection in 2005. Her concern was that the prevailing generalist approach to selection overlooked the specific nature of architectural education and therefore she suggested that a more substantial assessment routine was required. At the time the perception among many members of staff was that some students, who were possibly not ideally suited to pursue studies in design, were automatically admitted through the Matriculation Score and that this, in turn, skewed the demographic composition of the student body in favour of white female applicants based on their academic records.

6.5.7. Principal considerations in the redesign of selection procedures

In response to Joubert's request the researcher launched an informal investigation that initially focussed on preliminary (and often intuitive) explorations, logistics and institutional pragmatics, case studies and consultations with students and other members of staff. The discovery process was also informed by data on recent admissions to the Department and the academic progress of registered students (Department of Architecture 2005, 2006) – see Chapter 5.9.9.

The first short-term objective was clearly to redirect the selection project from the prevailing generalist approach to one that was compatible with and appropriate to the ethos and specific academic offering of the School. At the same time it was imperative that selection be transformed to an inclusive process so as to offer all applicants who meet the minimum requirements for admission an equal opportunity to compete for a place in the programme. Over the medium-term the goal was to stabilise student numbers in the Department and to align them to the available resources. This was necessary as the size of the student

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2   As part of a request for funding to investigate selection criteria, Holm writes: ["We are increasingly unsure if matriculation results are satisfactory predictors for university performance."], translated from the original Afrikaans text in Departement Argitektuur (1987): "*Ons is al gaande onseker of die matrikulasie-uitslae 'n bevredigende voorspeller vir Universiteitsprestasie is.*"

3   Le Roux (2005:8): "We will keep record of everything – to assist us in an attempt to work out a system for future selection of first year students. I have already begun with an investigation to determine the possible relationship between the fabled M-Score, the weight of languages in its calculation and proven success in the courses."

body fluctuated somewhat due to unpredictable attrition rates and the intake of an excess number of students in some calendar years in an attempt to compensate for anticipated dwindling numbers – see Chapter 5.9.9. In the long-term it was vital that the demographic representivity of the student body be addressed as the quota system previously had little effect in this regard (Department of Architecture 2005:2).

At the outset the legacy of Apartheid education and its continuing impact became a significant consideration. An applicant's school results often revealed a great deal about the quality of the education that he or she received and the resources available to the school that a learner attends, as was argued by, among others, Jansen (2011). While the Matriculation Score was purportedly to serve as an equal-opportunity formula, in reality it failed to do so. Historical discrimination coupled with unequal opportunities therefore cast serious doubt on the value of a generic score as an absolute decider, at least "[…] until schooling in South Africa is placed on an equal footing and is proved to prepare students adequately for tertiary education" (Van der Merwe & De Beer 2006:558).

Based on a steadily increasing number of applications, all indications were that competition would be fierce and it appeared that there would not be a shortcut that would easily determine the strongest candidates for admission. An in-principle decision was taken to dismiss the singular benchmark for admission as it became clear that an academic record, in isolation, did not show a strong relationship with the core competencies expected of prospective students of architecture. Alternative means were thus required to appropriately assess their capabilities.

The vast majority of beginner students are neophytes to architecture and therefore do not have an adequate understanding of the architectural profession – see Chapter 3.5. This is particularly relevant in our post-Apartheid context and in a developing economy where architects are 'hidden professionals' (Janse van Rensburg 2015:7). It was therefore decided to structure any future selection process in such a way that it allowed applicants to discover the disciplines for themselves and, by doing so, to allow them to benefit from informed opinions based on first-hand experience. In light of SACAP's directive that schools of architecture nurture their own identities and value systems, it was decided that the process, on the whole, should reveal to the applicants the School's specific approach to teaching and learning in order that they be better informed as to their future choices.

The notion of a formulaic ideal applicant profile was rejected outright as this would be contrary to the ecosystemic approach and principles of process-driven generative design to which the Department subscribes and for which its graduates are valued. Adhering to the values of multiple possibilities, as recommended by Le Roux (2006:98), every effort had to be made to identify all-rounders with a broad, enquiring intellectual capacity that could nurture, and sustain, aptitude and interest. Perhaps Teymur (2007:103) best summarised the scope of qualities to strive for:

> […] the most critical for architectural education is curiosity, the willingness to embrace ambiguity, paradox and uncertainty, to develop the balance and the connection between science and art, logic and imagination, the 'whole-brain' thinking, and a recognition of the interconnectedness of all things and phenomena…

It was apparent that limited resources were available for selection and therefore any future strategy had to dovetail with the academic activities of the School and utilise the human capital of the members of staff. In order to avoid unnecessary duplication it was therefore essential that any new procedure should apply to all three undergraduate programmes offered by the Department while allowing for idiosyncratic differentiation between them. In preparation for the intake of 2007 a matrix of cumulative considerations was developed that proposed a procedure informed by the architectural disciplines and the specific nature of their presentation at UP, one that reflected the intrinsically complex nature of spatial design but also embraced the Department's ethos of interdisciplinary and studio-based learning. As selecting beginner students into systems of architectural education acts as the threshold to the discipline and profession, the new procedure was expected to stand in the same relationship to the studio as the studio, in turn, stood to professional practice.

6.5.8. Selection procedure (2007-2016)

A new selection procedure was introduced for the intake of 2007. The approved regulation for admission referred to the assessment tools to be used as "[…] academic conditions, a Departmental admission test (general knowledge, abilities and experience) and an interview" (UP 2007:2). In principle the seven assessment tools used for the selection of beginner students in architecture, interior architecture and landscape architecture at UP since 2007 have remained unchanged. They are deployed over the course of four rounds of elimination, as indicated in Table 6.2.

TABLE 6.2: Sequence of assessment tools used for the selection of beginner students in architecture at UP for 2016

	Academic record	Portfolios	Personal statements	Workplace experience #	Special architecture tests	Written arguments and literacy	Interviews	Generic aptitude tests
ROUND 1: Academic phase	●							○
ROUND 2: Home phase		●	●	●				
ROUND 3: Test phase					●	●		
ROUND 4: Interview phase							●	

KEY: ● indicates an assessment tool considered during selection
○ indicates an assessment tool considered during selection, but only for specific applicants and in specific circumstances – see Chapter 6.5.16

The selection procedure used for the intake of the 2016 academic year was summarised in Department of Architecture (2016a:3) – it states that all applicants who meet the minimum requirements for admission (Round 1) receive assignments to complete at home (Round 2) in preparation of a departmental selection test (Round 3). Based on an assessment of the combined outcomes of Rounds 2 and 3 a shortlist is compiled for the final phase. Applicants whose names make the shortlist are invited to attend selection interviews (Round 4). Additionally, applicants who cannot attend a test or interview on campus are considered through a procedure of alternative assessment.

In the discussion that follows the assessment tools, as indicated in Table 6.2, are ordered in the sequence of their deployment during the annual selection process.

6.5.9. Academic record (2007-2016)

During the 1960s, AERU at the Bartlett School of Architecture found that academic records, weighted for the context of applicants as opposed to being just an arithmetical set of grades, proved to be of significant value during selection – see Chapter 3.6.3. Respondents to the international surveys voiced opposing sentiments about the value of an applicant's academic record for selection into programmes in architecture – see Chapter 3.7.1. Similarly, South African schools of architecture did not agree on the aspects that an academic record brings to light, with some respondents viewing it merely as a procedural matter and the majority observing that it offered limited insight into creative and spatial abilities – see Chapter 4.6.3.

For this case study, apart from the change in the minimum requirements for admission that followed the introduction of the NSC for matriculants who completed their schooling from 2008 onwards, the principles applied for the round where academic records are considered have not changed during the period under review.

Whenever possible, the assessment of an applicant's academic record is based on final matriculation results as they determine the statutory standing of a matriculant in terms of future studies – see Chapter 4.6.3. As a rule the majority of applicants apply during their matric year and before they have completed their studies towards the NSC. For these applicants their end-of-year results for Grade 11 are considered to determine if they meet the minimum requirements for admission as discussed in section 6.5.5 of this chapter. If such an applicant is offered a place in the programme after the last round of selection, the offer is on a conditional basis and it is required that his or her final NSC results still meet the minimum requirements for admission.

Lessons learnt from the previous episode of selection at UP indicate that an academic record, in isolation, is an indicator of certain achievements, but also that it does not offer a conclusive basis for selection for admission to a programme in architecture, and that it is not without bias – see Chapter 5.9.9. The school environment, at least in South Africa at present, requires very different outcomes from those expected of

a student of architecture and an academic record, especially one expressed through a generic formula, fails to measure or recognise latent or even patent three-dimensional capacity, aptitude for or interest in design, social awareness, empathy or creative potential for problem solving. These aspects are, in varying degrees and combinations, essential for prospective architects and cannot be reliably accessed through means of general selection in accordance with the terms as defined by Herholdt (1972:11).

In addition, Spaull (2013:5) contends that:

> Analysis of every South African dataset of educational achievement shows that there are in effect two different public school systems in South Africa. The smaller, better performing system accommodates the wealthiest 20-25 per cent of pupils who achieve much higher scores than the larger system which caters to the poorest 75-80 per cent of pupils. The performance in this latter, larger category can only be described as abysmal. These two education systems can be seen when splitting pupils by wealth, socio-economic status, geographic location and language.

In light of these disparities and the uncertainty generally associated with the reliability and consistency of the national matriculation results as cited by Jansen (2011, 2012, 2017), all applicants who meet the minimum requirements for admission have, since 2007, been invited to participate in the second round of selection. In the context of Spaull's argument quoted above, an applicant from a well-resourced school does not have an obvious advantage over an applicant from a school that lacks in resources. For older or transfer applicants their academic records for tertiary and other possible studies are reviewed so as to contextualise their academic trajectories.

In effect the means that determine the merit of an application has thereby been broadened and no longer relies on one assessment tool. The academic record therefore has become a threshold to studies in architecture at UP. In the assessment cycles that follow, the academic record serves as a contextual informant that is weighted as less significant than other assessment tools that all have a more direct relationship to, and bearing on, architecture. It is therefore regarded as only having some value as an assessment tool, as indeed recorded for the majority of other schools of architecture in South Africa – see Chapter 4.6.3.

6.5.10. Portfolios (2007-2016)

The traditive role of portfolios in architectural education was briefly highlighted in Chapter 3.7.3. In Chapter 4.6.4 it was indicated that a portfolio submission was required by 80% of respondent schools of architecture in South Africa and that, as a rule, its content was prescribed.

At UP applicants who meet the minimum requirements for admission have, since the intake for 2007, been requested to prepare assignments at home where they may have access to references and resources. While, pedagogically speaking, these assignments constitute a portfolio, the term is purposefully avoided in the School's communication to applicants for its possible associations with school subjects such as Visual Art or Engineering Graphics and Design, neither of which are prerequisite

subjects for admission. In addition the terms may not be familiar to all applicants and may inadvertently be easily confused with a requirement for an artful showcase of work. The School's intention is to make the process accessible and not to create the impression that specific school subjects, or indeed the skills associated with these subjects, are required for success in selection or in the study programme (Khan & Botes 2017:4-5).

The first component of the portfolio is a biographical questionnaire that provides information about the applicant that may not be available through other means and includes, but is not limited to:

- Personal details, including the preferred first name of the applicant as the formal application format does not provide for this aspect.
- Details of the school the applicant attended.
- Information on achievements or qualifications, other than those required to matriculate.
- The languages that an applicant is proficient in; although South Africa has eleven official languages, resources are not always available to present schooling in an applicant's home language or language of choice. It could thus be revealing to find that an applicant is fluent in more languages than those he or she may be able to study at school. This may also serve to contextualise marks obtained in language subjects at school as it may negatively affect the applicant's APS.
- Any work experience; as an example, an applicant who, either through choice or circumstance, worked part-time while completing school may have more life experience, but this is not a definitive decider.
- Possible journeys or excursions undertaken by the applicant; this may serve to contextualise the applicant's frame of reference. A selector would frame questions differently to an applicant who has travelled widely when compared to one who once travelled to a destination of interest or a major city.
- Recent books that an applicant has read; this aspect may indicate curiosity or an active interest in reading, depending on the challenge presented by the reading matter and its presumed availability.
- An applicant's leisure-time activities; this may be indicative of interests and idiosyncratic abilities that may not otherwise be known to selectors.

These aspects are not assessed and only serve to contextualise an applicant's circumstances and experiences to the panel of selectors. As in architecture, the context of a design should be explored so as to better understand its nature and in order to respond more appropriately. As discussed in Chapter 5.9.3, the School sets great store by context and as such this approach transcribes designerly values to the process of selection. The biographical information thus provides a lens through which to view an application and additionally gives clues that may help a panel to initiate a conversation during a later interview.

The requirements for the remainder of the portfolio are evidenced as revelatory and with a prescribed content, including the component that requires graphic outputs that are purposefully structured around

universal references that decisively involve processes, such as the preparation of a favourite dish of food. The intention is to provide access to an applicant's ability for strategic decision making and to grasp, and communicate, a process that leads to an outcome, rather than one that is purely focussed on a design or absolute outcome or that is executed for its visual appeal. The format is kept to A4 paper and the medium, when prescribed, is limited to graphite.

A section of the portfolio requires of an applicant to undertake limited research that would allow him or her to investigate aspects related to the spatial design disciplines. A statement that introduces an applicant to specific terminology often introduces this question. It is then required that the meaning of a pertinent word or phrase be investigated to reveal its meaning and application in the architectural or construction fields. For some of these questions applicants are asked to respond with modest drawings supported by motivating statements. This purposefully directs an applicant towards the discipline of architecture and tests a variety of skills, including the way in which they interpret a question and then execute and motivate their actions. As in the previous task, this approach does not require an applicant to produce an architectural design. Rather, it invites applicants to participate and engage with aspects related to the broad spectrum of possibilities within the architectural disciplines and across a spectrum of considerations. This foretells the generative and ecosystemic values entrenched in the Department's teaching while it undermines the notion of binary outcomes.

Experience has shown that the portfolio is a very useful assessment tool when selecting beginner students in architecture, but also that it cannot be assessed in isolation – see Chapter 4.6.4. As it is only indicative of an applicant's abilities, given the time and the resources that may be available, it is argued that they should ideally be supplemented and even compared with what an applicant produces without those resources and within a limited time. To a degree this principle eliminates queries raised about the authorship of portfolios by some respondents in the South African survey on selection – see Chapter 4.6.4. At UP special architecture tests have successfully served as the platform for the comparative production since the inception of the current procedure for the intake of 2007.

The remaining two components of the portfolio, namely a personal statement or essay and an account of workplace experience, are discussed separately in the subsequent sections.

6.5.11. Personal statements (2007-2016)

The significance of a candidate's statement to the Bartlett School of Architecture in the 1960s was discussed in Chapter 3.6.3 and the role of essays in Chapter 3.7.7. The results of the survey of South African schools of architecture indicate that the majority of respondents that used this assessment tool did so in the form of a letter of motivation - see Chapter 4.6.5.

At UP an applicant is required to write a motivation to explain why he or she would like to pursue studies in architecture and submit it as part of the portfolio of home assignments. In addition it is required that

mention is made of what he or she has done to confirm that architecture is an appropriate field of study for him or her to pursue. The content of the essay therefore becomes very particular and personal. The statement is primarily read to confirm the applicant's motives and aspirations, but it could also reveal strengths in reasoning, communication and, in some instances, conceptual abilities. Although the application of language skills is not foremost in the assessment of this question, it is not entirely overlooked and is clustered with other textual outputs that form part of the portfolio and the special tests.

Personal statements are weighted with equal importance to other contextual informants that frame an application. As such it has significant value to allow an individual to present a personal narrative in his or her own words. The insight it provides is most useful when an interview is later conducted and, as was found in Chapter 4.6.5, a personal statement supports an application more than it decides its success.

6.5.12. Workplace experience (2007-2016)

Parts of the research undertaken for this section was presented as a paper at the Architectural Education Symposium at Wits on 24 January 2014 and expanded on in an article published under the title 'Knocking at the practitioner's door: Job shadowing and the threshold to the architectural professions' (Botes 2015). As stated in Chapter 4.6.8, this assessment tool was not mentioned in the international surveys but was included in the survey of South African schools of architecture following the publication of the article by the researcher mentioned above.

In Chapters 2.5.8 and 4.6.8 a general lack of awareness of the design professions in the built environment, even among prospective students of architecture, was highlighted. It has also been argued that this is more pronounced among learners from poor communities who are unlikely to have had any exposure to architecture or its practitioners – see Chapter 3.5. Moreover, Abercrombie et al (1969:17) and Nelson (1974:83) among others, have been quite explicit in stating that teachers and vocational advisors are often not well informed about the architectural profession, with the result that their learners are often not well informed either. This certainly also applies to the South African context as argued by Marschall (1998:117), Oluwa (2017:52) and Lucan in SACAP (2016a:6).

In addition most applicants are unfamiliar with the nature and format of architectural education, especially with regards to the design studio as it differs so much from the standard classroom environment. Data collected by the Department between 2011 and 2016 indicate that more than half (51%) of first year respondents indicated that they were 'very little' (32%) or 'not at all' (19%) aware of the role of the studio as a place of learning before they commenced their studies; only 22.8% of respondents 'more or less' had an idea[4] (Department of Architecture 2016c:7-8).

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4 The following question was posed: "Before you started studying here, were you aware of the role that the studio would play in your training?" Respondents were given the following options to answer: "Not at all; Very little; More or less; Adequately; Completely." (Department of Architecture 2016d:3)

Prospective students who apply for admission to the Department are required to choose one of the three undergraduate fields, or at least rank them in order of preference for consideration during selection. Thus, when redesigning the protocol for selection during 2005 and 2006, a means was sought to facilitate applicants to explore architecture, landscape architecture and interior architecture first-hand and, in so doing, it was hoped that a visit to a practice may assist them in making informed decisions about the outcomes of the programme, rather than focussing on the course itself.

As part of the portfolio submission applicants have, since the intake for 2007, been required to confirm their career choice for themselves by visiting professional practices and then reporting the certainty of their decision to pursue studies in a chosen field. The duration of visits and number of practices that an applicant should visit are not prescribed, but it is strongly advised that, where possible, applicants investigate a variety – for instance large as well as small practices – as the scope of work undertaken differs from practice to practice. Applicants are encouraged to share their primary impressions of the workplace and make drawings of at least one of a practice's projects as a way of formulating an opinion of the work and so to explain their own reading and spatial understanding thereof. Ideally this approach therefore facilitates an introduction to the nature and rituals of professional practice, an opportunity to observe and gain an understanding through personal observation and ultimately to evaluate what they see through a medium that allows for self-expression. In a sense it introduces the applicant to case studies that are essential to architectural education.

For many applicants this is their first (and often only) opportunity to investigate their career prospects in person. Data collected by the Department between 2011 and 2016 indicate that 87.23% of first-year respondents were of the opinion that the requirement for workplace experience had some (31.78%) or indeed a lot of value (68.22%) in confirming their career choice[5] (Department of Architecture 2016c:4). It is especially through the respondents' comments that one gains an understanding of these statistics. The following thematic analysis, quoted from responses[6] to an annual questionnaire, explains students' experiences and observations of the workplace experience assignment:

> We all have different ideas growing up of what life in the workplace is like. [It is] quite easy to stereotype a profession especially that of architecture. High schools also don't do a great job in helping [Grade] 11s and [matriculants] with understanding what different careers entail. I found [the practice visit] to be educational as it allowed me to find out more from actual architects, and they didn't make an effort to glamorize the career but rather show[ed] me the reality of it. (Respondent 04 2016)

> Visiting practising professionals gives a very accurate and real world understanding of the profession and actual day to day activities. You learn about the positives and negatives of the career very easily… (Respondent 40 2014)

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5   The following question was posed: "Was the practice visit of any value to you in confirming your career and study choice?" To answer respondents were given the following options: "Not at all; Little value; More or less; Some value; A lot of value." (Department of Architecture 2016d:2)

6   The following question, referring to the previous one, was posed: "Please briefly motivate your answer above." (Department of Architecture 2016d:2)

What the practice visit did more than anything was to give visual experience and understanding to research I did about the profession. (Respondent 64 2012)

The reality of the profession is often not as glamorous as one imagines. Still wanting to pursue the career after realising this is a positive sign that it is the right profession for you. (Respondent 50 2012)

I understood the profession beforehand as my mother is an architect. The visit was, however, positive as the practice I visited focussed on other types of projects and more often worked in groups. It allowed me to see different approaches to the same profession   diversity. (Respondent 36 2012)

The discipline of architecture is not a very well known one in general. I thought architecture is just about drawing plans […]. (Respondent 1 2016)

It is also clear that the practice visit served to motivate some of the applicants:

I was exposed to a lot of interesting aspects that made me more excited to embark on this journey than I originally was with my limited knowledge. It contributed a lot to my decision making towards my career choice. (Respondent 42 2014)

The practice visit confirmed my choice, because I saw exactly what architects do and [that] they still enjoyed it. It was informative and motivating. I can't see myself enjoying any other field of study as much as I do this one. I feel like we learn so much more than just one thing. (Respondent 19 2013)

During the practice visit I learned that if you're willing to work and want to learn you'll be fine. I thought that I was at a disadvantage because I did not have a lot of knowledge of […] practice before[hand], but afterwards I was much more at ease. (Respondent 50 2016)

Some applicants have also been critical of practices and themselves. These opinions reflect their perceptions and some of the challenges they identified:

The practices are not very helpful when it comes to job shadowing and they often did not reply [to requests for a visit]. I do think it is important to visit as it gives you a feel for the environment [you will work in]. (Respondent 11 2013)

I was only there for a short while, so I didn't take in much. (Respondent 31 2013)

One visit is not enough to gain an adequate understanding. (Respondent 42 2012)

As the number of local schools of architecture that require workplace experience increased – see Chapter 4.6.8 – practitioners have also responded positively, with many now hosting formal open days that allow them to host groups of prospective students together, which they find less disruptive than individual and ad hoc visits. Many practices now take time to explain their role as designers, share aspects of the projects they undertake, show the production side of an office and even take applicants on a tour of construction sites as part of their day-to-day activities. The assignment has also, as was intended, served in developing an understanding of the roles of different professionals who function in the built environment, specifically with regard to the nuances that exist between the architectural disciplines. By the same token a small number of prospective students have withdrawn their applications after the

practice visit, with some indicating that they felt uncomfortable or thought that it would not be wise for them to pursue studies in architecture. This is equally viewed as a positive response.

