

**A CONJOINT STUDY TOWARDS
TRANSFORMATIVE LANDSCAPE
ARCHITECTURAL EDUCATION IN BRAZIL**

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ABSTRACT

The training of landscape architects in Brazil reproduces routinely the legend of Burle Marx as a self-made professional. That, however, need not be the case.

The central motivation for this work is the immature state of landscape education and of the profession in Brazil. Its intention is to contribute in the process of organising landscape architectural higher education in that country and, more widely, to aid educators in assessing their practice, identifying methods that can be used conjointly in education research.

Brazil's continental dimensions and notable environmental diversity require professionals that can act globally but also cater to particular regional needs. Analysing the current state of the profession, a fragmented network and total lack of statistical data on demographic and educational characteristics of professionals were perceived as obstacles to the development of the profession. This information gap prompted the development of a web based survey of Brazilian landscape professionals and students, which provided a baseline of information and revealed the significant issues for development of the profession.

To inform recommendations for the Brazilian context, a study of international preferences in landscape education was then performed, using Choice Based Conjoint Analysis via the WWW. Analysis of the results provided a basis for recommendations towards a new educational paradigm.

Establishing courses with a transformative pedagogy that focus on coaching students into thinking like landscape architects rather than on the assimilation of a static knowledge base is the central recommendation of this research. The adoption of this paradigm will give opportunities to satisfy the need for local relevance and to prepare professionals for new roles in a changing job market with vanishing geographical and professional boundaries.

ABBREVIATIONS AND GLOSSARY

	Portuguese	Translation or description
ABAP	Associação Brasileira de Arquitetos Paisagistas	Brazilian Association of Landscape Designers (Architects)
ABP	Associação Brasileira de Paisagismo	Brazilian Landscape Association
ANP	Associação Nacional de Paisagismo	National Association of Landscape Design
APA	Área de Proteção Ambiental	Environmental Protection Area
ART	Anotação de Responsabilidade Técnica	Notation of Technical Responsibility
ASLA	American Society of Landscape Architects	
BR	Brazil, Brazilian (in Mindmaps®)	
CA	Conjoint Analysis	
CAPES	Coordenação de Aperfeiçoamento de Pessoal de Nível Superior	Coordination of Graduate Personnel Training
CBC	Choice Based Conjoint – a conjoint analysis method	
CELA	Council of Educators in Landscape Architecture	
Cerrado	Brazilian biome similar to the Savannah, occurring mainly in the central plains	
CREA	Conselho Regional de Engenharia, Arquitetura e Agronomia	Regional Council of Engineering, Architecture and Agronomy
EBAUFRJ	Escola de Belas Artes da Universidade Federal do Rio de Janeiro	Fine Arts School of the Federal University of Rio de Janeiro
ECLAS	European Council of Landscape Architecture Schools	
ENEPEA	Encontro Nacional de Ensino de Paisagismo em Escolas de Arquitetura	National Conference on the Teaching of Landscape Design in School of Architecture
EPB	Escola de Paisagismo de Brasília	School of Landscape Design of Brasília
ESALQ	Escola Superior Agrícola Luiz de Queiroz	Luiz de Queiroz Agricultural Higher School – USP
FAU	Faculdade de Arquitetura e Urbanismo	Faculty of Architecture and Urban Design – the general name for schools of architecture, specified by juxtaposing the acronym of the university to it,

		e.g. FAUUSP, FAUURJ
FUNESO	<i>Fundação de Ensino Superior de Olinda</i>	Foundation for Higher Education in Olinda
GEAPSP	Grupo de Engenheiros Agrônomos Paisagistas de São Paulo	Group of Agronomist Landscape Designers of the State of São Paulo
IFLA	International Federation of Landscape Architects	
INAP	Instituto de Arte e Projeto	Art and Design Institute
INEP	Instituto Nacional de Estudos e Pesquisa em Educação	National Institute of Educational Studies and Research
LA	Landscape architecture (in Mindmaps®)	
LEPAB	Levantamento sobre o Ensino de Paisagismo no Brasil	Survey on the Teaching of Landscape Design in Brazil
MEC	Ministério da Educação	Brazilian Ministry of Education
MLA	Master of Landscape Architecture	
MLTC	Medium Level Technical Course: A professionalising modality of secondary education in Brazil, accredited by the Ministry of Education.	
NDAC	Non Degree-Awarding Course: courses of variable duration, offered by schools or individuals, aiming at a public with diverse backgrounds and levels of study, not accredited.	
PCP	Personal Construct Psychology	
PCT	Personal Construct Theory	
PNMA	Política Nacional de Meio Ambiente	National Policy for the Environment
SBP	Sociedade Brasília de Paisagismo	Brasília Landscape Society
Sertão	Bush lands, North-eastern interior landscape of Brazil, in the semi-arid climatic region	
SESu	Secretaria de Educação Superior	Higher Education Bureau
UFLA	Universidade Federal de Lavras	Federal University of Lavras
UFRJ	Universidade Federal do Rio de Janeiro	Federal University of Rio de Janeiro
UFV	Universidade Federal de Viçosa	Federal University of Viçosa
UNESP	Universidade do Estado de São Paulo	São Paulo State University
USP	Universidade de São Paulo	University of São Paulo

PREFACE: A PERSONAL ACCOUNT

I considered appropriate to offer a brief account of my own training route in *paisagismo* to illustrate this research, as it is a reasonably recent and typical instance. It shows similarities with the professional development of other Brazilians mentioned in the text and has the purpose of offering insight into the perspective from which I started this research.

In a manner typical of other Brazilian landscape designers, my training benefited from previous opportunities in the arts. Participation in a non-degree awarding course after my graduation in agronomy at UFV, 1990, helped me to develop some design and presentation skills, which, added to an academic horticultural background, became the basis of my garden design practice. I was offered a position to teach at that school in the following year, which I accepted. Teaching landscape design for the first time, there I had as students a mixture of people seeking to develop into a new career and others doing it for pastime.

Further learning took place when I worked for the Zoological Gardens of the Belo Horizonte Zoo-Botanical Foundation in 1992 and 1993, an interdisciplinary eye-opener. In charge of food production – the ‘educative farm section’ – and the park landscape, I was also co-responsible for the design and planting in animal exhibits, and helped occasionally in environmental education activities. As a result, Zoological horticulture and design was later introduced in an agronomy course for the first time in Brazil, yet in brief.

In August 1994, I started as a lecturer at the Federal University of Viçosa –UFV, Minas Gerais, –a school of prominence in the national academic scenario.

My landscape education practice was marked initially by isolation and lack of knowledge of landscape educational practices other than those few I had experienced

at UFV and later. My pedagogy at the tertiary level reflected my own learning process as a whole. This process included, besides the brief teaching practice mentioned above, six years of garden design, developed via trial and error and no critical assessment apart from my own and the feedback of clients.