On the whole it has significance as an assessment tool, but the requirement for workplace experience is decidedly seen as a task completed by applicants for their own benefit, rather than for the benefit or approval of the selectors. It is therefore considered, but not formally weighted, during selection. It also prompts a panel of selectors to pose follow-up questions during interviews, and their points for discussion are triggered where aspects of interest by the applicant, or concerns of the selectors, are flagged.

As is the case with on-campus interviews – see Chapter 3.7.4 – the requirement for workplace experience is criticised in light of it being especially difficult for applicants from rural areas to obtain access to practitioners in order to complete the assignment. Travel distances and the associated cost add to their burden. While there is no instant solution, the Department has been proactive in creating awareness of the professions and the requirements of the practice visit. The requirements for this component of selection have, for some years now, been published in full in the brochures of the Department (Department of Architecture 2016a:5); the intention is that an applicant may be able to better plan if they know about the requirements long in advance.

In addition other opportunities have been created to foster a broad, introductory awareness of the design professions in the built environment. Apart from the standard institutional instruments, such as the annual Open Day at UP, these have, since 2012, included workshops aimed at learners from disadvantaged and marginalised communities. The format is based on the pre-existing 'Be an architect for a day' workshops – see Harber (2013:183) and Marschall (1998:117). Ms Buhle Mathole has managed these on the behalf of the School with keen assistance from lecturers, practitioners and students whose participation is sanctioned for the Joint Community-based Project – see Chapter 6.5.4.

A second opportunity, the annual Profession Session, was introduced in 2014 in an attempt to clarify the role of the design professions in the built environment to applicants who are in the process of completing the requirements for selective admission. During these sessions practitioners in architecture, interior architecture and landscape architecture present their work to a captive audience of applicants (and their families). In order to maximise on the logistical aspects for applicants who travel far distances to attend, the session is presented on the same day that the majority of applicants sit for the third round's selection test.

The intention with the Profession Session has been fourfold: where possible not to replace, but rather augment and clarify the requirement for workplace experience; to accommodate those prospective students who do not have easy access to practices in all three fields of study; to ensure that reliable information on all three fields reach as many applicants as possible; and to share this information with

contenders' parents and siblings, who are often not adequately informed to support the applicants constructively. Based on comments[7] from students, this proved to be an effective strategy:

> It was great for my parents [to] also get some insight on what I'll be doing one day. It set me at ease. (Respondent 9 2015)

> It was of great value to both my parents and I, it helped explain each course (architecture, landscape and interior) and what is expected from each. (Respondent 33 2015)

> The session provided much information on different disciplines and helped me to be sure that I was making the right decision in studying architecture. (Respondent 38 2016)

From the attendance numbers and general feedback,[8] it seems that the applicants' frame of reference and sense of awareness were significantly broadened. The initiative can therefore not be separated from the selection agenda and has become an integral part of selection procedures.

While the requirement for exposure to the places where architects work has disadvantages from a logistical point of view, its value to applicants far outweigh any other consideration.

6.5.13. Special architecture tests (2007-2016)

The way that special architecture tests were conducted in the Beaux-Arts system was discussed in Chapter 3.6.1 and the views of respondents to the international survey were analysed in Chapter 3.7.5. It was found that such tests were also conducted on a national basis in countries like India and Sweden. As assessment tools these tests are intrinsically discipline specific and therefore carry a lot of weight in the selection process of the local institutions that use them – see Chapter 4.6.7.

At UP special architecture tests featured in the first episode of selection between 1971 and 1994 – see Chapters 5.7.10 and 5.8.8. Since the intake for the 2007 academic year, applicants who meet the minimum requirements for admission have been invited to take a special architecture selection test on completion of the assignments for the second round of selection. The test has, since its (re)introduction, been wholly generated and administered by the convenor for selection on behalf of the Department. Where the home assignment phase called for assignments that were completed by applicants at home and with the availability of resources, the selection tests are taken in a controlled environment on the UP campus and with time restrictions imposed – see Figure 6.1.

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7   The question was posed to students who indicated that they attended the Profession Session just before the selection test: "[…] was this session of any value to you?" and "[…] please motivate your answer in [the foregoing question]" (Department of Architecture 2016d:5).

8   Of those who indicated that they attended the Profession Sessions in 2015 and 2016, more than 90% of respondents to the annual first-year questionnaires indicated that they thought the event was of some (47.8%) or a lot of value (52.24%) to them (Department of Architecture 2016c:15).

FIGURE 6.1 Applicants taking the architecture selection test on 15 August 2015 in the Centenary Building on the Hatfield campus of UP. The remaining time for the paper is displayed on the screen

For the duration of the episode under review the number of tests taken per year has settled on two, or for earlier years three, per year; they have normally been taken a week apart, with one on a Saturday and the other during the afternoon of another weekday so as to allow as many applicants as possible to attend. Questions are responsibly refreshed between tests and nuances are tweaked to prevent leaked questions from undermining or influencing the process.

During these tests four papers should be answered over two sessions that, in total, span over three hours. The duration of the papers vary from twenty to ninety minutes. Although the tests are taken under strict test and examination conditions, an attempt is made to provide a comfortable setting with appropriate breaks. Carefully chosen music is played during some papers that have drawing-based outcomes and audio-visual presentations are used to introduce others. A combination of traditional written answers and drawing-based performance assessment assignments are employed with an emphasis on the latter. The former consists of questions on general knowledge and current affairs – usually limited to twenty short questions and the only ones where an answer can be marked as correct or incorrect. In combination with questions that probe an applicant's imagination and social awareness, open-ended statements are posed to elicit responses and opinions on a wide range of subjects, follow-ups on the practice visit or other aspects of their portfolio submissions. This examines abilities in reasoning and linguistic skills and, to some degree, gives insight into the ability to respond intuitively, to formulate opinions and of creative potential.

In addition, cognitive and visual memories, abilities in observation and visual communication, three-dimensional capacity and spatial imagination are progressively assessed in drawing questions where

applicants respond to specific challenges in much the same way as a design project would do in the studio. The important distinction between selection tests and studio projects is that no design outcomes are required during selection; instead questions are structured to relate to some of the many facets that may inform generative design processes. The intention is firstly to assess a candidate's demonstrable aptitude and possible appetite for design from multiple viewpoints and over a broad spectrum of possible determinants; secondly the extent and variety of subjects addressed hopefully convey something of the complexity of spatial design beyond the clichéd perception of 'drawing plans'.

An applicant's test outcomes are assessed in the context of his or her portfolio, which is submitted before the special architecture test sessions commence. These two components are assessed individually, collectively and through comparison. In this way a better understanding of the latent and patent abilities, strong suits and limitations of an applicant can emerge. The special architecture test plays a significant role in the selection procedure of the Department, but it cannot be appreciated in isolation and is therefore equally important to the whole of the portfolio.

Written arguments and an assessment of an applicant's skills in literacy are included in the special architecture test, but it was identified as a separate consideration and assessment tool by Goldschmidt et al (2001:287) and is therefore discussed in the following section of this chapter.

6.5.14. Written arguments and literacy (2007-2016)

The importance of language skills were highlighted by Goldschmidt et al (2001:287) and respondents to their international survey indicated that they hold such skills in high regard – see Chapter 3.7.7. At UP the Department holds a traditive view that values linguistic skills and thus set a minimum requirement for admission with respect to performance in a language subject at school. Similar to the practice followed by other South African schools of architecture – see Chapter 4.6.9 – written arguments and aspects of literacy are embedded in the special architecture tests, but also continuously assessed throughout the selection procedure, including the personal statement component of the portfolio and during interviews.

When assessing written arguments and an applicant's literacy skills, selectors are more interested in finding evidence of an ability to translate intentions, opinions and constructs, whether abstract or concrete, into the format of language as this act has some correlation with the process of generative design. Therefore the ability to construct language in a meaningful and sincere way is weighted more than the absolute application of the rules of grammar. Comprehension and interpretation of, and through, language are viewed with equal importance to the production aspect of communication. In turn the skills in language and literacy underscore and contribute to the whole assessment of an applicant's abilities and should be supportive of critical skills applicable to the programme in architecture, such as a three-dimensional capacity and spatial imagination.

The School's selection procedure adheres to the language policy of UP that, in 2016, read:

On first-year level a student has a choice between Afrikaans and English as language medium. In certain cases, tuition may be presented in English only, for example in electives, where the lecturer may not speak Afrikaans or in cases where it is not economically or practically viable. (UP 2016b:1)

Accordingly, for the period under review, all selection documents have been available in both of these languages[9] and most often in documents that use a side-by-side layout – see Figure 6.2.

FIGURE 6.2 A typical cover sheet to a departmental selection test for the intake of 2016 that indicates the side-by-side layout in two languages (Department of Architecture 2015a:1 of Part B)

9   The language policy of UP has been under review since 2015 and at the time of writing in 2017 all indications are that a single language policy, with English as the only language of instruction, will be implemented as of the 2019 academic year.

This policy clearly puts applicants for whom neither of the two languages of instruction is their home language at a disadvantage. In a multilingual country with a history of strong opinions and protests about the privilege and partiality of language policies, selectors are very sensitive to the subject of language and therefore make allowances whenever it is required and justified. A concerted effort has also been made to foster an appreciation for language per se, multilingualism and its impact on architectural vocabulary. An example from the portfolio questions for the 2016 intake illustrates such an attempt:

> Subject terminology is used to define ideas and concepts in a specific context; it can therefore reveal a lot about a discipline and the world with which it engages. Please research the origin and meaning[10] of the following ten terms: archetype;[11] *brise soleil*;[12] cantilever;[13] Flemish bond;[14] ha-ha wall;[15] *impluvium*;[16] *isivivane*;[17] *lekgotla*;[18] *stoep*;[19] wetland.[20] Do not submit anything, but questions relating to these terms may follow later.[21] (Department of Architecture 2015a:3 of Part A)

This type of guided research is obviously also relevant to, and predictive of, the course content presented to students during the first year of study, not only in Design, but also in Construction, Earth Studies and History of the Environment. They purposefully refer, for the most part, to tangible aspects so as to avoid confusion and to enable various formats of follow-up questions. The selection of terminology has also been influenced by an aspiration to inform, and hopefully enthuse, applicants.

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10 For the sake of clarity and accessibility these terms are briefly explained in the footnotes that follow. It should be noted that the type of question subsequently posed to applicants during a test or an interview depends on the nature and context of the application of a specific term. A quick diagram, drawn with the free hand, is more appropriate to illustrate some terms and can therefore also test the comprehension, cognitive memory or pattern recognition skills of an applicant, while others lend themselves well to a brief written or spoken answer. The etymology aspect is mostly included for curious minds.

11 **Archetype** originates from the Greek *arkhetupos* (meaning first moulded) and was adapted to the Latin *archetypum* (meaning an original) and refers to "A perfect or typical specimen" where the combining form 'arch-' or 'archi-' refers to a principal or the highest rank. (Collins English Dictionary 2007:82)

12 **Brise soleil** is a French phrase that refers to a sun-break or means to control the amount of direct sunlight that is allowed to enter a building and is "[…] now frequently an arrangement of horizontal or vertical fins, used in hot climates to shade the window openings" according to Fleming, Honour and Pevsner (1980:163). It was made popular in Pretoria during the mid-twentieth century as one of the borrowed elements of Brazilian modernism and can be seen on the north façade of the Boukunde Building that houses the Department of Architecture on the Hatfield Campus of UP.

13 **Cantilever** refers to a horizontal projection of "a beam, girder, or structural framework that is fixed at one end and is free at the other" (Collins English Dictionary 2007:250). "It is without external bracing and thus appears to be self-supporting." (Fleming, Honour & Pevsner 1980:66)

14 **Flemish bond** refers to "a bond used in brickwork that has alternating stretchers and headers in each course, each header being placed centrally over a stretcher" according to Collins English Dictionary (2007:621). This term is better tested with a drawing question.

15 **Ha-ha wall** refers to the construction component that acts as a '[…] boundary marker that is set in a ditch so as not to interrupt the landscape" (Collins English Dictionary 2007:734). The origin is eighteenth century French and is probably based on an exclamation of surprise. This term is better tested with a drawing question.

16 **Impluvium** is a Latin word that refers to "The basin or water cistern, usually rectangular, in the centre of an atrium of a Roman house to receive the rain-water from the surrounding roofs." (Fleming, Honour & Pevsner 1980:163)

17 **Isivivane** is a Nguni word from the east of Southern Africa that means a heap or cairn of stones. A prominent *isivivane* was constructed at Freedom Park in Pretoria in the early 2000s. Landscape architect Graham Young, one of the designers of the project, writes: "The *Isivivane* is a sanctuary – a 'final resting place for all the people who fell in the fight for freedom in the eight conflict events, which eventually shaped South Africa'." (Young 2007:49)

18 **Lekgotla** is Sotho and Tswana word from South Africa that refers to "a meeting place for village assemblies, court cases, and meetings of village leaders" (Collins English Dictionary 2007:930). In South African English it refers to a meeting or conference and in architectural terms therefore denotes the place where these are held.

19 **Stoep** refers to "a raised and roofed area outside the door of or around a house" (English Dictionary for South African Schools 2015). It is an Afrikaans word, probably from Dutch origin, that is ubiquitously used to refer to a veranda in South Africa (Collins English Dictionary 2007:1587).

20 **Wetland** refers to "an area of swampy or marshy land" (Collins English Dictionary 2007:1825) that is part of a distinct ecosystem. A wetland can act as a filtration system and can occur naturally or be constructed.

21 Despite their specificity and seemingly complex explanations, these terms are all easily found through an online search. 'Ha-ha wall' was therefore used instead of 'ha-ha' as searches for the latter only show results for associations with sounds of laughter.

6.5.15. Interviews (2007-2016)

Interviews drew mixed responses from respondents in the international survey – see Chapter 3.7.4 – while the AERU at the Bartlett School of Architecture considered interviews useful as a means to acquaint applicants with the school. In this sense their advantages outweighed the fact that they were time consuming – see Chapter 3.6.3. In the survey of South African schools of architecture only four respondents indicated that they use interviews, but all were unanimous that the assessment tool contributed significantly to the selection procedure and outcomes – see Chapter 4.6.7. During the first episode of selection at UP between 1971 and 1994, formal interviews were used as the final stage of selection with the aim to consider the applicant's motivation and confirm an active interest – see Chapter 5.7.11 and 5.8.9. During the second episode, interviews were used as an informal supplementary form of selection to fill any available places just before the academic year commenced – see Chapter 5.9.8.

During selection for the 2007 cohort of beginner students, all applicants who sat for the special selection test were interviewed in the afternoon following their tests. This became unnecessarily cumbersome and prolonged the interview process over months, which undermined the consistency of their assessment. A logistical decision was thus made for the intake of 2008 to launch a process of elimination that would limit interviews to those candidates who realistically stood a good chance to be admitted. Accordingly a pre-interview assessment cycle was introduced in order to compile a shortlist of applicants who would be interviewed. While this was initially intended only to identify applicants with apparent spatial skills, it has evolved into a comprehensive appraisal summarised in a rubric format. The number of applications received by UP required that, during the period under review, only the strongest all-rounder applicants be invited to an interview. When an applicant applies for admission the programme in architecture at UP they have a chance of less than 10% to be successful; this improves to 50% if they are shortlisted for an interview as the number of applicants who is granted one is around double the number of the maximum intake for the next academic year.

The interviews are annually taken on campus during the weeklong recess at the end of September or the beginning of October. Although the objections against interviews raised by respondents in the survey by Goldschmidt et al (2001:288) – specifically those related to travel distances, cost to applicants and the demand on staff time – hold true, the Department considers a personal interview to be a vital summative assessment tool as it provides the opportunity to engage personally with applicants in a discursive format that captures the nuances of a future discussion in the studio. It has been pointed out that, although interviews are time consuming, many researchers viewed it as a constructive assessment tool that served to reveal aspects that other assessment tools may fail to test and that it serves purposes other than predicting academic potential – see Chapter 3.7.4. Moreover, the advantage of having applicants on campus and in the Department – as mentioned by Abercrombie et al (1972:86) in Chapter 3.6.3 and Olweny (2008:4) in Chapter 3.7.4 – cannot be disputed, especially when one considers the general lack of information about architectural education, even among those who apply for admission to study in this field. As a last resort the Department has made alternative means of assessment available to those

applicants who are unable to attend on campus interviews – refer to the section in Chapter 6.5.17 that follows.

A panel of at least three, but often more, lecturers – especially, but not exclusively, those involved in the first year studio who will take responsibility for the student's academic progress during the subsequent year – conduct an interview with the applicant as the final stage of selection. Naturally it is expected that applicants are nervous and therefore, after introductions, an effort is made to start the interview with a question that relates to an aspect that is familiar to the applicant and of personal or particular interest. It follows the format of a formal conversation, rather than a question and answer session, and is guided by the applicant's total submission up to that point, including his or her portfolio with the personal statement, evidence of workplace experience, all the work submitted for the special test sessions and a summary of the previous assessment in rubric format. In the absence of a predeterminate student profile, consideration is given to an individual's character, background, interests and strengths as explained in the discussion of the biographical questionnaire component of the portfolio earlier in this chapter – see 6.5.10. The opinions of applicants are surveyed, discussion is encouraged when aspects prove to be of interest or for the sake of clarity and applicants are given the opportunity to reflect on their previous submissions.

Sound recordings of the interviews are kept for record purposes and in order to shed light on aspects that may later be questioned or prove blurred.

As the summative means of assessment the interview has significant value for the Department as it is structured to review the outputs from all the previous rounds and provides selectors with an opportunity to put a face to the paper trail and to get to know and, hopefully, understand a little about each applicant as an individual. It is also true that the interview format allows members of staff to gain insight into the new cohort and they are therefore able to calibrate their expectations for the intake and plan accordingly for the next academic year. It has also served to motivate educators – selectors have often commented how much they look forward to working with the new students when the interviews have been concluded.

6.5.16. Generic aptitude tests (2007-2016)

While generic aptitude tests were the second most popular assessment tool in the international surveys – see Chapter 3.7.2 – it was only used by only three out of the ten respondents in the South African survey. Two of these respondents used the results of the NBT to augment other indicators of academic capacity.

Although many entities at UP require of applicants to take the NBT, the Department does not, but advises applicants to do so as the NBT results may be required by other departments or institutions that applicants may also wish to apply to. The Department follows the directive of the office of student administration in the Faculty of Engineering, Built Environment and Information Technology which states that, in certain cases, such as when an applicant's final Grade 12 marks are disputed, the NBT results

may be considered as an additional indication of academic abilities (Department of Architecture 2016a:4). There have only been two instances when this option was used; in each case the applicant was awarded a final mark of 49% for a requisite school subject, but obtained results considered to be proficient in the appropriate section of the NBT. This arrangement is decidedly an exception to the rule and is seldom used.

6.5.17. Alternative means of assessment (2007-2016)

As a rule more than half of the applications the Department annually receives are from the Gauteng province where UP is situated, but all the other provinces are always represented, as are most countries in the Southern African Development Community. In the spirit of inclusivity that guides selection at the School, those candidates who are unable to attend a selection test on campus may apply for a process of correspondence that has become known as postal selection. A limited number of applicants are accommodated through this process and they usually amount to less than five per cent of those who participate in the second round of selection. For postal selection preference is given to those applicants who live very far from campus or who are abroad during the selection tests. It requires all of the home assignments in addition to specific questions that were formulated to be completed in own time and with resources. A separate assessment rubric is used for these applications.

In addition an interview by telephone or videoconference may be granted to applicants whose names have made the shortlist. This mode of interview is often approved for the applicants who submitted round two through postal selection, but many of them travel to Pretoria if they make the interview shortlist. Similarly, some applicants who sat for on-campus selection tests may request the alternative means if their circumstances do not allow them to attend an interview in person.

Although not ideal as it limits the construct and context of performance assessment demands, the limited number of postal applications processed annually, and the quality of students it has presented in the past, justify the additional administration.

6.5.18. Assessment (2007-2016)

Since the pre-interview assessment was introduced for the intake of 2008, a total of three assessment cycles have been employed over the course of the selection of beginner students at the Department. In the cumulative selection process each cycle acts as a round of elimination.

The first cycle is an administrative process that only verifies that the academic record of an applicant meets the minimum requirements for admission to the programme, or could meet such at the time of registration early in the new academic year should the applicant still be in the process of studying towards the NSC – see Chapters 6.5.5 and 6.5.9. All applications are assessed in the first cycle, but only around half, or just less, usually qualify for further consideration – see Table 6.3.

TABLE 6.3: The sequence of assessment cycles and over the course of the assessment tools for the 2016 intake

	Percentage of all applications assessed in specific cycles for the intake of 2016	Academic record	Portfolios	Personal statements	Workplace experience #	Special architecture tests	Written arguments and literacy	Interviews
ROUNDS 1 – 4	-	●	●	●	●	●	●	●
ASSESSMENT CYCLE ONE	100%	ONE						
ASSESSMENT CYCLE TWO	≈ 45%	TWO						
SUMMATIVE ASSESSMENT CYCLE	≈ 15%	THREE						

The total submissions of the remaining applicants are assessed in a second assessment cycle after applicants sat for the special architecture tests. This assessment considers the portfolio prepared at home with the personal statement and evidence of workplace experience, as well as the papers for the special test that includes written arguments and a series of drawings undertaken in a controlled environment. For the period under review a day outside of the School's lecture timetable has annually been set aside for members of staff to join forces for this task.

To participate as an assessor it is required that a person should have experience as a lecturer in Design in the School's studios for the undergraduate programmes. This ensures that the expectation of assessors is credible and based on experience. The format – around a communal table – allows for the sharing of opinions, answers to questions being read aloud or shown around if an assessor is in doubt about its merits, as well as cross referencing between assessors – see Figure 6.3. The rubric for this cycle of assessment provides for a second opinion for borderline cases or for ambiguous answers. Assessors often refer applications, or parts thereof, to other members around the table for verification.

Assessors aim to access pertinent information about the applicant informed by, among others, the biographical questionnaire that introduces the portfolio. In total twenty-five aspects are rated on a five-point scale that is expressed qualitatively; an example of this gradation would be that an answer may range from 'clumsy and vague' at the lower end to 'convincing' or 'wholly convincing and innovative' at the top end.

FIGURE 6.3 Members of staff assessing applications in cycle two in September 2016

As the process favours applicants who are all-rounders above those with only one or two strong suits, applicants with a good overall ability and the highest ratings, especially for components with a higher difficulty level, are shortlisted for the round of interviews. The number of interviews that can be accommodated in a week determines the total number of applicants on the shortlist; this has never exceeded double the maximum intake for the next academic year.

The interview round is used as the final cycle of summative assessment and therefore all components of an applicant's submission are considered separately and as a whole. For the sake of continuity experienced members of the interview panel are tasked to pose follow-up questions on aspects such as the personal statement, while additional aspects are the first responsibility of other interviewers. Parts of the portfolio are swapped between interviewers and notes or comments made by assessors in the second cycle often lead the panel to follow up on items that may require clarity or are opportune to discuss. An applicant is engaged in an exchange of ideas and not interrogated.

At the conclusion of each interview all members of the panel score the application on a ten-point scale[22] that is recorded. Averages are later tallied to determine a ranking that decides which applicants will be offered the available places in the programme, with a waiting list for a limited number of applicants who were rated highly but could not be accommodated.

22 The ten-point scale replaced a five-point scale from the intake for 2014 onwards in an effort to better differentiate between the final assessments of applications. It is also thought to be more assessable to assessors as it easier translates to a percentage mark, which is the standard format in which a student's work is assessed at schools of architecture in South Africa.

It should be clearly stated that, while assessors have differing opinions about certain aspects of an application, vast discrepancies seldom manifest in the scores that interviewers allocate during the summative assessment cycle. This is viewed as a positive indicator of a procedure that has developed a degree of maturity and consistency. In this sense the summative assessment of an application correlates with the prevailing approach that guides a formal portfolio review in Design or an oral examination in another subject at the School. If these values were incompatible it would have resulted in a degree of separation between the process of selection and the programmes for which students are selected, that would, in turn, undermine the specificity of the procedure and the validity of its outcomes.

6.5.19. Ongoing reviews and opportunities for feedback

The Department follows a multipronged approach for the engagement with the student body on an ongoing basis. This is done formally through surveys and students' assessment of courses and their presenters, group and panel discussions – see Figure 6.4 – or through informal conversations.

FIGURE 6.4 Prof. Chrisna du Plessis (third from the left) with participants in a panel discussion on the cost structure of in-house services during the plenary session of the Department's annual vertical studio on 22 July 2016; students from the first year of study up to the professional master's studio joined in this session

Through these means it has been possible to engage students on matters of importance and routine, including their perceptions and expectations of the procedures for selection and subsequent studio experience. While it has offered the opportunity for ongoing review and refinement of selection practices, these modes of feedback obviously has the limitation that it only engages with those who were successful in being admitted to the Department. It has nonetheless provided valuable opinions and recommendations.

This includes suggestions for questions, formats and logistical arrangements, some of which have been successfully implemented during the period under review. One such proposal from a student has seen the introduction of social media as a means of supporting applicants through the selection procedure. During the selection season in 2014 a group was created on Facebook in preparation for the intake of 2015. All applicants were invited to join the group, of which the description read:

> Boukunde (literally translated: 'Building Sciences') is the name of the building that houses the Department of Architecture on the University of Pretoria Main Campus in Hatfield, Pretoria, South Africa. The Boukunde BSc 2015 group is specifically aimed at providing information and support during the test and interview phases of selection for the undergraduate programmes in Architecture, Interior Architecture and Landscape Architecture for the 2015 academic year. (Boukunde BSc 2015 2014)

The medium has since been used as an additional resource for the intake of every subsequent year. From the Department's point of view it has been useful as a means to disseminate information to applicants beyond the official guide that is issued annually. The opinions of students have also been instrumental as to how this forum has evolved and their feedback[23] has been most encouraging.

> I could find information and be notified extremely quickly and easily through Facebook even though I do not use Facebook often. Great medium to access information in my own time. (Respondent 1 2015)

> Other people's questions were often similar to my own queries and therefore I could gain valuable information. (Respondent 12 2015)

> The FB [Facebook] page is an amazing interactive platform where I was able to get immediate help or answers to questions during the application process. Especially when you are very stressed about the process, getting quick feedback and updates was reassuring. (Respondent 29 2016)

Students have also regularly been prompted to reflect on their experience and express their general views of the selection process. Data collected by the Department from first year students between 2011 and 2016 indicate that the vast majority (95.8%) of students were of the opinion that the selection procedure was adequately reasonable and fair,[24] with 70.4% answering 'definitely' and 25.4% answering that it was 'adequate' (Department of Architecture 2016c:2-2). The following examples represent the opinions of students on the selection process and illustrate a range of perceptions on items of interest to this thesis:

> The selection process does not necessarily deal with your ability to draw, but more your ability to perceive a world that is not yet realised. (Respondent 47 2014)

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23 Students were asked if they joined, followed or in any way participated in the Facebook group for selection during the previous year. The follow up question prompted those who answered positively for a brief motivation if they thought it was of any value to them (Department of Architecture 2016d:5).

24 The question posed to students read: "On the whole, do you think that the selection process that the Department uses is reasonable and fair?" Respondents were given the following options to answer: "Not at all; Inadequate; More or less; Adequate; Definitely" (Department of Architecture 2016d:1). In a follow up question students were asked to briefly motivate their opinions.

I feel that, when considering the range of students that were selected, a wide variety of people was admitted on individual merits. Also, it appears as if the people that were selected have the necessary skills, while bringing various other qualities to the table. (Respondent 40 2015)

The selection process gave good insight of what was to be expected from the course. It helped us to begin thinking creatively and without the limits given at school. (Respondent 56 2016)

The selection is based on a very broad variety of aspects. It is a good system because it makes it really difficult for applicants to be dishonest in terms of their drawing portfolios. It allows for the department to get to know each individual and understand their strengths and weaknesses as a whole and so nobody is disadvantaged by selection being based solely on drawing ability or school results. (Respondent 36 2015)

There is not one specific model student that is being [sought] out but rather the ones that seem the most determined & passionate and this brings together a very diverse group of people. (Respondent 64 2014)

I really enjoyed the variety of challenges put forth. I also like to see how much I know on a more general scale, and even if I had not been successful in being accepted, I [would have] walked away with an amazing experience that taught me a lot about myself and the university. (Respondent 44, 2016)

It was challenging because you need to use your initiative on things that you are uncertain about. It was an adventure because each question was different. (Respondent 17 2014)

These reviews have been augmented by observations and feedback by members of staff, both from the academic and administrative sides of the Institution, and have been considered on an ongoing basis. It has resulted in several discreet innovations and inventions that have proven their worth over time.

6.5.20. Formal review

Early in 2015 some concerns were raised about the equity of the Department's recent selection practices and the particular approach it introduced. Of particular concern to the Institution was how dependable and defendable the procedure was as no comparable precedent existed at UP. It was therefore recommended and agreed that the selection system would be subjected to a formal review.

Accordingly an invited panel reviewed the School's selection procedures for the admission of beginner students over the course of April and May 2015. The review format was structured on the model of a validation or accreditation visit, as is customary for schools of architecture. In this instance the review panel was made up of a professional architect with no affiliation to UP, a professor of law and jurisprudence, a professor of education with extensive experience in evaluation and assessment, and a senior student administrator and manager – see Appendix 4 for details.

The terms of reference for the review required of the panel to determine whether the selection procedures for beginner students in the programmes offered by the School were:

EQUITABLE – That each applicant is equally considered and has an even-handed chance for gaining entry into their programme of choice based on the criteria for scrutiny and selection;

TRANSPARENT – That the system of consideration, exclusion and selection can be explained and elucidated on enquiry;

DEPENDABLE – That should the same process be followed again it will deliver the same results;

DEFENDABLE – That the deliberations and decisions reached in the process of exclusion and selection are able to be defended if subject to litigation. (Department of Architecture 2015b:1)

The documents presented for perusal by the panel included a report from the researcher that outlined the selection procedure, the rationale for each step and the procedures and protocols followed during the process. It was supported by the following documentation[25] (Department of Architecture 2015b:2):

- The selection files of prospective students who applied for the 2015 academic year, namely:
  - applicants who were selected for the 2015 cohort (all three programmes);
  - applicants who were not selected but who were shortlisted for interviews (all three programmes);
  - applicants who were not shortlisted for interviews and thus not selected (all three programmes);
  - postal selection applicants (all three programmes);
- The annual first year questionnaires on selection from 2012, 2013 and 2014;
- A statistical analysis of the responses to the first year questionnaires for 2012, 2013 and 2014;
- A printed record of the Facebook support page for applicants from 2014 (in support of selection procedures for the 2015 intake);
- Digital sound recordings of all the selection interviews for the 2015 cohort;
- Two typical complaints and the convenor's written response.

The findings of the panel were summarised in the general recommendations at the conclusion of the process and stated the following:

The panel's findings unanimously support the selection procedures used by the Department of Architecture for admission to the undergraduate programmes. The panel found them to be equitable, transparent, dependable and defendable, as set out in the terms of reference.

In her report Prof [Sarah] Howie concluded that the 'philosophy, design and processes adopted by the Department of Architecture for its selection process is valid and reliable in addition to being fair. The process is comprehensive, transparent and supportive to applicants. It combines a variety of appropriate assessment strategies which are relevant to the field and appropriately challenging to the applicants.'

Members of the panel additionally commented that they were satisfied as to the 'adequacy [and] appropriateness' ([Mr Marcus] Holmes), that the procedures are 'in line with our constitutional values' ([Prof Duard] Kleyn) and that it is a process with 'quite some innovation and appropriate thinking for the 21st century' (Howie). (Department of Architecture 2015b:2-3)

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25 In this quotation the numbering of the list of supporting documents was replaced by symbols for ease of reading and to avoid confusion. The content has not been altered otherwise. The original document is appended in Appendix 4.

The Institution consequently accepted the panel's findings and the Department has since continued with its selection practices as explained earlier in this chapter. The formal review established formal mechanisms of external scrutiny for the verification of selection procedures and is considered to be one of the pivotal achievements of the research and its realisation.

6.5.21. Outcomes (2007-2016)

For the period under review, on average, between 8% and 9.5% of applications could be accommodated in the combined first year of study as the number of applications received for admission to the undergraduate programmes of the Department steadily increased from the previous episode. The total number of applications received has tallied to between 1 000 and 1 500 since the 2007 academic year, with the majority of these being for the programme in architecture (Department of Architecture 2011, 2017c).

When measured against some of the typical indicators, it is clear that some success has been achieved with selection during the period under review. The rate of attrition of the cohorts during their first year of study in the programme in architecture has declined from often double-digit figures during the previous episode – see Chapter 5.9.9 – to an average of 3.4% for the period between 2011 and 2015 (UP 2017a:A1-9). This equates to less than a fifth of the average rate of attrition for all cohorts in their first year of studying towards all three-year qualifications at UP[26] for the same period (UP 2017b:B1-5). In the School's undergraduate programme in architecture the cumulative rate of attrition for the first three years of study for these cohorts average out at 12.25%, while the average cumulative rate for all cohorts studying towards three-year qualifications at UP for the same period was about two-and-half times more (UP 2017a).

In terms of the rate of graduation, between 2003 and 2006 – the last years under the previous selection regime – fewer students in the architecture programme graduated after three years than all other cohorts studying towards all three-year qualifications at UP for this period. This rate improved by more than 10% for the first cohort admitted through the new selection dispensation in 2007 (UP 2011a:4-44). The cohorts who started their studies in architecture at the School between 2011 and 2014 on average outperformed the graduation rates of all others studying towards three-year qualifications for the same period at UP by 47.75% (UP 2017a).

During the period under review is has also become clear that most of the students who terminate their studies at the School do so for reasons other than their levels of competence, interest or skill. In many cases this is due to a lack of the financial means to continue with their studies.

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26 As no statistics from other schools of architecture in South Africa were available for comparison, those of the School have been compared to their official equivalents for other three year study programmes presented at UP.

Since the 2008 academic year a pass rate above 92% has been comfortably achieved in the first year Design major (UP 2011a, 2017a) and first year students enrolled in the programme in architecture have achieved a GPA, weighted by the number of credits allocated to all subjects, above 65% between 2011 and 2016 (UP 2017b). In all of these respects the outcomes have far exceeded any expectation.

The principal considerations for the redesign of selection procedures at the School were discussed earlier in this chapter – see section 6.5.7. Following from the discussion and motivations presented in this chapter it can now be argued that the first of these considerations was achieved as the selection project has been redirected from a generalist procedure to one that is compatible with the nature of architectural education and specifically aligned to the pedagogic approach followed by the School.

Similarly it is argued that the selection procedure has become more inclusive than it was before as all applicants who meet the published minimum requirements for admission have, for the period under review, been offered an opportunity to compete for admission from the first round of selection.

The medium-term goal of steadying student numbers in the programme in architecture has been achieved as there has been far less fluctuation compared to the previous episode when the rate of attrition was much higher and the size of the student body more unpredictable. With the stabilised student numbers retention has markedly increased across the board. This has accordingly eased some of management's tasks in allocating and optimising the available resources.

The long-term goal of addressing the demographic representivity of the student body has not been fully achieved, although some progress has been made. Historically disadvantaged or black students (defined as those of African, Indian and mixed race descent) comprised 14.7% of the cohort in 2007 and 22.9% in 2010 (UP 2011c:1). For the 2015[27] academic year this number rose to 46.5% (Department of Architecture 2015c:1) but the increase has not been steady and still fluctuates annually. The demographic distribution of students in the Department is therefore not yet aligned with the demographic realities of South Africa.

The gender of students has been almost equally represented in the architecture programme since 2007 and as the process of selection does not favour a particular group above another, it is therefore no longer a concern.

Despite these successes, some challenges remain unresolved. A lack of available resources, the timing of the release of the final selection results towards the end of the academic year and the total number of applications annually received make it impossible to provide unsuccessful applicants with individual feedback. This has caused some frustration for those applicants who expected a detailed report and personal advice; such feedback would be time-consuming to be of meaningful value and a satisfactory

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27 According to the Department of Institutional Planning quoted in UP (2016c) the total number of contact students at UP in 2015 numbered 49 152, of whom 52.2% were black and 55% were women.

and effective means to deal with this expectation has not been found. One could also, with little exaggeration, argue that it is wholly counterproductive to tick generic boxes on a checklist or to coach applicants through a process that is intended to allow for self-discovery and personal growth. Unfortunately these positions remain at opposite poles.

6.6. DISCUSSION: EPISODE 3 (2007-2016)

In the context of increasing numbers of applications from prospective students and pressure to address parity in the selection procedures for their admission to studies in architecture, the relevance and efficacy of the generic Matriculation Score became questionable. It was considered prudent to align new selection practices with the specific requirements and curricular objectives of the academic programme for which students would be selected and therefore a revised procedure was introduced for the intake of 2007 that saw a comprehensive set of assessment tools being deployed over four rounds of elimination and, subsequently, over three rounds of assessment.

For the period under review applicants have been engaged across a spectrum of considerations, by various means, in several formats and with different media. This is in keeping with the variety of challenges that facilitates a student's growth in a studio environment where generative design processes are engaged. It is believed that applicants are offered equal opportunities to reveal latent talents that would probably not be discovered through a process less intensive or one that did not value individuals for their own strengths and potential. The procedures have come to allow for self-expression by the applicant and a discovery of the discipline, the School and, to a degree, the Institution. These aspects are crucially important in light of the lack of exposure most applicants have had to these aspects. The procedure is also cognisant and mindful of local contextual imperatives and the selection practices of the School for the admission of beginner students in architecture have been refined through ongoing evaluation and were subjected to formal review procedures in 2015.

Although the selection project has, since 2007, required more input and dedication from members of staff when compared to the previous episode, this implicit cost-of-production component is returned and rewarded during their subsequent teaching of the successful applicants.

The typical academic indicators show marked improvement in the rates of attrition and retention, not only during the first year of study but also for the undergraduate programme as a whole. The rates of graduation have noticeably improved when they are compared to those of the previous episode of selection in the School and measured against the same outputs for all other three year qualifications offered at UP. These successes are also evident in the pass rate and GPA of first year students for the period under review and collectively point towards the success of the approach and the practices for selection.

6.7. SUMMARY

While few of the assessment tools introduced in 2007 were intrinsically new to an education in architecture, their individual and collective application and assessment have become the hallmark of the selection of beginner students in architecture at the School. This has realigned the endeavour of screening students for admission with some of the core values of an education in architecture, but synchronously extended the range of opportunities and possibilities offered by interdisciplinary learning and its tenets entrenched in the Department's specific approach to teaching and learning.

6.8. CONCLUSION

The fourth subproblem was to critically examine the trajectory of selection practices for the admission of beginner students in architecture at UP from 2007 until 2016.

The supposition to subproblem four was that the selection practices for the admission of beginner students in architecture at UP between 2007 and 2016 were specific to, and had a positive interrelationship with, teaching and learning in the programme for which students were selected. From the summary above and the foregoing analysis of the episode presented in this chapter it is evident that the supposition is supported.

People all over the world try to know what they do not know, instead of trying to know what they already know. (Soshi quoted in Teymur 2007:101)

CHAPTER 7   **REVIEW, REFLECTION AND RECOMMENDATIONS**

7.1. OUTLINE OF CHAPTER 7

In this chapter the research presented in the thesis is concluded with a review of the salient points and findings of the study, a reflection on the outcomes and recommendations that may follow from this study.

7.2. REVIEW AND FINDINGS

7.2.1. Purpose of the study

The study set out to identify strongpoints and shortcomings that could confirm or contest the validity of the most recent practices employed for the selection of beginner students in architecture at UP.

7.2.2. Review of the enquiry

7.2.2.1. Main problem statement
Four subproblems were identified to support and contextualise an understanding of the main problem statement, namely to critically assess the methods employed for the selection of beginner students in architecture at UP between 1971 and 2016 in order to reflect and make recommendations as to current procedures.

7.2.2.2. Subproblem 1
The first subproblem was to critically investigate the admission procedures and assessment tools for selection into systems of architectural education worldwide.

This subproblem was addressed through a review of literature to establish the context of selection. Two broad categories of selection for admission were identified, namely general selection that acts as a generic benchmark, and selection that is specific and is required to assess an individual's skills against particular requirements that are compatible, or at the very least analogous, with the programme for which an individual is being considered. This distinction presented a salient point of reference.

The primary motive for selective admission into schools of architecture was nominally found to be an oversupply of applicants compared to the number of students that the available resources could sustain. Precedent studies concluded that the École des Beaux-Arts, the Bauhaus and the Bartlett School of Architecture had achieved significant specificity with regard to their selection practices and its correlation with their programmes and pedagogic methods. Lessons learnt from the Bartlett further indicated that standard indicators, such as an applicant's academic record, should be weighted with considerations of a contextual and personal nature.

It was found that an overwhelming majority of schools of architecture internationally considered multiple assessment tools during selection. Eight main assessment tools were listed and ranked according to their popularity as revealed in published surveys, with academic records and aptitude tests administered by third parties proving to be the most prevalent. It was evident that schools were at variance as to their motivations for using certain assessment tools or combinations thereof, but also that particular value systems or approaches to architectural education were evident in the selection practices of respondents.

These aspects served to inform a framework for selection into systems of architectural education beyond the basic principles of admission to higher education institutions and supported the supposition to subproblem one, namely that schools of architecture worldwide use a variety of differing admission procedures and apply multiple assessment tools during selection.

7.2.2.3. Subproblem 2

The second subproblem was to determine and critically investigate the admission procedures and assessment tools for the selection of beginner students into schools of architecture in South Africa.

A lack of available information on the selection practices of local schools of architecture necessitated that the researcher undertake a national survey to clarify how, and by means of which assessment tools, beginner students were considered for admission to schools of architecture in South Africa. The findings indicated that all of the respondents selected applicants for admission as they received, on average, far more applications for the 2016 academic year than they could accommodate. Some trends that emerged from the local survey correlated with the findings of the international surveys, including the widespread use of academic record as a basic requirement, albeit that the majority of local respondents weighted their consideration of the academic record of lesser importance when compared to other assessment tools. Another result that matched with the international surveys indicated that few local respondents conducted formal research to measure the success of their selection procedures.

The order of popularity of the other assessment tools differed substantially from those recorded in the international surveys and it was determined that local schools required of applicants to undergo assessment in more aspects and formats than do their counterparts internationally. Portfolios were used by far more South African schools than was the case internationally, but some concerns were raised about the authenticity of authorship when opportunities to follow-up or discuss portfolios were not part of the selection regime.

In the questionnaire the researcher suggested that a distinction be drawn between revelatory and showcase portfolios. The former category, which proved to be the norm among respondents, serves purpose for the reviewing of the processes of production it engaged and may therefore be indicative of latent or patent abilities. In a showcase portfolio the focus shifts to the apparent outcomes as it is reviewed as a compilation of the applicant's best work. The distinction is seen as one with implications for selectors.

Other considerations that were contextually informed did transpire, including issues of a logistical nature and socioeconomic inequality coupled with its impact on basic education. Workplace experience, an assessment tool that did not feature in the international surveys, was introduced to the local survey and more institutions than was anticipated preferred or even required that applicants investigate the nature of the architect's workplace as a means of better informing themselves as to the choice of career.

The supposition to subproblem two, namely that schools of architecture in South Africa use admission procedures and assessment tools for the selection of beginner students that are similar to those used by schools of architecture worldwide, was only partly evidenced. South African schools of architecture do follow many of the admission procedures and assessment tools that schools of architecture elsewhere use, but distinct differences also emerged that are specific to the local context and its realities.

7.2.2.4. Subproblem 3

The third subproblem was to critically examine the trajectory of historical selection practices for the admission of beginner students in architecture at the University of Pretoria from 1971 until 2006.

The third subproblem introduced the major case study presented in this thesis and that was divided into distinct episodes in accordance with the prevailing practices for the selection of beginner students.

The first episode was triggered by a significant increase in the number of applications received for admission to the programme in architecture. This, in turn, motivated the undertaking of formal research in the field of psychology to determine an appropriate battery of selection tests and other procedures on the behalf of the Department. The findings relied on a task analysis and deductions informed by the prevailing academic-scientific attitude to the curriculum; as a result it established a compatible and analogous relationship with the academic programme. It was validated in testing with a homogenous group of mostly Afrikaans speaking white male students (who had access to the University under the Apartheid regime)

and relied on an arithmetical weighting of multiple assessment tools, including psychometric tests, a partial academic record and an interview. The procedure was used to empirically predict which applicants had a high probability of passing their first year of study and therefore students' results were continuously monitored through statistical analysis. As a result it was argued that the selection procedure was aligned with the Department's curricular objectives and technical outlook.

During the second half of the episode academic restructuring was implemented that signified a more confident stance and streamlined the selection procedure. Although success, especially in capping the rate of attrition as demonstrated through statistical analysis, was sustained, the system lost its credibility as the indicators on which it relied had, over time, become diluted and so the system for selection was terminated in 1994.

From this review it is evident that the findings supported the first supposition to subproblem three, namely that the trajectory of historical selection practices for the admission of beginner students in architecture at the University of Pretoria between 1971 and 1994 were based on research findings and were compatible with and analogous to teaching and learning in the programme for which students were selected.

Changes in the socio-political context of South Africa and the ensuing reform of the educational landscape by the first democratically elected government introduced far-reaching changes to programme and institutional structures that extended to the curriculum of the Department. The addition of two related spatial design programmes to the managerial unit of the School led to the implementation of a core generic curriculum with an equifinal approach that augmented the ethos of ecosystemic values with interdisciplinarity.

Despite these dramatic changes, and due to pressure for institutional conformity, selection principally reverted to an applicant's academic record according to standardised policies of the Institution and their use of a generic formula for the Matriculation Score.

The evidence supported the second supposition to subproblem three, namely that the trajectory of historical selection practices for the admission of beginner students in architecture at the University of Pretoria between 1995 and 2006 was informed by managerial policies and were general and not specifically aligned with teaching and learning in the programme for which students were selected.

7.2.2.5. Subproblem 4

The fourth subproblem was to critically examine the trajectory of selection practices for the admission of beginner students in architecture at the University of Pretoria from 2007 until 2016.

After a decade that followed the achievement of full democracy in the 1990s it became apparent that the generalist approach to selection did not contribute to the academic objectives of the School and its programmes and that it negatively affected markers of academic performance and equity. This set in

motion an enquiry to reformulate and put into practise an inclusive approach to the selection of beginner students for the programmes in the architectural disciplines presented by the School.

Its resolution broadened the basis for considering the merit of an application and rejected the notion of a formulaic ideal applicant profile. Instead it introduced the consideration of multiple assessment tools: academic record as a threshold requirement, revelatory portfolios with prescribed content that included personal statements and evidence of workplace experience, special architecture tests that emphasised performance assessment, written arguments and literacy skills that were collectively assessed in the final, summative format of an interview. The tenets of this approach are implicitly and explicitly linked to the objectives and expectations of the School and were designed to allow for self-expression by the applicant and an opportunity to discover the profession, the School and the Institution through first-hand experience. The procedure is process-driven, cognisant of local contextual imperatives and has been subjected to ongoing evaluation and formal review.

While the typical academic indicators have showed marked improvements for the first year of study and for the undergraduate programmes as a whole, the demographic representivity and diversity of the student body is improving, but has not yet been aligned with the realities of South Africa and continues to be a priority.

These conclusions definitively supports the supposition to subproblem four, namely that the selection practices for the admission of beginner students in architecture at UP between 2007 and 2016 were specific to, and had a positive interrelationship with, teaching and learning in the programme for which students were selected.

7.2.3. Findings of the enquiry

The main problem statement required of the study to critically assess the methods employed for the selection of beginner students in architecture at UP between 1971 and 2016 in order to reflect and make recommendations as to current procedures.

The supposition to the main problem positively asserts that a generalist approach to selection is inadequate for the appropriate assessment of applications for the admission of beginner students in architecture at UP and therefore that a specific approach is required that is informed by the modes and means of learning and teaching in the programme for which students are selected.

It is therefore concluded that the most recent approach to the selection of beginner students in architecture at UP, which has been shown to be based on validated procedures, should be carried forward with the provision that it remains attuned to the normative position, ethos and spirit of the academic programme for which students are selected and with consideration of multiple and nuanced informants.

7.3. CONTRIBUTIONS OF THIS STUDY

The primary contribution of this study to the field of architectural education is that it challenges and starts to bridge the disconnection that exists between the prevailing local tertiary institutional practices in the selection of students for admission to schools of architecture on the one hand, and on the other the dearth of critical engagement and available research, especially emanating from South Africa and the African continent, to inform, support and develop these practices.

The study provides an inventory of current selection practices employed by all of the schools of architecture in South Africa and can therefore be formative and informative in as much as it provides a platform for engagement about the status quo of admission policies and procedures at a time when equitable access to higher education in general, and specifically to resource intensive programmes such as architecture, feature prominently in the national debate and within a profession attempting to transform itself.

The major case study presented in this thesis spans a period of forty-five years and contributes meaningfully to a better understanding of the relationship between an applicant and the academic programme for which he or she has applied. In addition it establishes a firm and necessary interdependence between the design of selection procedures and the ethos of the specific school of architecture. In the thesis this reciprocity is extended to the profession and thereby makes a significant contribution as it explicates the value, and success, of workplace experience as part of the selection process with specific reference to the South African context and as part of a decisive strategy to inform and engage with applicants, whether their applications are ultimately successful or not.

The introduction and development of legitimate internal feedback loops and formal mechanisms of external scrutiny for the verification of selection procedures are considered to be important outcomes of this study. Especially the latter has, at least on an institutional and organisational level, served to validate aspects that may have previously been considered as opaque or even inaccessible, just like the 'black box' of architectural education and indeed the profession itself. Ironically the anticipated consequence is that these principles may in future prove useful beyond the realm of architecture and its education.

The study affirms and acknowledges institutional repositories and archives as invaluable sources of knowledge in research endeavours. The archive of the Department has unlocked rich sources of information and the researcher actively contributed to expanding its collections by sourcing, indexing and systematising research material for accessioning.

On a personal level the collating and brief outlining of the academic history of the School from varied and disparate sources is seen as a contribution to the seventy-fifth anniversary of the Department in 2018.

7.4. CRITICAL REFLECTION

Selection is a difficult and often contested undertaking, regardless of whether it is done to identify suitable participants for a sport event or for purposes of admission to a specific academic programme. In both of these cases it is often easier to focus on the selection process than it is to be mindful of the context and ultimate purpose of the selection process. By means of analogy it is therefore argued that it would be inappropriate to only consider how far a person can throw a tennis ball when one is selecting runners to compete in an marathon, despite the fact that distance is a pertinent factor in both actions. While this example may oversimplify a complex problem, it does draw attention to the critical alignment that is required between the act of selection and the subsequent actions in which those who are selected will be expected to succeed.

In light of the above it can rightly be asked if a minimum threshold has been identified as a prerequisite for admission to schools of architecture. As space is the medium for the conceptions of architects, the researcher suggests that an active three-dimensional imagination may constitute the absolute minimum skill required for prospective architects. Admittedly this is a difficult ability to assess and decidedly one that cannot be quantified by a formula or from a multiple-choice questionnaire.

The following points represent the researcher's normative position on the selection of beginner students for admission to schools of architecture based on his reflection on the research presented in this thesis:

1. Academic programmes with explicit and distinct expectations and specialised outcomes, such as those in architecture, require specific, as opposed to general, approaches to student selection.

2. At present and in the South African context, school results cannot serve as an absolute and equitable assessment tool as vast disparities and ongoing socioeconomic inequalities are intrinsically reflected in the systems and outcomes of basic education.

3. The outcomes of selection procedures can be optimised if they are designed to have a positive interrelationship and specific compatibility with the mode and means of teaching and learning in the academic programme for which students are being selected.

4. Selection for admission to a school of architecture should be aligned to the normative position and core values of that school.

5. Selectors are required to be well versed in the normative position and core values of a school of architecture.

6. Selection is a process, not a product. The selection of beginner students acts as threshold to systems of architectural education and subsequently to practice and research. Therefore it is a

crucial introduction to the discipline and all its tenets. It should thus not be seen as a means to an end, but rather as a process of introduction and induction. In this sense the studio-practice continuum should be extended to, and endorsed during, selection.

7. Selection can contribute meaningfully to the academic endeavours of a school of architecture as a cost-of-production item over the longer term. Therefore the resources invested into the selection project can indirectly be redeemed over time.

8. Just as in design, there is no instant fix or possible shortcut to the process of selecting beginner students for admission to schools of architecture. As indicated in the international and national surveys, it is imperative that multiple assessment tools are considered during the selection of beginner students for admission to schools of architecture and other disciplines will surely benefit from exploring the options beyond the norm of an applicant's academic record.

9. Even if they are unsuccessful in selection, applicants should ideally be offered the opportunity to grow in a meaningful way and to learn more about themselves, the institution, the programme they applied for and the possible professional outcomes thereof.

10. Selectors must take responsibility for their decisions. This implies that those who are responsible for the teaching and academic progress of a cohort should be involved in their selection. This does not exclude other members of staff from the process or the shared responsibility thereof.

11. Within reason, competition can be healthy as part of a selection process as it may serve to motivate applicants and give successful applicants a sense of achievement and a positive attitude.

12. As in design, context should be considered as a vital and qualitative informant during selection. First access, then assess.

13. It is near impossible to accurately predict the future academic trajectory of a prospective student of architecture as the design studio is a richly stimulating learning environment. Predictions cannot, in absolute terms, quantify individual students' future trajectories of growth, discovery, unprogrammed self-learning and the realisation of their potential, whether patent or latent.

7.5. RECOMMENDATIONS

From the critical engagement with the aforegoing research and after reflection the following criteria are suggested as best practice in order to measure the validity and efficacy of selection procedures, regardless of the academic programme for which students are selected:

- Prioritising which assessment tools are contextually appropriate and aligning these with international norms and praxis;

- Assessing the suitability of the minimum necessary selection procedures for meeting the local contextual imperatives in respect of needs and the levels of expertise required;

- Accessing, through established academic and legislative frameworks, or establishing mechanisms for external scrutiny in order to verify validity;

- Activate institutional mechanisms for the purpose of research and the verification of primary indicators such as low rates of attrition and high rates of throughput.

It is recommended that the following opportunities for further research be explored:

- The focus of this study was the selection of beginner students in architecture. It is therefore recommended that a parallel investigation be conducted that will focus on the admission of students to the professional postgraduate programmes in architecture as provided for by the NQF at levels eight and nine as well as in the Architectural Profession Act (No. 44 of 2000).

- The study introduced, but only touched on, the role of revelatory and showcase portfolios in the selection of beginner students at South African schools of architecture. An enquiry into the possibilities of especially revelatory portfolios is worth exploring as an assessment tool for generative design studies and as means to estimate latent potential in aspects of visual communication.

- It would be of significant interest to investigate the possibility of local schools of architecture jointly assessing components of selection and some assessment tools, such as a special architecture test, in order to avoid the duplication that currently exists and the financial burden for applicants. While the strategy has seemingly been successful in countries like India and Sweden, it is thought that any such venture should still allow for idiosyncratic differentiation between institutions so as to avoid the pitfalls of it becoming another generalised assessment.

- It is hoped that the principles that were identified in this study could be extended to and applied in the selection of beginner students in other programmes of study.

APPENDIX 1 **LETTER OF APPROVAL BY THE FACULTY COMMITTEE FOR RESEARCH ETHICS AND INTEGRITY**

Mr N Botes
Department of Architecture
University of Pretoria
Pretoria
0028

Dear Mr Botes,

FACULTY COMMITTEE FOR RESEARCH ETHICS AND INTEGRITY

Your recent application to the EBIT Research Ethics Committee refers.

<u>Approval</u> is granted for the application with reference number that appears above.

1. This means that the research project entitled "PhD study: Critically assessing the selection of beginner students in architecture at the University of Pretoria (1971-2016)" 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.

Prof JJ Hanekom
Chair: Faculty Committee for Research Ethics and Integrity
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY

APPENDIX 2 **QUESTIONNAIRE ON SELECTION FOR
THE 2016 ACADEMIC YEAR AT
SCHOOLS OF ARCHITECTURE
IN SOUTH AFRICA**

QUESTIONNAIRE ON SELECTION FOR THE 2016 ACADEMIC YEAR
AT SCHOOLS OF ARCHITECTURE IN SOUTH AFRICA

> **NOTE:** Where necessary, the shaded text boxes in this questionnaire expand when you type in them.

Please answer the following questions with specific reference only to the intake for the 2016 academic year (i.e. for students who started studying early in 2016) at the institution that you represent.

SECTION 0. SELECTION BASICS

0.1 Which of the following academic programmes in architecture did the institution you represent offer to beginner students in 2016? (please mark with **X**)

0.1.1 ☐ Undergraduate degree in architecture – BAS, BScArch or equivalent
(at NQF level 7 outcomes)

0.1.2 ☐ Diploma in architecture
(at NQF level 6 outcomes)

0.2 Was selection used to determine which applicants were admitted to the first year of study in either or both of these programmes for the 2016 academic year? (please mark with **X**)

☐ No ☐ Yes

If you answered '**No**', there is no need to complete the remainder of the questionnaire. Thank you for your time. Please return this page to the sender.
or
If you answered '**Yes**' and the institution you represent offered **both degree and diploma programmes** to beginner students in architecture in 2016 (see question 0.1 above), please continue with question 0.3.
or
If you answered '**Yes**' and the institution you represent offered only **one academic programme** to beginner students in architecture in 2016 (see question 0.1 above), please continue to question 0.4 below.

0.3 Was the same selection procedure principally* used to determine which applicants were admitted for the degree and diploma programmes for the 2016 academic year? (please mark with **X**)

* Even if the minimum requirements for admission to a diploma and a degree course differed, an institution could still consider the same assessment tools – such as a portfolio, academic record and an interview – but possibly with different expectations or assessment outcomes. If this is the case, these selection procedures could be considered to be principally similar.

☐ No ☐ Yes

If you answered '**No**', it will be necessary to complete a separate survey for each of the selection processes.

If you answered '**Yes**', please continue with question 0.4.

0.4 Please provide a brief summary of how selection was conducted for the admission of beginner students in your own words. It is only necessary to provide a synopsis as details will be asked in the subsequent sections of this questionnaire.

0.2.1 ☐

The following eight sections are based on the findings of an international survey[1] that has been adjusted, adapted and augmented for the South African context.

SECTION 1. ACADEMIC RECORD

1.1. Were the academic records of applicants considered during selection for the admission of beginner students for the 2016 academic year? (please mark with **X**)

	No		Yes		Not as a rule

If you answered '**No**', please continue to the next section.
If you answered '**Yes**' or '**Not as a rule**', please continue by answering the following questions:

1.2. Which of the following academic results were considered during selection (please mark with **X**)

1.2.1. ☐ End of year Grade 11 secondary school results (e.g. for matriculants who had not yet received their final Grade 12 results)

1.2.2. ☐ Grade 12 final secondary school results (i.e. National Senior Certificate or final matric)

1.2.3. ☐ Results from other studies at tertiary level (if available or applicable)

1.2.4. ☐ Other/s (please specify; note that academic records exclude general scholastic assessments, the National Benchmark Test (NBT) or its equivalents, and/or psychometric tests; see Section 2)

1.2.5.

1.3 Which minimum academic requirements did applicants have to meet in order to be eligible for placement in the course? (e.g. NSC with admission for bachelor's studies and/or Mathematics at a minimum of 50%)

1.3.1.

1.3.2.

1.3.3.

1.3.4.

1.3.5.

1.3.6.

1.4. How were these minimum requirements considered during selection? (e.g. for the calculation of an Admission Point Score (APS) or the average for four subjects was calculated and used for ranking applicants for the next round etc.)

1.5. Were any exceptions to these minimum requirements ever considered for: (please mark with **X**)

1.5.1. ☐ Applicants who did not complete their matric in South Africa?

1.5.2. ☐ Older or transfer applicants?

1.5.3. ☐ Any other exceptions? (please specify below)

1.5.4.

1.6. What weighting was allocated to the academic record in determining if an applicant was selected?
(choose one and mark with an **X**)

1.6.1. ☐ It was considered but not formally weighted or

1.6.2. ☐ It was the only assessment tool used or

1.6.3. ☐ Significant and more important than other assessment tools or

1.6.4. ☐ Equally important to other assessment tools or

1.6.5. ☐ Less significant than other assessment tools.

1   Goldschmidt, G., R. Sebba, C. Oren and A. Cohen. 2001. Who Should Be a Designer? Controlling Admission into Schools of Architecture. In *Designing in Context: Proceedings of Design Thinking Research Symposium 5*, eds. P. Lloyd and H. Christiaans, 277-295. Delft: Delft University Press.

1.7. In your opinion, is academic record a useful selection tool? (choose one and mark with an **X**)

1.7.1.		I am not sure or
1.7.2.		No value in selection or
1.7.3.		It has little value or
1.7.4.		It has some value or
1.7.5.		It has significant value.

1.8. Please briefly motivate your answer to the question above.

1.8.1.

1.9. Please comment below if you have any additional information or opinions on academic record as a selection tool for beginner students of architecture at your institution.

1.9.1.

SECTION   2. GENERAL SCHOLASTIC OR PSYCHOMETRIC TESTS

2.1 Were the outcomes of general scholastic assessments considered during selection for the admission of beginner students for the 2016 academic year? (please mark with **X**)

[These tests could include the National Benchmark Test (NBT) or its equivalents, and/or psychometric tests to examine a range of cognitive and scholastic abilities. They are generic and are not limited to schools of architecture. They are mostly administered by external bodies or practitioners such as vocational councillors or psychologists]

	No		Yes		Not as a rule

If you answered '**No**', please continue to the next section.
If you answered '**Yes**' or '**Not as a rule**', please continue by answering the following questions:

2.2 Which of the following categories of tests did you consider during selection (please mark with **X**)

2.2.1 ☐ The National Benchmark Test (NBT)

If you marked the NBT above, please indicate which of the three NBT competency areas were considered?

2.2.1.1 ☐ Academic Literacy (AL)

2.2.1.2 ☐ Quantitative Literacy (QL)

2.2.1.3 ☐ Mathematics (MAT)

2.2.2 ☐ Psychometric Tests

2.2.3 ☐ Other/s (please specify below)

2.2.4 ☐

2.3 Please provide a brief description of how you used the test results as an assessment tool for selection.

2.4 What weighting was allocated to general scholastic or psychometric tests in determining if an applicant was selected? (choose one and mark with an **X**)

2.4.1 ☐ It was considered but not formally weighted or

2.4.2 ☐ It was the only assessment tool used or

2.4.3 ☐ Significant and more important than other assessment tools or

2.4.4 ☐ Equally important to other assessment tools or

2.4.5 ☐ Less significant than other assessment tools.

2.5 In your opinion, are these general scholastic or psychometric tests useful selection tools? (choose one and mark with an **X**)

2.5.1 ☐ I am not sure or

2.5.2 ☐ No value in selection or

2.5.3 ☐ It has little value or

2.5.4 ☐ It has some value or

2.5.5 ☐ It has significant value.

2.6 Please briefly motivate your answer to the question above.

2.6.1

2.7 Please comment below if you have any additional information or opinions on general scholastic or psychometric tests as a selection tool for beginner students of architecture at your institution.

2.7.1

SECTION 3. SPECIAL ARCHITECTURE TESTS

3.1 Were the outcomes of special architecture selection tests considered during selection for the admission of beginner students for the 2016 academic year? (please mark with **X**)

[These tests can reveal aptitude for studying architecture, possibly including tasks that pertain to visual memory, spatial organisation, drawing, design etc.. They are taken only by applicants who apply to a specific school of architecture; unlike the previous category, these are designed for a specific school of architecture and are usually administered by that school, albeit in some instances with help of consultants.]

	No		Yes		Not as a rule

If you answered '**No**', please continue to the next section.
If you answered '**Yes**' or '**Not as a rule**', please continue by answering the following questions:

3.2 Please provide a brief description of how you used special architecture tests as an assessment tool for selection.

3.3 Which of the following aspects were tested in the special selection tests used for selection? (mark with **X**)

3.3.1		General knowledge
3.3.2		Three dimensional abilities
3.3.3		Reasoning
3.3.4		Visual communication skills
3.3.5		Linguistic communication skills
3.3.6		Creative potential
3.3.7		Other/s (please specify below)
3.3.8		

3.4 What weighting was allocated to special architecture tests in determining if an applicant was selected?
(choose one and mark with an **X**)

3.4.1		It was considered but not formally weighted or
3.4.2		It was the only assessment tool used or
3.4.3		Significant and more important than other assessment tools or
3.4.4		Equally important to other assessment tools or
3.4.5		Less significant than other assessment tools.

3.5 In your opinion, are these special architecture tests useful selection tools? (choose one and mark with an **X**)

3.5.1		I am not sure or
3.5.2		No value in selection or
3.5.3		It has little value or
3.5.4		It has some value or
3.5.5		It has significant value.

3.6 Please briefly motivate your answer to the question above.

3.6.1	

3.7 Please comment below if you have any additional information or opinions on special architecture tests as a selection tool for beginner students of architecture at your institution.

3.7.1	

SECTION 4. INTERVIEWS

4.1 Were interviews with applicants used during selection for the admission of beginner students for the 2016 academic year? (please mark with **X**)

[These interviews are usually face to face meetings between the applicant and an individual – possibly a member of staff, student or practitioner – or a panel of selectors. In some instances interviews are conducted via telephone or videoconferencing facilities.]

	No		Yes		Not as a rule

If you answered '**No**', please continue to the next section.
If you answered '**Yes**' or '**Not as a rule**', please continue by answering the following questions:

4.2 Please provide a brief description of how you used interviews as an assessment tool for selection.

4.3 By whom were the interviews conducted – please mark all the categories of participants with an X:

4.3.1 ☐ Administrators and non-academic staff

4.3.2 ☐ Academic staff

4.3.3 ☐ Students

4.3.4 ☐ Practitioners

4.3.5 ☐ Others (please specify below)

4.3.6

4.4 What weighting was allocated to interviews in determining if an applicant was selected? (choose one and mark with an **X**)

4.4.1 ☐ It was considered but not formally weighted or

4.4.2 ☐ It was the only assessment tool used or

4.4.3 ☐ Significant and more important than other assessment tools or

4.4.4 ☐ Equally important to other assessment tools or

4.4.5 ☐ Less significant than other assessment tools.

4.5 In your opinion, are interviews useful selection tools? (choose one and mark with an **X**)

4.5.1 ☐ I am not sure or

4.5.2 ☐ No value in selection or

4.5.3 ☐ It has little value or

4.5.4 ☐ It has some value or

4.5.5 ☐ It has significant value.

4.6 Please briefly motivate your answer to the question above.

4.6.1

4.7 Please comment below if you have any additional information or opinions on interviews as a selection tool for beginner students of architecture at your institution.

4.7.1

SECTION 5. PORTFOLIOS

5.1 Were portfolios considered during selection for the admission of beginner students for the 2016 academic year? (please mark with **X**)
[A portfolio could include a variety of creative outputs, including design tasks or visual outputs usually prepared at home, or a selection of work prepared for another purpose but submitted as an indication of an applicant's abilities or strengths.]

	No		Yes		Not as a rule

If you answered '**No**', please continue to the next section.
If you answered '**Yes**' or '**Not as a rule**', please continue by answering the following questions:

5.2 Please provide a brief description of how you used portfolios as assessment tools for selection.

5.3 Which of the following categories of portfolio contents were considered during selection (please mark with **X**)

5.3.1 ☐ Portfolios with prescribed contents determined by the school of architecture
and/or

5.3.2 ☐ Portfolios developed under supervision by the department or institution
and/or

5.3.3 ☐ Open portfolios at the applicant's own discretion

5.3.4 ☐ Others (please specify below)

5.3.5

5.4 Were the formats and media for the portfolio prescribed for selection purposes? (please mark with **X**)

5.4.1 ☐ No or

5.4.2 ☐ Yes or

5.4.3 ☐ Partly.

5.5 Were the contents of the portfolios assessed as showcase or revelatory? (please mark with **X**)

5.5.1 ☐ Showcase: outcomes representing a selection of the best work by an applicant

5.5.2 ☐ Revelatory: outcomes that reveal an applicant's latent and/or patent abilities.

5.6 What weighting was allocated to the portfolio in determining if an applicant was selected? (choose one and mark with an **X**)

5.6.1 ☐ It was considered but not formally weighted or

5.6.2 ☐ It was the only assessment tool used or

5.6.3 ☐ Significant and more important than other assessment tools or

5.6.4 ☐ Equally important to other assessment tools or

5.6.5 ☐ Less significant than other assessment tools.

5.7 In your opinion, are portfolios useful selection tools? (choose one and mark with an **X**)

5.7.1 ☐ I am not sure or

5.7.2 ☐ No value in selection or

5.7.3 ☐ It has little value or

5.7.4 ☐ It has some value or

5.7.5 ☐ It has significant value.

5.8 Please briefly motivate your answer to the question above.

5.8.1

5.9 Please comment below if you have any additional information or opinions on portfolios as a selection tool for beginner students of architecture at your institution.

5.9.1

SECTION   6. PERSONAL STATEMENTS

6.1 Were personal statements in textual format, or essays by applicants that explained why they wished to study architecture, considered during selection for the admission of beginner students for the 2016 academic year? (please mark with **X**)
[These textual statements are usually prepared at home in the applicant's own time and could also mention why they wish to pursue studies at your institution.]

	No		Yes		Not as a rule

If you answered '**No**', please continue to the next section.
If you answered '**Yes**' or '**Not as a rule**', please continue by answering the following questions:

6.2 Please provide a brief description of how you used personal statements as assessment tools for selection.

6.3 What weighting was allocated to personal statements in determining if an applicant was selected?
(choose one and mark with an **X**)

6.3.1 ☐ It was considered but not formally weighted or

6.3.2 ☐ It was the only assessment tool used or

6.3.3 ☐ Significant and more important than other assessment tools or

6.3.4 ☐ Equally important to other assessment tools or

6.3.5 ☐ Less significant than other assessment tools.

6.4 In your opinion, are personal statements useful selection tools? (choose one and mark with an **X**)

6.4.1 ☐ I am not sure or

6.4.2 ☐ No value in selection or

6.4.3 ☐ It has little value or

6.4.4 ☐ It has some value or

6.4.5 ☐ It has significant value.

6.5 Please briefly motivate your answer to the question above.

6.5.1

6.6 Please comment below if you have any additional information or opinions on personal statements as a selection tool for beginner students of architecture at your institution.

6.6.1

SECTION 7. WRITTEN ARGUMENTS AND LITERACY

7.1 Were general written arguments considered during selection for the admission of beginner students for the 2016 academic year? (please mark with **X**)

[These textual arguments or essays do not necessarily deal with an applicant's motivation for wanting to study architecture and are used more to test an applicant's ability to clearly communicate ideas and reasoning than to assess motivation. Answers could be prepared at home or without resources in a test environment.]

	No		Yes		Not as a rule

If you answered '**No**', please continue to the next section.
If you answered '**Yes**' or '**Not as a rule**', please continue by answering the following questions:

7.2 Please provide a brief description of how you used literacy and written arguments as assessment tools for selection.

7.3 What weighting was allocated to personal statements in determining if an applicant was selected?
(choose one and mark with an **X**)

7.3.1   It was considered but not formally weighted or

7.3.2   It was the only assessment tool used or

7.3.3   Significant and more important than other assessment tools or

7.3.4   Equally important to other assessment tools or

7.3.5   Less significant than other assessment tools.

7.4 In your opinion, are literacy and written arguments useful selection tools? (choose one and mark with an **X**)

7.4.1   I am not sure or

7.4.2   No value in selection or

7.4.3   It has little value or

7.4.4   It has some value or

7.4.5   It has significant value.

7.5 Please briefly motivate your answer to the question above.

7.5.1

7.6 Please comment below if you have any additional information or opinions on literacy and written arguments as a selection tool for beginner students of architecture at your institution.

7.6.1

SECTION 8. LETTERS OF RECOMMENDATION

8.1 Were general letters of recommendation from former or present teachers, employers or those who are acquainted with the applicant's abilities and/or character considered during selection for the admission of beginner students for the 2016 academic year? (please mark with **X**)

	No		Yes		Not as a rule

If you answered '**No**', please continue to the next section.
If you answered '**Yes**' or '**Not as a rule**', please continue by answering the following questions:

8.2 Please provide a brief description of how you used letters of recommendation as assessment tools for selection.

8.3 What weighting was allocated to letters of recommendation in determining if an applicant was selected? (choose one and mark with an **X**)

8.3.1		It was considered but not formally weighted or
8.3.2		It was the only assessment tool used or
8.3.3		Significant and more important than other assessment tools or
8.3.4		Equally important to other assessment tools or
8.3.5		Less significant than other assessment tools.

8.4 In your opinion, are letters of recommendation useful selection tools? (choose one and mark with an **X**)

8.4.1		I am not sure or
8.4.2		No value in selection or
8.4.3		It has little value or
8.4.4		It has some value or
8.4.5		It has significant value.

8.5 Please briefly motivate your answer to the question above.

8.5.1

8.6 Please comment below if you have any additional information or opinions on letters of recommendation as a selection tool for beginner students of architecture at your institution.

8.6.1

SECTION 9. WORKPLACE EXPERIENCE / JOB-SHADOWING

9.1 Were applicants required to job-shadow an architect or to gain first-hand workplace experience during selection for the admission of beginner students for the 2016 academic year? (please mark with **X**)
[Workplace experience is intended to reveal the nature of architectural practice or the professional environment to applicants.]

	No		Yes		Not as a rule

If you answered '**No**', please continue to the next section.
If you answered '**Yes**' or '**Not as a rule**', please continue by answering the following questions:

9.2 Please provide a brief description of how you used workplace experience as an assessment tool for selection.

9.3 What weighting was allocated to workplace experience in determining if an applicant was selected?
(choose one and mark with an **X**)

9.3.1   It was considered but not formally weighted or

9.3.2   It was the only assessment tool used or

9.3.3   Significant and more important than other assessment tools or

9.3.4   Equally important to other assessment tools or

9.3.5   Less significant than other assessment tools.

9.4 In your opinion, is workplace experience a useful selection tool? (choose one and mark with an **X**)

9.4.1   I am not sure or

9.4.2   No value in selection or

9.4.3   It has little value or

9.4.4   It has some value or

9.4.5   It has significant value.

9.5 Please briefly motivate your answer to the question above.

9.5.1

9.6 Please comment below if you have any additional information or opinions on workplace experience as a selection tool for beginner students of architecture at your institution.

9.6.1

SECTION 10. OTHER ASSESSMENT TOOLS

10.1 Were any other assessment tools, apart from those mentioned in sections 1 to 9, used for the selection of beginner students for the 2016 academic year at the institution you represent? (please mark with **X**)

10.1.1 [ ] No or

10.1.2 [ ] Yes (please identify the assessment tool and describe it below)

If you answered '**No**', please continue to the next section.
If you answered '**Yes**', please continue by answering the following questions:

10.2 What weighting was allocated to this assessment tool in determining if an applicant was selected?
(choose one and mark with an **X**)

10.2.1 [ ] It was considered but not formally weighted or

10.2.2 [ ] It was the only assessment tool used or

10.2.3 [ ] Significant and more important than other assessment tools or

10.2.4 [ ] Equally important to other assessment tools or

10.2.5 [ ] Less significant than other assessment tools.

10.3 In your opinion, is this assessment tool useful? (choose one and mark with an **X**)

10.3.1 [ ] I am not sure or

10.3.2 [ ] No value in selection or

10.3.3 [ ] It has little value or

10.3.4 [ ] It has some value or

10.3.5 [ ] It has significant value.

10.4 Please briefly motivate your answer to the question above.

10.4.1

10.5 Please comment below if you have any additional information or opinions on this other tool as a selection tool for beginner students of architecture at your institution.

10.5.1

SECTION   11.   SELECTION IN GENERAL

11.1 With regard to the assessment tools that you used for selection (indicated in section one to ten), with which of the following statements do you most agree? (choose one and mark with an **X**)

11.1.1 The selection process used at this school of architecture, at best, has the function of checking candidates against a necessary threshold or

11.1.2 The selection process used at this school of architecture is suitable for checking candidates against a necessary threshold, but it may additionally render modest predictions of candidates' future performance or

11.1.3 The selection process used at this school of architecture can render reliable predictions of candidates' future performance in this school of architecture.

11.2 Is your answer in the previous question: (choose one and mark with an **X**)

11.2.1 based on your overall impression and perception or

11.2.2 is it the result of research through monitoring of records or analysis?

11.3 Regardless of your answer in the previous question, are you aware of any formal or informal research enquiries or surveys that investigate the selection of students for architecture programmes at your institution? (choose one and mark with an **X**)

11.3.1 No or

11.3.2 Yes (please clarify below)

11.4 Is the selection process used for the 2016 intake unique to the programme in architecture? (choose one and mark with an **X**)

11.4.1 Yes it is unique to the programme in architecture or

11.4.2 It is also used to select students for a limited number of other programmes at this institution or

11.4.3 It is used to select students for numerous other programmes at this institution or

11.4.4 Do not know.

11.5 For which intake or academic year (e.g. 1971) was selection first introduced for the architecture programme at your institution?

11.5.1 or

11.5.2 Do not know.

11.6 Which of the following do you consider to be a good measure of success of a student of architecture at your institution? (If you choose more than one, please rank in order of importance in the column on the right starting at 1 for the most important)

	X	RANK	
11.6.1			Academic results across the board
11.6.2			Academic results in design only
11.6.3			Completing the course in the minimum prescribed time
11.6.4			Personal development
11.6.5			Development of professional skills
11.6.6			Outcomes of national and/or international student competitions
11.6.7			Other (please specify below)

SECTION 12. NUMBERS AND DEMOGRAPHICS

12.1 In total, how many applications did you receive for placement in the first year of study in architecture for the 2016 academic year? This number should include all applicants, including those who did not meet the minimum requirements for admission, withdrawals and unsuccessful applicants.

12.1.1 ☐☐☐☐ or

12.1.2 ☐ Do not know / cannot disclose.

12.2 How does your answer above compare to the number of applications received in previous years? (choose one and mark with an **X**)

12.2.1 ☐ Higher than previous years or

12.2.2 ☐ Similar to previous years or

12.2.3 ☐ Lower than previous years or

12.2.4 ☐ Do not know / cannot disclose.

12.3 In total, how many selected students started their studies in architecture as beginner or new students in your department at the beginning of 2016?

12.3.1 ☐☐☐☐

12.4 How does your answer above compare to the number of beginner students of previous years? (choose one and mark with an **X**)

12.4.1 ☐ Higher than previous years or

12.4.2 ☐ Similar to previous years or

12.4.3 ☐ Lower than previous years or

12.4.4 ☐ Do not know / cannot disclose.

12.5 Was the annual intake of beginner students in architecture restricted? (choose one and mark with an **X**)

12.5.1 ☐ No, there is no limit on the number of students admitted every year or

12.5.2 ☐ Yes, only a limited number of students were admitted or

12.5.3 ☐ Do not know / cannot disclose.

12.6 Did demographic data play a role in the composition of the 2016 cohort? (choose one and mark with an **X**)

12.6.1 ☐ No or

12.6.2 ☐ Yes

If your previous answer was '**Yes**', which of the following did you consider? (mark with **X**)

12.6.2.1 ☐ Population group (race)

12.6.2.2 ☐ Gender

12.6.2.3 ☐ Nationality

12.6.2.4 ☐ Other (please clarify below)

12.6.2.5 ☐

SECTION   13.   CHANGES

13.1. How would you change, improve, refine or revise your current selection process? Please discuss or
motivate briefly.

This is the end of the questionnaire. Thank you for your time.
Kindly return the completed questionnaire, together with the informed consent form, to the researcher with out delay.

APPENDIX 3 **DRAMATIS PERSONAE**

This appendix records short biographies of the Heads of the Department of Architecture at UP for the period between 1943 and 2016. The entries are presented in chronological order according to the respective dates of tenure for each Head.

MEIRING, ADRIAAN LOUW (Att)

BORN: 4 May 1904
DIED: February 1979
QUALIFICATIONS: BA (Cape town) 1924
                    BArch (Liverpool) 1932
TENURE AS HEAD: 1 March 1943 – 1966
SOURCES: Artefacts (2017) http://www.artefacts.co.za/main/Buildings/archframes.php?archid=2364;
                    Meiring (1961); UP (1987a:69)
MENTIONED IN: Chapters 5.5.1, 5.5.3, 5.5.4

Meiring was the first Professor of Architecture at UP. He matriculated from the Paarl Afrikaans Boys' High School and studied Philosophy and Languages at UCT where he graduated in 1924. In 1926 he became a junior in the offices of Louw and Louw in the Paarl before transferring to their office in Cape Town and subsequently attended the University of Liverpool School of Architecture between 1929 and 1932, receiving a first class honours degree before returning to practice at Louw and Louw in Cape Town.

In 1943 Meiring accepted the appointment to the new Chair of Architecture at UP and subsequently designed a number of buildings for the Institution, including the first Boukunde Building that housed the Department on the Hatfield campus. By 1959 he had gone into partnership with D.F.H. Naudé and practiced as Meiring and Naudé. The partnership was notably responsible the SABC building (1955) in Sea Point, Cape Town, and the Transvaal Provincial Administration Headquarters (1962) with Moerdyk and Watson in Pretoria. Both buildings pay homage to Brazilian modernity and are considered exemplary buildings for their time. Gerneke (1998:218) praises the provincial headquarters building for its high standards of detailing and opines that its "[…] standard of design did much to finally consolidate Modern civic architecture in South Africa." In 1956 he was awarded with the Medal of Honour for Architecture by the South African Academy for Science and Arts (Afrikaans: *Suid-Afrikaanse Akademie vir Wetenskap en Kuns*).

Meiring undertook pioneer studies of Ndebele building and published articles on the subject and was instrumental in establishing one of the early outdoor museums on Ndebele culture. He also made a significant contribution to the field of acoustics, in which he was keenly interested.

BURGER, ALEWYN PETRUS

BORN: 30 October 1933
QUALIFICATIONS: BArch (Pretoria) 1956
TENURE AS HEAD: 1 June 1967 – 1984
SOURCES: UP (1987a:69); Personal communication with the researcher
MENTIONED IN: Chapters 5.5.4, 5.7.2, 5.7.3, 5.7.6, 5.7.11, 5.8.2

Burger was born in Paulpietersburg in Natal (now KwaZulu-Natal) and matriculated from the Hoërskool Helpmekaar in Johannesburg. After graduating in architecture from UP in 1956 he worked in the practice of F.J. Wepener for two years and subsequently was appointed as a full-time lecturer at his alma mater

until 1961 when his appointment was turned into a part-time one so as to allow him time to practice in the office of the well-known Pretoria-based architect Brian Sandrock. From 1963 he stood in practice full-time and was involved in the design and execution of several buildings at Pelindaba for the erstwhile South African Atomic Energy Board, the iconic main building complex of the University of South Africa (UNISA) at the dramatic southern entrance to Pretoria, a number of buildings for UP including the main Administration Building, and several hospitals. He returned to teaching full-time when he was appointed to the Chair and as Head of Department in 1967.

He undertook studies on specific church typologies, including the acoustics and application of colour therein, and toured Italy, among other destinations, to research the influence of monastic orders on Romanesque architecture in the eleventh and twelfth centuries. Burger was a founding member of the South African Council of Architects (the legal predecessor of SACAP), sat on the commission that investigated the education of architects in South Africa in 1976 and served on the Advisory Committee of the NBRI of the CSIR for the period of his tenure as Head. After he left UP he joined the office of Steyn and Viljoen Architects in Pretoria until his retirement in 1996.

HOLM, DIETRICH (Dieter)

BORN: 3 March 1936
QUALIFICATIONS: BArch (Pretoria) 1960
                  MArch (Pretoria) 1971
                  DArch (Pretoria) 1985
TENURE AS HEAD: 1 October 1985 – 31 December 1996
SOURCES: UP (1996a:202, 2002:194-196); Personal communication with the researcher
MENTIONED IN: Chapters 5.8.2, 5.8.3, 5.8.4, 5.8.7

Holm was born in Pietermaritzburg in Natal (now KwaZulu-Natal) and matriculated in Brits northwest of Pretoria. He worked at the practices of Burg, Lodge and Burg as well as Meiring and Naudé as a student. He secured a position at the firm of Brian Sandrock Architects immediately after completing his studies in 1960 and worked as project architect for laboratories and other specialised facilities at the Pelindaba. He co-founded the practice of Holm and Holm with his brother Albrecht in 1964; this collaboration won numerous architectural competitions and awards over more than three decades.

Holm was appointed as a lecturer at the Department of Architecture at UP in May 1967 and served as an Associate Professor from 1973 until he was appointed to the Chair and as Head of Department in 1985. In the same year he obtained the first doctoral degree in architecture awarded by UP. His study focussed on the thermal effect of leaf cover on outside walls, thereby continuing the Department's research on the thermal performance of buildings and making a formative contribution to its ongoing endeavours in the field of sustainable practices in the built environment. He also made it his task to raise the number of postgraduate qualifications and the research profiles of the members of staff and supervised more than thirty students who obtained their master's and doctoral degrees. Following his tenure as Head he was

appointed to lead the newly founded section for Research and Postgraduate Studies in the Division for Environmental Design and Management (reconstituted as the School for the Built Environment in 2000) until he retired from UP in 2001. He has since continued working in the field of renewable energy and has especially coordinated and consulted on projects that involve solar energy. He has travelled widely and published extensively. Among his outputs are more than eighty articles, editorial contributions, entries in encyclopaedias, books and chapters in books and he has delivered more than sixty papers at national and international conferences.

Holm and his family have, since 1974, lived in a self-designed, autonomous home that relies entirely on sustainable sources of energy and is water self-sufficient.

LE ROUX, SCHALK WILLEM

BORN: 28 November 1945
QUALIFICATIONS: BArch (Pretoria) 1971
                     MArch (Pretoria) 1987
                     PhD Architecture (Pretoria) 1992
TENURE AS HEAD: 1 January 1997 – 31 December 2003
REFERENCES: Artefacts (2017) http://www.artefacts.co.za/main/Buildings/archframes.php?archid=2226
                     Prinsloo (2017); Personal communication with the researcher
MENTIONED IN: Chapters 1.1, 5.9.2, 5.9.3, 5.9.4, 6.5.6, 6.5.7

Le Roux was born in Heidelberg, Cape Province (now Western Cape), and matriculated in nearby Barrydale. While studying towards his Bachelor of Architecture degree at UP he served on the Central Students' Representative Council and was editor of the student paper *Die Perdeby*. He graduated in 1971 and then worked in the office of J. Anthonie Smith Architect in Cape Town for two episodes that were interrupted with Italian and Renaissance studies that he undertook at the Universities of Perugia and Rome. During 1974 and 1975 he taught Afrikaans and Mathematics at Athlone High School in Bridgetown, Athlone in Cape Town, before returning to Pretoria where he took up a position at the office of Brian Sandrock. He founded Schalk le Roux Architect in 1984; the practice was later known as Schalk le Roux Uys Greyling Architects.

He was appointed as lecturer at the Department in 1977, studied French and Arabic at UP and Arabic Institutions at Université d'Aix-en-Provence and obtained his master's and doctoral degrees at UP before being appointed to the Chair and as Head of Department commencing in 1997. During his tenure the programmes in architecture and landscape architecture, and later interior architecture, were merged into a single managerial unit that required a major review of the programmes' structures and curricula. This was successfully implemented with Prof. Roger C. Fisher as Curriculum Coordinator.

He has travelled widely, mainly in the Middle and Near East and North Africa, and has written extensively on his special interests – the architecture of Islam, mosques of South Africa and slaves in the building industry at the Cape. In addition he has authored more than a hundred articles, reports, books and

chapters in books on aspects of architectural education, cultural history and the history of architecture, heritage studies, conservation and restoration, landscape architecture and critiques of contemporary designs. Le Roux served on a multitude of professional committees, advisory councils and boards and he has adjudicated competitions and awards of merit in South Africa and Namibia.

His studies in urban conservation, culminating in three published volumes of *Plekke en Geboue van Pretoria* (1990-1993) and six reports to the local authority, were rewarded with an Award of Merit in Conservation by the ISAA in 1995. In 2002 the South African Academy for Science and Arts (Afrikaans: *Suid-Afrikaanse Akademie vir Wetenskap en Kuns*) awarded him with a Special Medal of Honour for the promotion of architecture and he received an Honorary Membership from the South African Institute of Landscape Architects in 2004.

FISHER, ROGER CHARLES

BORN:	2 February 1951
QUALIFICATIONS:	BArch (Pretoria) 1982
	MArch (Pretoria) 1989
	PhD Architecture (Pretoria) 1992
TENURE AS HEAD:	ACTING: 1 January 2004 – 31 August 2004
	ACTING: 1 September 2008 – 31 December 2008
	ACTING: 1 October 2014 – 30 September 2015
REFERENCES:	Artefacts (2017) http://www.artefacts.co.za/main/Buildings/archframes.php?archid=2103
	Fisher (2017)
MENTIONED IN:	Chapters 4.6.8, 5.5.3, 5.7.3, 5.8.3, 5.8.4, 5.9.2, 5.9.3, 5.9.4, 6.5.2, 6.5.3, 6.5.4

Fisher was born in Rondebosch, Cape Town, and matriculated from Clapham High School in Pretoria. He worked as archive clerk and laboratory assistant before settling to study architecture at UP, from where he graduated in 1982. His early practice experience was gained in the office of Martin Engelbrecht, at Moerdyk Stucke Harrison Serfontein Viljoen and Partners, and at Index Design under Savas Couvaras. He went on to co-found the practice of Smit and Fisher Architects.

In 1986 he was appointed as junior lecturer in the Department, where he also completed his master's and doctoral studies while teaching in the studio and in the subjects of history, theory and construction. In 1997 he was tasked with the coordination of a new course structure and curriculum for the three programmes that, over the course of the subsequent three years, were integrated under the umbrella of the Department. Teaching in the new interdisciplinary framework was fully integrated by 2001 and it has since become a hallmark of the School. He directed the project for the digitisation of architectural archival material deposited at UP and made accessible through UPSpace. This project has become recognised as the inception model for other such programmes.

He has served on the adjudication panel for many rounds of the awards of merit and excellence on behalf of SAIA, reviewed contributions to local academic journals and has been guest editor or co-editor for special issues of *Architecture South Africa*, among others. His writings, evidenced in articles, papers,

books, chapters in books, technical and other reports, extend to enquiries on critical regionalism, the environmental history of the South African built environment and cultural landscapes, the ecotropic approach to sustainability studies, interdisciplinary research, architectural education, visual literacy and botany. He has also contributed prolifically to South African heritage and conservation with his participation in more than thirty surveys and policies, advised the Northern Gauteng Region of the National Monuments Council, served as Councillor to the Mpumalanga Province Heritage Council, chaired the Mpumalanga Heritage Resource Agency Permit committee and continues to act as heritage consultant.

The Heritage South Africa Gold Medal was bestowed on him in 2013 in recognition of his contribution to the field. In 2010 he was the recipient of the Writers and Critics Award from SAIA and a recent publication that he co-edited, *Eclectic ZA Wilhelmiens: A shared Dutch built heritage in South Africa* (Bakker, Clarke & Fisher 2014), was awarded an Award of Excellence by SAIA in 2016, among many other accolades it received.

Fisher was appointed as Extraordinary Professor upon his retirement from UP and has since acted as Head of Department at critical times in the Department's recent history. He has also acted in an advisory capacity to other schools of architecture and continues to serve on the Education and RPL Committees of SACAP.

JOUBERT, 'ORA

BORN: 17 August 1959
QUALIFICATIONS: BArch (Pretoria) 1983
                  MScArch (Pennsylvania State) 1985
                  PhD Architecture (Natal) 1999
TENURE AS HEAD: 1 September 2004 – 31 August 2008
REFERENCES: Artefacts (2017) http://www.artefacts.co.za/main/Buildings/archframes.php?archid=2110
                  Burger (2006); Personal communication with the researcher
MENTIONED IN: Chapters 1.2.1, 5.9.2, 6.5.2, 6.5.3, 6.5.6, 6.5.7

Joubert was born in Pretoria and matriculated from the Afrikaanse Hoër Meisieskool Pretoria. She graduated in architecture from UP and went on to obtain a master's degree in the United States with a dissertation entitled 'Contemporary design theory – a curriculum for architectural tuition'. She wrote her PhD thesis as an assessment of the genesis of the modern aesthetic.

Between 1986 and 1989 she worked as in-house architect for the Get Ahead Foundation, a township-based, non-governmental organisation, in which capacity she also initiated art and architectural programmes for township children. She has been in private practice since 1990 has lectured in part and full-time capacities at Wits, UKZN, UP, at the School of the Art Institute in Chicago and the Washington University, St. Lewis. She was appointed as Head of the Department of Architecture at UFS in

Bloemfontein in 2001 and was subsequently appointed to the Chair and as Head of Department at UP. She returned to private practice after her tenure and continues to serve as Affiliated Professor at UFS.

Her work has received numerous design awards – including eight Awards of Merit from SAIA and its regional chapters, the Corobrik House of the Year Award, three Dulux Colour Awards and a landscape design award – and was received to critical acclaim in more than fifty publications, including Australian, British, Chinese, Hungarian and Russian journals. She was cited in 2001 as one of the most internationally esteemed architects under the age of forty (Cargill-Thompson 2001) and her work was included in *The Phaidon atlas of contemporary world architecture* (Phaidon 2004). She edited and convened a reference book on contemporary South African architecture, *10+ years 100+ buildings: Architecture in a democratic South Africa* (Joubert 2009), that was awarded with an Award of Excellence by SAIA. At the time of writing she was compiling a companion book on the most meritorious final-year dissertation projects by students of architecture in South Africa.

BAKKER, KAREL ANTHONIE

BORN:	3 March 1956
DIED:	19 November 2014
QUALIFICATIONS:	BArch (Pretoria) 1981
	MArch (Pretoria) 1993
	PhD Architecture (Pretoria) 2000
TENURE AS HEAD:	1 January 2009 – 19 November 2014
REFERENCES:	Artefacts (2017) http://www.artefacts.co.za/main/Buildings/archframes.php?archid=2234
	Curriculum Vitae (Archive, Department of Architecture, UP)
MENTIONED IN:	Chapters 5.7.3, 5.8.3, 5.7.10, 5.9.3, 6.5.2, 6.5.3.

Bakker spent his early childhood in the town of Amalia in the western Transvaal (now the North West Province) and matriculated from Hoërskool Menlopark in Pretoria before graduating in architecture from UP in 1981. His professional career started at the public utility company Eskom, where he raised through the ranks to the position of senior architect.

He joined the staff of the Department in 1986 and established himself as part of the history study group – a pursuit that he continued to nurture during the course of his career. He coordinated the subject course of History of the Environment and his special fields of interest pertained to classical architecture (both of his postgraduate studies focused on aspects of the Ionic capital), the architectural histories of African societies, heritage assessment and management, including mapping, cultural landscapes and intangible heritage, and urban conservation and regeneration. His work as a heritage consultant, notably with Drs Gerhard-Mark van der Waal and Robert de Jong under the label of Cultmatrix, set the standard in respect of heritage impact assessment in South Africa and initiated his involvement with ICOMOS and subsequent contributions to several pivotal world heritage site projects in southern and east Africa and on the islands of Mauritius and Zanzibar on behalf of the UNESCO World Heritage Centre.

Bakker was appointed to the Chair and as Head of Department in 2009 and his appointment was renewed in 2013. He served on the board of the ArchiAfrika Foundation, various SAIA committees and awards of merit adjudication panels, as well as those that validated schools of architecture on the behalf of SACAP. His scholarly contribution amounts to more than a hundred refereed articles, papers, reports, technical reports, books, chapters in books and published conference proceedings. He attended and contributed to seventy-five conferences and collaborated with fifteen national and international researchers, teams and practitioners. The last publication that he co-edited, *Eclectic ZA Wilhelmiens: A shared Dutch built heritage in South Africa* (Bakker, Clarke & Fisher 2014), was awarded an Award of Excellence by SAIA in 2016, among many other accolades it received.

DU PLESSIS, CHRISNA

BORN: 2 February 1965
QUALIFICATIONS: BArch (Pretoria) 1991
                             MArch (Pretoria) 1999
                             PhD Built Environment (Salford, United Kingdom) 2009
OTHER: DTech (Chalmers University of Technology, Sweden) 2010 (*honoris causa*)
TENURE AS HEAD: 1 October 2015 –
REFERENCES: Artefacts (2017) http://www.artefacts.co.za/main/Buildings/archframes.php?archid=3910
                             Personal communication with the researcher
MENTIONED IN: Chapters 6.5.2, 6.5.4

Du Plessis was born in Sasolburg and matriculated in Bethal in the eastern Transvaal (now Mpumalanga). She obtained her BArch and MArch (by research) at UP and was awarded a PhD by the University of Salford for her thesis on an approach to studying urban sustainability from within an ecological worldview. Her field of expertise is sustainability in the built environment and she has applied this in a body of work that include the fields of housing, construction industry performance, urban and human settlement development and infrastructure design.

She lectured history and design at the Department on a part-time basis in the late 1990s before joining the CSIR where she was promoted to principal researcher for the built environment. Du Plessis was appointed as Associate Professor in the Department of Construction Economics at UP in May 2011 and as Head of the Department of Architecture in October 2015.

She is a Jubilee Visiting Professor to Chalmers University of Technology in Sweden and teaches a module on sustainability blueprints in an MSc programme at the National University of Singapore. She represented South Africa in the Earth Charter drafting and consultation process, has contributed to national and international strategy and policy programmes on sustainable settlements and serves as the Theme Coordinator for Sustainable Construction for the International Council for Research and Innovation in Building and Construction (CIB). Her scholarly outputs tallies to more than a hundred items, including the book *Designing for Hope – Pathways to regenerative sustainability* that she co-authored (Hes & Du Plessis 2014) and that received the AfriSam-SAIA Award for Research in Sustainability in 2016.

APPENDIX 4 **MEMORANDUM OF 29 JULY 2015**

Review of the procedures for admission by selection for the undergraduate programmes in architecture, interior architecture and landscape architecture at the Department of Architecture, University of Pretoria

Keuring selection

THIS DOCUMENT WILL BE DISTRIBUTED ELECTRONICALLY TO:

Acting Director: Department of Academic Administration:
    Mrs Cila Myburgh

Dean: Faculty of Engineering, Built Environment and Information Technology
    Prof Sunil Maharaj

Chairperson: School for the Built Environment
    Prof Tinus Maritz

Members of the Review Panel:
    Mr Marcus Holmes
    Prof Sarah Howie
    Mrs Liz Jones
    Prof Duard Kleyn

Review of the procedures for admission by selection for the Undergraduate Programmes in Architecture, Interior Architecture and Landscape Architecture at the Department of Architecture, University of Pretoria

MEMORANDUM

29 July 2015

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APPENDICES

MEMORANDUM

1. INITIATIVE

The Acting Head of the Department of Architecture, Prof Roger C. Fisher, gave an undertaking to the Director of Academic Administration, Dr Dawie Marais, to formally review the selection procedure used for undergraduate admissions by the Department at a meeting on 20 January 2015. As there is no comparable precedent at this institution or at other local schools of architecture, the following protocol was determined.

2. MEMBERS OF THE REVIEW PANEL

Members who represented professional, legal, academic and student administration expertise were invited to form the review panel. They were (in alphabetical order):

Mr Marcus Holmes
BArch (Witwatersrand); Principal at Fassler Kamstra + Holmes Architects; Professional Architect (SACAP); Chartered Member (RIBA); Associate Member (Association of Arbitrators)
marcus.holmes@fkh-architects.com

Prof Sarah Howie
BA (Stellenbosch) BAHons (Cape Town) MEd (Witwatersrand) PhD (Twente); Professor and Director, Centre for Evaluation and Assessment, Faculty of Education, University of Pretoria
sarah.howie@up.ac.za / rosalie.loots@up.ac.za

Mrs Liz Jones
Head: Student Administration, Faculty of Engineering, Built Environment and Information Technology, University of Pretoria
liz.jones@up.ac.za

Prof Duard Kleyn
BA, LLB, LLD (Pretoria); Professor in the Department of Jurisprudence and former Dean, Faculty of Law, University of Pretoria
duard.kleyn@up.ac.za

The panel was hosted by Prof Roger C. Fisher, Extraordinary Professor and Acting HoD, Department of Architecture, University of Pretoria and Nico Botes, Convenor: Selection (Coursework Programmes), Department of Architecture, University of Pretoria.

3. TERMS OF REFERENCE

The University of Pretoria requires that its selection procedures for entry into the Programmes in Architecture, Interior Architecture and Landscape Architecture in the Department of Architecture, Faculty of Engineering, Built Environment and Information Technology, are:

EQUITABLE – That each applicant is equally considered and has an even-handed chance for gaining entry into their programme of choice based on the criteria for scrutiny and selection;

TRANSPARENT – That the system of consideration, exclusion and selection can be explained and elucidated on enquiry;

DEPENDABLE – That should the same process be followed again it will deliver the same results;

DEFENDABLE – That the deliberations and decisions reached in the process of exclusion and selection are able to be defended if subject to litigation.

4.   DOCUMENTATION

The documentation presented to the panel comprised the following:

4.1 The convenor's report (see Appendix One) with its appendices (see Appendix Two);

4.2 The selection files of prospective students who applied for the 2015 academic year, namely:

- applicants who were selected for the 2015 cohort (all three programmes);
- applicants who were not selected but who were shortlisted for interviews (all three programmes);
- applicants who were not shortlisted for interviews and thus not selected (all three programmes);
- postal selection applicants (all three programmes);

4.3 The annual first year questionnaires on selection from 2012, 2013 and 2014;

4.4 A statistical analysis of the responses to the first year questionnaires for 2012, 2013 and 2014;

4.5 A printed record of the Facebook support page for applicants from 2014 (in support of selection procedures for the 2015 intake);

4.6 Digital sound recordings of all the selection interviews for the 2015 cohort;

4.7 Two typical complaints and the convenor's written response.

5.   TIMETABLE OF EVENTS

10 April 2015

The main body of the convenor's report was made available to the review panel by e-mail.

13 April 2015

The panel met the Boukunde Building. As Prof Howie could not attend this session, it was decided that the procedure would be presented to her at a later date. Prof Fisher welcomed all, introduced the panel members, explained the necessity for a review process and referred all to the terms of reference.

Nico Botes introduced the panel to the documentation. The appendices to the report were presented sequentially in order to familiarise the panel with the documents appended to the main report. The panel perused the documentation, posed questions, reviewed recordings of selection interviews and concluded with a discussion and some recommendations. In closing it was decided that those members of the panel who so wished make their recommendations in separate reports to Prof Fisher (see Appendix Three).

18 May 2015

Nico Botes presented the documents to Prof Howie at her office on the Groenkloof Campus. Due to time limitations the documentation was left with her to allow her time to study them.

6.   RECOMMENDATIONS TO THE UNIVERSITY OF PRETORIA

6.1 Technical Recommendation

In her report Prof Howie recommended a revision of the layout of selection documents where Afrikaans and English are used side by side. The current format increased the reading load and presented difficulty for applicants in completing the forms.

[NOTE: This recommendation is already being considered for review and implementation.]

6.2 General Recommendations

The panel's findings unanimously support the selection procedures used by the Department of Architecture for admission to the undergraduate programmes. The panel found them to be equitable, transparent, dependable and defendable, as set out in the terms of reference.

In her report Prof Howie concluded that the "philosophy, design and processes adopted by the Department of Architecture for its selection process is valid and reliable in addition to being fair. The process is comprehensive, transparent and supportive to applicants. It combines a variety of appropriate assessment strategies which are relevant to the field and appropriately challenging to the applicants."

Members of the panel additionally commented that they were satisfied as to the "adequacy [and] appropriateness" (Holmes), that the procedures are "in line with our constitutional values" (Kleyn) and that it is a process with "quite some innovation and appropriate thinking for the 21st century" (Howie).

7. CONCLUSION

In light of the panel's recommendations and findings the Department of Architecture of the University of Pretoria will proceed with the selection programme as it has been done in the recent past.

The Department of Architecture, on behalf of the University of Pretoria, thanks all the members of the review panel for their consideration, time, contributions and constructive comments.

Please contact the Convenor: Selection should additional information or documentation be required.

Prof. Roger C. Fisher
Extraordinary Professor and Acting Head
Department of Architecture, University of Pretoria
roger.fisher@up.ac.za

Nico Botes
Convenor: Selection (Coursework Programmes),
Department of Architecture, University of Pretoria
nico.botes@up.ac.za

29 July 2015

APPENDIX ONE

THE CONVENOR'S REPORT TO THE REVIEW PANEL

1. TERMS OF REFERENCE

The University of Pretoria requires that its selection procedures for entry into the Programmes in Architecture, Interior Architecture and Landscape Architecture in the Department of Architecture, Faculty of Engineering, Built Environment and Information Technology, are:

EQUITABLE
That each applicant is equally considered and has an even-handed chance for gaining entry into their programme of choice based on the criteria for scrutiny and selection;

TRANSPARENT
That the system of consideration, exclusion and selection can be explained and elucidated on enquiry;

DEPENDABLE
That should the same process be followed again it will deliver the same results;

DEFENDABLE
That the deliberations and decisions reached in the process of exclusion and selection are able to be defended if subject to litigation.

2. BRIEF HISTORY AND OVERVIEW

2.1. Introduction

The principle of admission by selection at higher education institutions is generally motivated by there being numbers of applications exceeding the numbers of places available for admission. With only a few exceptions (notably the schools of architecture at public universities in Argentina), selection is the global norm used to admit students to schools of architecture.

By tradition the design studio is regarded as the primary locus of architectural education and therefore statutory and other validation bodies – including the South African Council for the Architectural Profession (SACAP), the Royal Institute of British Architects (RIBA) and the Commonwealth Association of Architects (CAA) – explicitly require that at least half of all formal learning activities must be studio-based. Considering that studios are typically resource intensive learning environments, their capacity determines – and mostly limits – the number of places schools of architecture can offer to prospective students.

Since 2007 the number of applications received from prospective first year students by the Department of Architecture at the University of Pretoria (UP) has tallied to between 1 000 and 1 500 annually; this translates to at least a ten-fold over subscription. We are therefore compelled to select applicants for admission. The majority of prospective students (typically between 65% and 75%) apply for admission to the programme in architecture. Table 1 breaks down the number of applications received per programme for the 2015 academic year.

TABLE 1: Number of applications received per programme for the 2015 academic year compared to available places

PROGRAMME	NUMBER OF APPLICATIONS RECEIVED*	MAXIMUM NUMBER OF PLACES AVAILABLE
Architecture	784	50
Interior Architecture	161	25
Landscape Architecture	190	25
TOTAL	**1,135**	**100**

*   Generated by PeopleSoft enquiry on 11 September 2014.

2.2. Selection at the Pretoria School of Architecture (1971 – 2006)

Episode one: 1971 – 1994

The notion of selection at the Pretoria School of Architecture was first prompted toward the end of the 1960s when, between 1967 and 1968, the number of applications almost doubled.[1] As selection was not a common practice at the time, especially not at local schools of architecture, research was undertaken in collaboration with the Department of Psychology at UP. A history of high attrition rates, especially amongst first year students, the subsequent financial losses to student and state, and aspirations to academic excellence contributed to motivate the research. A doctoral thesis[2] in psychology by Prof Wynand Herholdt followed that laid the groundwork for the ensuing implementation of a procedure to select beginner students for the programme in architecture.

Between 1971 and 1994 selection was, for the most part, based on Herholdt's research and consisted of:
- a battery of psychometrics-based tests,
- the applicant's academic record,
- and finally an interview.

1   Kemp, J.T. 1991. Keuring van argitektuurstudente aan die Universiteit van Pretoria 1971-1990. (Departmental Report; Archive Item 6617, Department of Architecture, University of Pretoria).

2   Herholdt, W.vdM. 1972. 'n Keuringsprogram vir argitektuurstudente. DPhil thesis, University of Pretoria, Pretoria.

The process was empirically driven and informed by a pragmatic-scientific stance. The most significant result, according to departmental records, was that attrition during the first year of study dropped from 42% (1955-1964) to 10% (1971-1986). Considering the narrow band of the population who had access to the University under the Apartheid regime, it should be noted that up to 90% of cohorts in the late 1960s and early 1970s were white male students whose home language was Afrikaans.

Episode two: 1995 – 2006

Herholdt's system lost its credibility after 1994. Its demise was driven by managerial changes resulting from the first democratically elected government's reform of higher education.

Between 1995 and 2006 selection was based on:
- the applicant's academic record expressed as the Matriculation Score (M Score);
- Interviews were still held to fill any available places in January before lectures commenced; this meant that only a small portion of applicants were interviewed.

At the same time far-reaching changes to curricula and programme structures were implemented by the University and the Department. It saw the programmes in architecture, interior architecture and landscape architecture incorporated into one academic unit that offered a core curriculum in an equifinal, homologous structure with a joint first year and a second tier of postgraduate degrees for purposes of professional registration.

With the M Score being an easy system to manage, selection was, for the most part, relegated to a purely administrative process. Statistically this was a mixed success: attrition among first year students in the new generic first studio fluctuated (17.7% in 2004, 6% in 2005 and 7.3% in 2006) but remained higher than the average for all new first year students at the University of Pretoria for the corresponding years. Despite the fact that only matriculants with results (far) above the average were admitted, the Department's graduation rate deteriorated to far below the average for all three-year programmes at UP.

Towards episode three

By 2005 serious concerns were raised over two issues relating to the admission of undergraduate students: the lack of demographic representivity in the composition of the student body, and the validity of the M Score as the only yardstick for admission. The M Score favoured the admission of white female applicants, who were by far the majority of the annual intake, but far fewer at the time of graduation. The general perception was that students who were not ideally suited to pursue studies in design were automatically admitted. This was to the detriment of the majority, who were overlooked even if they did meet the published minimum requirements for admission. It was clear that selection procedures had to be reviewed and that the scope of assessment tools used for the admission of beginner students had to be broadened.

While the M Score was purportedly to serve as an equal-opportunity formula, in reality it ignored the legacy of Apartheid education and its continuing impact on prospective students, such as the unequal opportunities applicants from poorly resourced communities have. Selection therefore had to be transformed to an inclusive process so as to offer all applicants meeting the minimum requirements equal opportunities to compete for admission on their own merit.

A matrix of cumulative considerations was therefore developed from a normative position informed by the architectural disciplines and the specific nature of its academic presentation at this institution, one that reflected the fundamentally complex nature of spatial design, but also embraced the Department's ethos of interdisciplinary teaching. In this context the notion of a formulaic ideal applicant profile was rejected, as this would have been contrary to the ecosystemic approach and principles of process-driven generative design that the Department subscribes to and for which our graduates are valued.

3. STATUS QUO

A redesigned selection procedure was subsequently implemented during 2006 for the intake of 2007; after nine years of refinement the following assessment tools were used to select the cohort for 2015:

ROUND 1: ACADEMIC RECORD
1. Applicants must meet the following minimum published requirements:
    - a National Senior Certificate endorsed for Bachelor's studies,
    - a minimum of 50% in Mathematics and Physical Science (for the programme in landscape architecture the latter may be substituted by Geography or Life Sciences, formerly Biology),
    - a minimum of 60% in either English or Afrikaans,
    - and an Admission Points Score (APS) of at least 27 out of a possible 42.

ROUND 2: HOME ASSIGNMENTS
2. Biographical questionnaire and a short essay
3. Drawings and other assignments
4. Practice visit

ROUND 3: TEST
5. A special architecture aptitude test during which performance assessment is emphasised and a broad spectrum of skills are assessed.

ROUND 4: INTERVIEW
6. An interview as the final, summative means of assessment.

Thus applicants are engaged across a spectrum of considerations, by various means, in several formats and with different media. This is in keeping with the nature of architectural education and corresponds with aspects critical to facilitating a student's growth in a studio environment. It is believed that the current selection procedure complements the interdisciplinary tenets entrenched in the Department's teaching approach, summarised by Prof Karel A. Bakker as:

> An encompassing study of the discipline, academic rigour, a non-flag following independence in formulating what architecture – and the role of architecture – could be, an attempt to achieve and maintain dynamic balance in the architectural dualisms of art and science, theory and praxis, past and future, and a striving towards an integrative, traditive, generative design approach that results in a facilitating, contextually relevant architecture that sustains culture and social evolution.[3]

Adhering to these values the objective is now to identify all-rounders having a broad, enquiring, intellectual capacity; those that can be nurtured and sustained through having interest and aptitude. Although this process requires far more input from staff in the process of selection than before, applicants are offered equal opportunity to reveal latent talent that would probably not be discovered through a less intensive process or one that did not value individuals for their own potential and strengths.

When measured against the standard indicators, it is clear that some success has been achieved over the past nine years. The attrition rate in first year has declined from often double-digit figures to around 4%; the pass rate in first year design has been above 92% since 2008. Through-put has increased with more students completing their first degrees in three years and the Department's average graduation rate is now far above the average for all other three-year qualifications at UP. Student numbers have stabilised and retention has markedly increased across the board, while demographic representivity of the student body has consistently, and sustainably, developed. More than 43% of the students registered for architecture in the first year class of 2015 are from previously disadvantaged groups; 52% of the cohort is male and 48% is female.

The selection process and its procedures are now subjected to ongoing review through discussion, evaluation and annual surveys.

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3 Department of Architecture. 2012. ALS introduction report for the visiting board of the SACAP validation panel, 26-28 March 2012. Unpublished report, Department of Architecture, University of Pretoria.

4.   THE SELECTION PROCESS: RATIONALES, PROCEDURES AND PROTOCOLS

4.1   ROUND 1: Academic record

Prospective students can apply for admission to the Department's programmes between 1 March and 30 June. They complete the standard UP application forms that must be submitted with supporting documents, including copies of their identity documents or passports, and relevant academic records. The application can be completed in hard copy format and submitted to the Client Service Centre, or it can be lodged electronically through the UP website. The Data Management Centre captures and processes all applications centrally before it is made available to the relevant Admission Officers at the various faculties.

RATIONALE
The current academic prerequisites are the consequence of the history of selection over the course of more than four decades.

Meeting the minimum requirements for admission unfortunately does not guarantee that an applicant will be admitted to study in the Department. The minimum requirements are the first hurdle that applicants must clear at a given level to be considered for selection.

School results, in isolation, offer selectors a limited perspective of certain skills and fail to indicate, or predict, design potential or interest, three-dimensional abilities, social awareness and creativity; these are aspects that must therefore be assessed by other means (see Round 2 and 3).

> **PROCEDURES AND PROTOCOLS**
> The Admission Officer is responsible for collating all applications and does a first assessment to determine which applicants meet the minimum requirements for admission, or may do so by the time of registration for the forthcoming academic year. Because applications close at least six months before the final matric results are available, applicants who are in the process of completing their matric are considered on the basis of their final Grade 11 results, with the understanding that if they are provisionally offered a place after selection, they must still meet the minimum requirements in their final exams to retain selection.
>
> Applications from prospective students who obviously do not meet the minimum criteria are rejected, while borderline cases and those meeting the requirements are presented to the Convenor for consideration. This is done through regular sessions attended by Faculty's Admissions Officer, her assistant, the Convenor and the Department's Officer for Student Administration on an ongoing basis from May to as late as August (if necessary).
>
> Applicants are informed of the outcome of Round 1 on the UP Portal (a web-based digital interface) and, if their application is unsuccessful, also by official correspondence. Those who meet the requirements are all invited to the next round of selection and receive an SMS alert to the effect. A document with assignments for the next round and a guide to our selection process is sent to these applicants. For the 2015 intake this document was distributed by e-mail and post, but the latter is proving to be unreliable and planning is underway to limit the distribution via electronic means with the option that applicants can request it otherwise if necessary.
>
> Although the Department does not require of applicants to write the National Benchmark Test (NBT), applicants are advised to do so. In certain cases, especially where an applicant's final Grade 12 results are disputed, the NBT results may be considered if they are available. A typical example of this is when an applicant who was provisionally selected achieves 49% as a final mark in Physical Science, but achieved NBT scores above 65% for Quantitative Literacy and Mathematics. In such a case the applicant will not forfeit his or her place.

4.2   ROUND 2: Home assignments

This round consists of assignments that applicants are required to complete in their own time and with the resources that may be available to them. These assignments are only distributed to applicants who met the minimum requirements for admission and are invited to the test in Round 3. The assignments are submitted on the day applicants take the selection test.

4.2.1 Biographical questionnaire and a short essay

RATIONALE

The first of these assignments, a brief biographical questionnaire, serves to contextualise the application and confirm contact details and other pertinent data that may not be available on the standard UP application form. This includes an applicant's language proficiencies, the last books they read and whether financial aid may be required.

A written motivation is required in which applicants must formulate why they want to pursue one of the architectural disciplines. This serves as vehicle for us to better understand the applicant's motives and aspirations, but it could also reveal strengths in reasoning, communication and, in some instances, conceptual abilities.

The information retrieved through these questions cannot directly penalise or benefit an applicant; it is rather a way of accessing the applicant before one assesses his or her abilities.

4.2.2 Drawings and other assignments

RATIONALE

A series of assignments that require answers with drawings are structured around universal references that involve processes (rather than designed or absolute outcomes). A typical example is the following, taken from Question 9 of the home the assignments for the 2015 intake:

> In design, processes are often crucial to the success of the outcome. With a series of drawings, illustrate the process to prepare this favourite dish [the preceding question asked "What is your favourite dish?"]. Answer on one side of one blank (not ruled) A4 sheet; use media of your own choice.

The question does not require an artful picture, but engages in the visual communication of a process that relates to a familiar item of food. Neither Art nor Engineering Graphics and Design (EGD, as Technical Drawing is now called) is therefore required to complete this assignment.

Other questions typically involve some research and are deliberately structured to allow applicants the opportunity to investigate aspects of the architectural disciplines in order to gain exposure to their chosen profession; it allows for and requires of applicants to formulate their own opinions and is thus intended to access higher order thinking skills in the cognitive domain. Question 10 of the home assignments for the 2015 intake is a typical example of this strategy:

> The Roman architect Vitruvius identified three principles that a good building (and by implication also a landscape or interior) should satisfy: **firmitas** (durability), **utilitas** (utility) and **venustas** (beauty). Choose examples (buildings, structures, landscapes) that, in your opinion, illustrate these principles in an exemplary way; at least one must be a local example. Make freehand pencil sketches on blank sheets of A4 paper and write only one sentence to motivate each choice.

The answers to these questions can reveal a variety of skills, from strategic decision making to visual communication abilities.

4.2.3 Practice visit

RATIONALE

In a developing context, such as ours in South Africa, there is a general lack of awareness of the architectural professions. Learners are often not adequately guided in their selection of a prospective profession as few of the vocational advisors understand the many facets involved in the practice of architecture.

The practice visit, based loosely on the job-shadowing programmes of most Independent Examinations Board schools, offers applicants the opportunity to explore the nature and operation of their chosen profession as 'active clients'. It requires of prospective students to visit practitioners in the three architectural disciplines in order to confirm their career choice and then report on their impressions and, ultimately, the surety of their decision to pursue studies in the field. This approach allows for discovery while informing applicants of the idiosyncratic differentiation between the three programmes.

The Department supports applicants, especially those who do not have easy access to practices in the three fields, by hosting an annual practitioner's workshop. Our objective is also to ensure that reliable information on all three architectural programmes reach as many applicants as possible and so share this information with applicants' parents and siblings, who are often not adequately informed to support them constructively in their choice of profession. The session is programmed around practitioners in the three disciplines who present their work to and discuss their professions with a captured audience of applicants (and their families).

The practice visit is viewed as a task completed by applicants for their own benefit, rather than for the benefit or approval of selectors.

> **PROCEDURES AND PROTOCOLS**
> The home assignments are considered as part of a holistic assessment only after Round 3 has been completed.

4.3 ROUND 3: Test

RATIONALE

Applicants are invited to, on completion of the preparatory assignments, take a selection test that is wholly generated and administered by the Department and follows the example of, among others, the Scandinavian and some Indian schools of architecture.

The structure of the test is set to start with responses to the practice visit, followed by an easily accessible question based on imagination, questions based on general knowledge, current affairs and social awareness so as to assess the frame of reference and discernment of the applicant. Open-ended statements are used to elicit responses and opinions on a wide range of topics. These written responses are followed by drawing-based performance assessments that focus on cognitive and visual memory, observation and communication abilities, creative response and three-dimensional capacity and object manipulation.

As it is logistically impossible to host only one test session, some of the questions vary within this set framework and nuances are tweaked to prevent leaked questions from undermining or influencing the process.

None of the tasks are aimed at design outcomes *per se*, but they do relate to the many facets informing design processes. The intention is thus to assess a candidate's demonstrable aptitude and possible appetite for design from multiple viewpoints over a broad spectrum of possible determinants; in addition the extent and variety of subjects addressed hopefully convey something of the complexity of spatial design beyond the clichéd perception of 'drawing plans'.

Although the tests are taken under strict test and examination conditions, an attempt is made to provide a comfortable setting with appropriate breaks. Carefully chosen music is even played for the duration of some of the drawing-based questions to stimulate their senses and keep their attention.

PROCEDURES AND PROTOCOLS

These tests are not the equivalent of the National Benchmark Test (NBT) and cannot be replaced by another test, nor can they be taken elsewhere. Unlike the home assignments in the previous round, there are no resources available to applicants and time-limits apply. Applicants who cannot attend any of the three annual dates can, with certain preconditions, apply for postal selection instead.

Upon completion of Round 2 – the home assignments – and Round 3 – the test – an applicant's whole portfolio is assessed to narrow down the contenders to a shortlist for the forthcoming interviews. A panel of between six and eight members of staff do the assessment that has evolved into a comprehensive appraisal summarised in a rubric format. Most of the applicants are assessed in one sitting around one table; this allows for cross-checking if there are any uncertainties by an individual assessor.

Only the strongest all-rounder applicants per programme are shortlisted and invited to the interviews. At this stage more than half of the contenders are eliminated from the process; they receive an SMS message that is followed by official correspondence.

The applicants who are shortlisted for interviews are alerted by SMS and/or e-mail and asked to confirm a time and date for their interviews with the Department's Officer for Student Administration.

4.4   ROUND 4: Interview

RATIONALE

The interview is considered to be a vital summative assessment tool as it provides the opportunity to engage personally with applicants in a discursive format that simulates the nuances of a discussion in the design studio. A panel of no less than three, but often more lecturers – including those responsible for the first year studio – conduct an interview of about 10 to 15 minutes as the final stage of selection. The conversation is guided by the specific applicant's submission for Rounds 2 and 3. In the absence of a predeterminate student profile, consideration is given to an individual's character, background, interests and strengths.

PROCEDURES AND PROTOCOLS

The interviews are scheduled for the recess week that falls late in September or early in October on the UP calendar. Appointments for the interviews are grouped in hourly sessions and, typically, applicants are posed a question or two to answer while they wait. All interviews are recorded and applicants are made aware of this procedure when they arrive.

After each interview the panel of selectors express their final deliberations on a candidate's submission in camera by scoring the full application out of 10, with 10 being the highest possible assessment and with the understanding that a mark of 7 is considered the threshold to admission.

After the week of interviews the final assessments are tallied to determine who will be offered places in each programme, who will be placed on waiting lists and who will be rejected. Typically the strongest applicants are patently identifiable and the scoring really only affects placement at the lower end and for determining the order of the waiting lists.

All applicants are informed of the outcome by SMS or e-mail, which is then followed up by official correspondence, either by mail or through digital interface to accommodate the logistics of deposits, preparing for registration and what follows for applicants who are selected.

Applicants who are wait-listed are personally managed by the Convenor and receive regular updates on their position on the waiting list.

4.5   POSTAL SELECTION

As a rule the Department annually receives applications from all nine provinces, from most countries in the Southern African Development Community and from further afield. In the spirit of inclusivity that guides selection, those candidates who are unable to attend a selection test on campus are accommodated through a process of correspondence. In allocating postal selection, preference is given to those applicants who live very far from campus or who are abroad during the selection tests. A written motivation is required before approval is considered and an interview by telephone or video-conference can be granted to those applicants whose names have made the shortlist.

The limited number of postal applications processed annually, and the quality of students it has presented in the past, justify the effort.

APPENDIX TWO

LIST OF APPENDICES ATTACHED TO THE CONVENOR'S REPORT

Keuring **selection**

1. Brochure for undergraduate studies
This brochure complemented official UP marketing material and was made available online

2. Timeline
Milestones in the undergraduate selection process for the 2015 intake

3. Invitation & Part A assignments
Applicants received this document after Round 1, i.e. assignments for Round 2 and an invitation to Round 3

4. Applicants' Guide to selection
Applicants received this guide with the documents in the previous annexure

5. Test papers: Part B
First paper taken in Round 3
(used on 22 and 30 August, 5 September)

6. Test papers: Part C & D
Second and third papers taken in Round 3
(used on 22 and 30 August, 5 September)

7. Rubric for Rounds 2 & 3
This rubric was printed in A3 format on the inner cover of each applicant's selection file

8. Postal assignments for Round 3
This set was sent by e-mail to applicants who completed the postal selection option

9. Interviews: Typical documents
Examples of the covers applicants found on their clipboards; typical additional questions applicants answered while waiting; the 'Blue Sheet' they took home

10. Waiting List
E-mail correspondence explaining the waiting list procedure to applicants who were wait-listed

11. Feedback
Examples of correspondence and reports with feedback pertaining to selection in general

12. Example of research output
Article on selection submitted to 'Architecture South Africa' for publication

APPENDIX THREE

REPORTS FROM THE MEMBERS OF THE REVIEW PANEL
(in alphabetical order)

21st April 2015

ROGER FISHER
Extraordinary Professor
Acting Head of Department
Department of Architecture
Faculty of Engineering Built Environment + Information Technology
UNIVERSITY of PRETORIA
Lynnwood Road
PRETORIA
0001

Dear Professor Fisher

UNIVERSITY of PRETORIA
SCHOOL of ARCHITECURE
SCHOOL of INTERIOR ARCHITECTURE
SCHOOL of LANDSCAPE ARCHITECTURE
UNDERGRADUATE PROGRAMMES
REVIEW + RATIFICATION of SELECTION PROCEDURES

I would like to thank you for your Approach to me, as a Professional Architect, to participate in the Review + Ratification of Selection Procedures currently in use by your Department for aspirant Students intent on Admission to any of the Undergraduate Programmes offered by your Department.

As a Panel, we have been given the University's Terms of Reference pertaining to the Selection Process - namely :
- Equity
- Transparency
- Dependability
- Defensibility

At the outset, may I say how laudable I find it that you, as a Department, are prepared to subject yourselves + your Selection Procedures to the scrutiny of those outside of the Academic realm. May I also say that my insights are those of one who has :
- been subjected to one of the Selection Procedures previously applied by the University (albeit as applied by another University)
- acted as Critic + Examiner + Employer + Mentor of the "products" of the various Selection Procedures applied by various South African + International Schools of Architecture
- Exposure to Selection Procedures applied by Tertiary Institutions outside of South Africa
- Reviewed the status (in an International context) of various South African Schools of Architecture on behalf of :
  - o SACAP   - South African Council for the Architectural Profession
  - o CAA   - Commonwealth Association of Architects
  - o RIBA   - Royal Institute of British Architects

The Presentation given to us and the Documentary Support available was exemplary – all Credit must be given to Nico Botes – Lecturer and Convenor (Coursework Programmes) – whose Commitment and Enthusiasm over an extended period has placed the University in so envious a position.

I am left totally satisfied as to the adequacy + appropriateness of the Selection Procedures that have been developed + are being applied by your Department. I would go as far as to say that I do not believe there to be any Selection Procedures at other South African Tertiary Institutions (or for that matter others worldwide) which would surpass those of the

University's Department of Architecture + that it would be hard to imagine how they might do so. The Selection Procedures developed and employed are patently :

- Equitable
- Transparent
- Dependable
- Defensible

It should, however, be said that the Qualities that make for good Applicants are not necessarily those that make for good Students and, in turn, those that make for good Researchers / Practitioners – by their very Nature, Selection Procedures must, and always will, be particular to each Institution and to the Value Systems they espouse.

Yours sincerely.
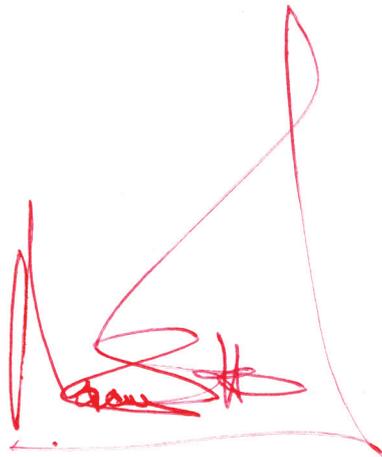
MARCUS HOLMES
B.Arch (Witwatersrand), Pr.Arch(SA), MIA, MGIfA, MPIA, AAArb, RIBA

PRINCIPAL MEMBER

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EVALUATION REPORT ON SELECTION PROCESS AND

INSTRUMENTS

FOR

DEPARTMENT OF ARCHITECTURE

UNIVERSITY OF PRETORIA

REPORT BY: PROF SARAH HOWIE

JULY 2015

TABLE OF CONTENTS

TITLE   **PAGE**

1   OVERALL SUMMARY OF EVALUATION

I was approached by the Department of Architecture to serve as one of a number of evaluators to examine and evaluate the selection process utilised to select first year students in the Department's three architecture-related programmes at the University of Pretoria. The current selection process has been in place for nine years.

In general my evaluation is positive and supportive of the philosophy, design and processes adopted by the Department of Architecture for its selection process. The process is comprehensive, transparent and supportive to applicants. It combines a variety of appropriate assessment strategies which are relevant to the field and appropriately challenging to the applicants. I would recommend the continuation of their selection processes in a similar vein in the future as I find that it is a fair, valid and reliable selection process. My reasons for this are elaborated further in this report. My recommendations are largely of a minor technical nature to further enhance the current practices.

2   EVALUATION FINDINGS

I found that the selection process is systematic with clear criteria for progression through each phase, which is fully transparent to applicants and which is measurable in a valid and reliable way. The process is also comprehensive incorporating school-based achievements, written assessments, performance assessments, face-to face interviews and multiple opportunities for applicants to showcase their cognitive and non-cognitive abilities to the selection committee.

The process is supportive of applicants from less exposed and less privileged background in terms of both the clearly detailed written supportive materials and the face to face opportunities for exposure to the field of architecture providing learning opportunities for the applicants and clarity in terms of the specialisations available; the tertiary environment and the application processes required.

The actual written application processes and assessments are transparent and supportive to applicants. The process combines a variety of appropriate assessment strategies, which are relevant to the field and appropriately challenging to the applicants. Furthermore the selection process is explained to candidates regarding the limitations of what is possible as well as the consequences of each step in the process. There is no ambiguity with regard to the expectations of applications regarding the process and actions required.

It is clear that the Department is looking beyond the immediate school-based curriculum specific academic performance. Given the changes in the schooling system and fluctuations in quality of the outcomes from the schooling sector this is a wise. Beyond identifying the limitations present in the schooling system, the Department has adopted an innovative approach in its emphasis on more global competencies and 21st skills. These form foundational competencies for the field of architecture and this is supported by the adoption of these broader competencies by forward thinking nations and education systems internationally, which is supported by ongoing research in education and a strong drive by industry.

The assessments test a range of knowledge, skills and attitudes. Various competencies are assessed via written tests, performance assessments and face

to face interviews. The three tests are comparable in terms of what they measure and would be reliable over time given the rubric in place. The assessments test general and field specific knowledge both of which are critical to the architecture field in multiple dimensions; spatial ability; problem-solving ability; language fluency; inferential ability; and creativity in a non-judgemental approach.

3   TECHNICAL QUALITIES

Overall the technical quality of the process and instruments is very good. I do feel however that the combination of the Afrikaans and English forms side by side and the use of italics for the English does increase the reading load and difficulty for applicants to complete the forms. I would recommend splitting them and making them sequential despite the increase in the amount of paper. I feel that this would enhance the current presentation.

4 CONCLUSIONS AND RECOMMENDATION

I conclude that philosophy, design and processes adopted by the Department of Architecture for its selection process is valid and reliable in addition to being fair. The process is comprehensive, transparent and supportive to applicants. It combines a variety of appropriate assessment strategies which are relevant to the field and appropriately challenging to the applicants.

I would recommend the continuation of their selection processes in a similar vein in the future as I find that it is a fair, valid and reliable selection process with quite some innovation and appropriate thinking for the 21st century. My recommendations are largely of a minor technical nature to further enhance the current practices as outlined above regarding the presentation and readability of the forms.

I am available for discussion of this report should it be required and I would like to thank the Department for their invitation to evaluate their process.

PROF SARAH HOWIE
July 2015

Department of Jurisprudence

15 April 2015

Report on the selection procedures for entry into the programmes in the Department of Architecture, Faculty of Engineering, Built Environment and Information Technology

After applying various selection procedures since 1971 the Department designed a new procedure during 2006. A lot of effort and research went into the creation of this procedure.

At present the Department's selection procedure can be described as impressive, very sophisticated and refined, the likes of which members of the panel have not encountered before. It's implementation calls for a lot of dedication by members of staff, it is time consuming and necessitates meticulous record keeping.

It is a wide ranging procedure that evaluates the candidate's academic record, home assignments an aptitude test and ends with an interview. But the effort has paid off as can be seen from the low attrition rate and the very high throughput rate.

Personally I am of the opinion that the procedure conforms to the requirements of due process. The University requires that the Department selection procedures are equitable, transparent, dependable and defendable. After two and a half hours deliberation I am satisfied that this is the case and that the procedures are therefore in line with our constitutional values.

Prof D G Kleyn
Department of Jurisprudence
Former Dean: Faculty of Law, University of Pretoria (1998-2006)

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END OF THIS MEMORANDUM

APPENDIX 5 **EXAMINERS' COMMENTS AND CANDIDATE'S RESPONSES**

This appendix records comments received from the three examiners and the candidate's responses. The candidate wishes to thank all of the examiners for their thorough, thoughtful and engaging comments and feedback on the study.

12 February 2018

EXTERNAL EXAMINER ONE
Dr Andrew S. Roberts (PhD), Welsh School of Architecture, Cardiff University, Cardiff, United Kingdom

This is an engaging and well written Ph.D thesis. It was enjoyable to read and provides some useful insights that can potentially be taken forward as part of policy development by schools of architecture. It was well structured and the conclusions reached related well to the original research question.

Noted with appreciation.

If there is one concern with the thesis, it is that the research method chosen, and the data uncovered, are largely from archival research and does not present itself well for reaching high levels of critical analysis, that might normally be found in a Ph.D. The thesis places a particular emphasis on the assembly of existing data into a time-line and its strengths lie in its thoroughness. Praise must be given for uncovering a substantial body of knowledge from the archives.

While some of the data for the episodes before 2007 had to be uncovered and reconstructed from archival sources, it was necessary for the researcher to analyse and critically engage with this (and other) information in order to frame it in terms of current academic practice and ultimately to make it accessible in the chosen format of a narrative. Although it may, in parts, appear as an accessible and descriptive text, this was the result of thorough comparison and critical analysis by the researcher.

I would be keen to engage the candidate in further discussion with regards to the questionnaire that was sent out, particularly in terms of how representative those who responded were of their institutions and schools. Furthermore, I would be interested to find out more about the institutional pressures that inevitably impact on admissions procedures, as these didn't come through in the survey. The survey provides some useful findings, but it appears to have been isolated to a single chapter, and there is potential for this to be drawn into the conclusions to a greater extent (see modifications section).

For all but one of the respondent institutions the respective heads of department, directors or academic leaders of the schools appointed or requested the member of staff responsible for the selection of beginner students to complete the survey on behalf of the school. In one instance the person responsible for selection volunteered to participate and communicated such to the director of that school. It can therefore be assumed that the data was representative of the school's selection procedures at the time and were well informed. While not addressed directly, institutional pressures were mentioned in section 13 of the questionnaire (Chapter 4.6.14) where respondents were asked how they would change, improve refine or revise their current procedures. With hindsight your comments highlight some of the shortcomings of the survey.

There are also some points of clarification needed with regards to the specific tests and tools used at various points in the history of the School and these could form a useful conversation during the viva. It's not always clear why some are considered to be architecture specific tests, when they are not specifically designed for architecture students. It would also be interesting to discuss the use of the Rorschach tests which seemed surprisingly reliable at the time as a means of selecting students of architecture. I'm also interested in whether was the Rorschach test was presented to groups as is

Noted for discussion.

suggested on page 105 and what implications this might have had. Furthermore, it is interesting to note the focus on professional experience as a selection tool. Can this not provide misconceptions of the nature of architectural education, especially if the School's ethos is not to create a microcosm of practice.

Whilst the author argues that the changes to the admissions methods mirror changes to the curriculum, this connection could perhaps have been made clearer in the body of the text. The curriculum tends to be stated in terms of course content, yet in architecture, it might be argued that we are not selecting students for their capacity to learn the content, but more to engage with a thinking process (design) that they will not have experienced in their prior education.

The strongest correlation between the curriculum and admission procedures occurred between 1971 and 1984 (Episode 1a – see Chapter 5.7.6) that followed on Herholdt's research by that relied heavily on a task-analysis of the curriculum that was then paired with psychological tests. The direct correlation waned between 1995 and 2006 during the interregnum and has since featured in selection in as much as the curriculum finds application within the context of the academic intentions and normative position of the School. In that sense the current system engages a more holistic and designerly approach than the direct correlation of earlier years and thus was not made pertinent in the latter chapters of the study.

A further area where questioning might be sought is into the changing administrative culture of the school, particularly in relationship to the academic vision. The data presented appears to suggest that the decision-making processes in the school has changed over time (although it would be useful to seek clarity on this). For instance it reads as if later decisions were taken for intuitive, culture driven reasons, whereas the earlier decisions appear to be more data driven. This may be a reflection of the author's current knowledge of the school, compared with documentation that can only be found in an archive.

There has been a sense of continuity in terms of the administrative culture of the school. At present the general perception is actually that the administrative culture of the School is rigorous and it would therefore be inaccurate to tag later decisions as triggered by intuition or purely driven by cultural considerations. The influence of the respective Heads certainly impacted on this aspect over time, but more so in developing a cumulative normative stance on the role of the School and its academic endeavours that is also reflected in the administrative component. In this sense it is true that earlier administrative decisions were mostly informed by an academic-scientific approach, or data if you wish, but this has evolved without losing its thoroughness or the hard informants that must be defended to the Dean and the Faculty. Apart from the archival sources this opinion is also based on my personal, albeit therefore biased, experience as I have been involved with the Department for more than 31 years, both as prospective student, student and member of the academic staff.

The use of attrition rates, as a measure of the success of the different methods of selection runs as a clear theme throughout the thesis and this is helpful. There is less said about eventual performance of the students, so I wondered if there was any data available to link eventual performance with admission scores. This might be

It has been said that the best measure of a successful selection system would be to track the contribution of the students selected after graduation in their professional and practice outputs, but this is another study altogether. The performance of students after their first year of

particularly possible with results from the most recent selection tests. It may also have been possible to have looked at trends in conversion rates (those students accepting places, once an offer had been made). Furthermore, it is possible that attrition rates may have been impacted on by changes to the population and other external factors. The author recognises that this impacts on the success of some of the measures. It would also be helpful to have more data on the impacts by different sectors of society, gender, race etc ... The thesis talks about racial balance varying from year to year (p165), but what might be the reasons?

study was partly addressed in the high rates of passes and graduation recently achieved in the undergraduate programme as a whole – see Chapter 6.5.21.

Conversion rates at UP are usually far above 80%, but this fluctuates. In a developing context with an economy in a state of flux and in light of logistics that may be unique to the realities of the Global South, there are many factors that influence whether applicants are able to accept and see through their intentions to study in a particular programme at a specific institution. The availability of funding is often a critical decider in this respect. This also partly addresses the last question about the variance in demographic data, which may be further discussed.

REQUESTED MODIFICATIONS:

The author ends each chapter by returning to the sub-problems and suppositions made in the introduction. In all cases the author claims that the data shows that the suppositions had been met. It may be helpful to expand these sentences to sum up the findings above so that the link between the suppositions and the evidence is made clearer. This would require a brief explanation of how the evidence demonstrated that the supposition had been met.

The intention was to keep the concluding argument in each chapter brief and to discuss how the suppositions were addressed in the 'Summary' that precedes the 'Conclusion' of each the chapter. The wording has now been adapted where the sequence was not explicitly clear.

The link between the curriculum and the admissions processes needs to be made clearer in the text.

This point was addressed in the fifth comment above.

Whilst the thesis concludes with respect to the University of Pretoria, for this to be more widely valuable, it would help for the conclusions to be cast within the context of the entire South African, or possibly global system. Given that data was collected as part of a questionnaire from a number of schools, it may be helpful for the author to return to this data in the conclusion, and compare and contrast the outcomes from [UP] with that of other institutions. The thesis ends by effectively saying that [UP]'s system is successful (p172), but other institutions offer different systems, but no-doubt claim that they are successful too.

Noted. In addition I would like to clarify that the national survey served to establish a first understanding and framework of local practice, which did not exist before this study. Not all of the respondent institutions could provide firm data so as to enable more detailed comparisons, which made it difficult to interpret Sections 11, 12 and 13 of the survey quantitatively for comparison. While some quantitative data were harvested, your comments highlight some of the possible shortcomings of the survey.

An important consequence of the study was to highlight that the possible success of a selection regime does not only depend on the quantitative outcomes that, if they were available, could easily be compared, but also that the success of a selection system could be measured by how it dovetails with the school's academic intentions and normative position. The fact that the study argues

that the School's selection system is currently successful does not, in any way, imply that the procedures followed by others are less successful. Three of the ten respondent institutions in fact indicated that their current systems worked "relatively well", which should be read as an indication that they view their selection practices as successful.

EXTERNAL EXAMINER TWO
Prof. Mark R.O. Olweny (PhD), Faculty of the Built Environment, Uganda Martyrs University, Kampala, Uganda

1. GENERAL THOUGHTS

It was a pleasure reading through this thesis, which was both an evidently personal engagement for the researcher, but also a reflective journey for me as the examiner as it related to my own journey in the transformation of the intake criteria in my own university. This thesis takes a bold step in seeking to bring forth an appreciation of the use of intake criteria for schools of architecture in South Africa, and more specifically, the developments in the School of Architecture at the University of Pretoria. These two engagements are to be applauded, given the on-going calls to decolonise and transform architectural education not only in South Africa, but increasingly across the globe as well. This starts with a firm appreciation of the status quo, and how it was arrived at. In this case, that exploration meant delving into the archives at UP, something not to be taken lightly as this required a lot of patience and stamina. The result in this case is a thesis that makes a significant contribution to our appreciation of the transition into architectural education by incoming students, and how schools of architecture strive to ensure students are not only aware of profession, but also what architectural education itself is about. The criteria in effect act as a two-way selection. The thesis makes a valuable contribution to our appreciation of the intake criteria used in South Africa, and could be the basis for a wider study for a similar study across Africa, and to instigate discussions of how to make architectural education more equitable. On a personal note, as stated above, there are uncanny parallels between the story of intake criteria in UP and my own experiences at the Uganda Martyrs University (UMU), likely a consequence of UMU being in a similar position to UP, as a second school to Wits, and needing to distinguish itself.

Noted with appreciation.

While the overall thesis is well put together and is on the whole a pleasure to read, there are a few areas within the thesis that require attention to ensure the document meets the aims and objectives of a PhD. These largely relate to the presentation of the information, which in its

Noted with appreciation. Where suggestions for improvements could be accommodated, it has been effected into the final document. While certain suggestions, including those that have bearing on the structure of certain chapters, are appreciated, it

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current form detracts from the extensive research work undertaken. This is particularly evident in the early chapters of the thesis (Chapter 2 and 3), which are not presented in a format that leads to a full appreciation of the value of the research. I would be inclined to revise these chapters to better communicate their intentions. Currently they are formatted the same as the studies in Chapters 4, 5 and 6, an approach that makes them somewhat taxing to read. Chapters 5 and 6 of the thesis are very well put together, and provide a valuable historical outline of how the intake of students into architecture at UP has evolved over the years, seeking to address the challenges of the time. It is interesting that it came a full circle after 40 years, and been rebooted after 2007 to reengage with the selection criteria. What is not clear is the full impact of the changes, which could be presented as quantitative information (graphs of charts). A key part of the thesis is the validation of the selection criteria, as presented in Chapter 6. This is an extremely important part of the study, and something that should be given more weight in the write up, and it supports the thesis as a 'live process'. It would also be a key contribution to other schools as well.

While a substantial part of the comments are included in the PDF document itself, following are some key amendments and corrections that are required:

has not always been possible to implement these for reasons that can be discussed during the viva.

2. INTRODUCTION AND LITERATURE REVIEW

2.1 The thesis is rich in information derived from the different sources across the globe, and scaffolded on the work of Goldschmidt et al. (2000) and Salama (2005/2015). The literature review at times presumes the audience is familiar with the work, and does not give full details as needed. This occurs in presenting Gropius (p.32); The South African colonial heritage (p.33); The pass mark for matriculation, among others. These should be reviewed.

Where suggestions for improvements could be accommodated, it has been effected into the final document.

3. METHODOLOGY AND METHOD

3.1 The methodology which included three key elements: the literature review, the questionnaire study and the document and reflective analysis are robust, and well executed, and give a valid set of outputs that lend themselves to discussions and conclusions. The significance of document analysis are often overlooked in thesis, but are particularly relevant for the purpose of such archival research. It is unfortunate that this process is not possible in much of Africa, as documentation is not well kept.

Noted; as stated in the (newly added) section on the contributions of the research – see Chapter 7.3 – the study affirms and acknowledges institutional repositories and archives as invaluable sources of knowledge in research endeavours.

4. DATA REPORTING AND INTERPRETATION

4.1 There are a few spelling and grammatical errors, as well as run-on-sentences, and single sentence paragraphs. Check the economy of writing to prevent the document from becoming too fragmented.

Where suggestions for improvements could be accommodated, it has been integrated into the final document. Thank you for pointing them out.

4.2 A key challenge was seen in the literature review, which is presented the same way as the research Chapters 5 and 6. This makes it difficult to follow at times.

In this respect the study may be at variance with other formats. A general literature review was summarised as part of Chapter 1, but it was also stated on page 4 that the main review of literature would be introduced and reviewed in the chapters where it is pertinent to the discussion so as to avoid confusion and a disconnect between literature and argument.

4.3 There are some nuances that are particular to South Africa. These need to be adequately explained such that an international audience appreciates what is being communicated (See p.18, p.21, p.30). It would also be useful to indicate which the SA provinces were (p.34).

Where suggestions for improvements could be accommodated, it has been effected into the final document.

4.4 There are some sequencing challenges evident (p.38) where the 1960s conferences were affected by an activity in 1972.

4.5 While in theory presenting the results using "respondent" is appropriate, this is confusing and somewhat misrepresentation. The questionnaires were filled out by individuals, on behalf of an institution or school of architecture, and consequently represent the institutional position. As such, they should be presented as "responding institution" or using some other adjective.

Noted and clarified in the text.

4.6 Chapter 2 makes for a good historical perspective of architectural education, but does not explicitly address intake criteria. While this may have been intentional, it can leave the reader somewhat confused as it deviates from the objectives of the thesis. Maybe try and add some clarification of why this has been done.

Chapter two does not mention the requirements for admission or assessment tools as it was intended to present the context for the remainder of the study by examining the context of architecture, the context of an education in architecture and the context of an education in architecture in South Africa. A clarification was added to the text.

4.7 In the engagement with historic precedents, one missing is the Russian VKhUTEMAS, which was started in parallel to the BAUHAUS, and significant for sub-Saharan Africa (although not specifically for South Africa).

For the Vkhutemas, the main challenge was finding primary sources with meaningful information other than the briefest of outlines of their admission policies in an accessible language.

4.8 Check pagination. Some titles fall at the bottom of the page (#100, #101, #152)

Thank you for pointing them out – it has been addressed and resolved.

5. FIGURES, TABLES AND EQUATIONS

5.1 In some cases tables or graphs would be beneficial to aid the appreciation of the quantitative data, such as the improvement of retention rates over time, or the changes in student intakes from various background. The textual information is not as dramatic in communicating this information.

Where suggestions for improvements could be accommodated, it has been effected into the final document. However, the study remains in the format of a qualitative narrative informed by mixed research methods; this decision was necessitated by a need for consistency as the study covers a period of forty-five years and some of the key data (or lack thereof in earlier episodes) did not allow for accurate or complete translation into visual formats, which would have resulted in a number of inconsistencies that could have undermined its integrity.

5.2 There is a lot of description of the instruments used over the years. While it is understandable that the current instruments may not be available due to competition, it would be good to have excerpts of these.

While one or two examples are mentioned to make a point, I believe that the focus of the study is more on the underlying principles than on the specificity of the selection tools. Unfortunately revealing more examples may additionally undermine future selection processes.

6. CITATION AND REFERENCES

6.1 While the paper states it is using the Harvard referencing system, this is not always consistent. In some cases authors are missing and only dates are provided. In some instances full reference is provided, but not in other cases. All references need to be reviewed for consistency and accuracy.

6.2 When multiple sources are cited, these should be presented either in alphabetical order or in chronological order (Example p.14).

6.3 A number of references are incorrectly cited, more an oversight, more so when there are multiple publications in one year, stated on the reference list, but not provided in the body of the thesis.

[…]

6.6 A key reference missing from the discussion is Crinson and Lubbock (1994). This would greatly aid the discussion on global issues in architectural education.

This may be due to different institutional requirements. For references without pagination, or in instances where the whole work is being referenced, a date should suffice. Other suggestions have been improved on, including your points 6.2, and 6.3. Thank you for pointing them out.

INTERNAL EXAMINER

Prof. Chrisna du Plessis (PhD), Department of Architecture, University of Pretoria, Pretoria, South Africa

The study aims to critically assess the selection of beginner architecture students at the University of Pretoria for the period 1971 - 2016. To achieve this aim, the candidate identified four sub-problems that needed to be addressed. These included an investigation into historical selection practices at architecture schools; selection practices used in South African architectural learning sites; and an overview of the development of the selection practices at the Department of Architecture at the University of Pretoria, structured in three 'episodes'.

The document and its narratives are well-structured and clearly presented; the methodologies used to investigate each of the sub-problems are suitable and valid; and the findings in each chapter are well-argued. The study presents an interesting and useful overview of the practices of selection used in architecture schools across the world and the value of the different approaches in determining student success (or not), based on which the researcher makes some normative conclusions.

Noted with appreciation.

The study found that selection as a general practice can be attributed to the mismatch between a considerable number of applicants competing for a very limited number of available places, determined by the resource-intensive nature of architectural education. Eight main assessment tools were identified, with the most common being academic performance at secondary education level and aptitude tests, with tools often being used in combination. However, there is considerable debate regarding the usefulness of these tools as stand-alone predictors of success in the study of architecture. An interesting further finding is that while architectural learning sites in South Africa do use many of the assessment procedures and tools used internationally, there are distinct regional differences that arose as a result of the realities of the local context, particularly the need to address inequalities as result of past political ideologies. In investigating the selection practices at the University of Pretoria, the study revealed a thorough, research-informed assessment system that was aimed at selection from a particular demographic cohort. As South Africa moved into another political dispensation, this was replaced by a simpler system informed by general managerial policies and based mainly on scholastic performance. This was found to dramatically skew the demographic profile of the student cohort and resulted in lowered success rates. The assessment system was then replaced with a three-part assessment process making use of multiple assessment tools combined in a nuanced manner which allows the Department to select candidates who show the qualities required for success in a very challenging programme and who are in alignment with the ethos of the Department. Under this new approach the selection process at the University of Pretoria became one of the most comprehensive in the world, leading to marked improvements in the academic outcomes of first year students and the programme in general.

Noted with appreciation.

While the examiner can identify several contributions to the field of architectural education, it is not clear that the

Explicated and added to Chapter 7 as suggested.

candidate understands the contribution this study makes to his chosen field. As the ultimate test of a PhD is that it contributes new knowledge, it is essential that the candidate can clearly demonstrate his ability to situate the study within the field so as to identify the specific knowledge gaps that the PhD study addresses and how it filled these gaps. The thesis is still missing this vital component and it is required that the candidate provides a short section in the conclusions describing the contribution of the study.

There are furthermore a number of small errors in the document, indicated in the marked-up PDF copy of the document included with this report.

The errors indicated in the text were corrected. Thank you for pointing them out.

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A

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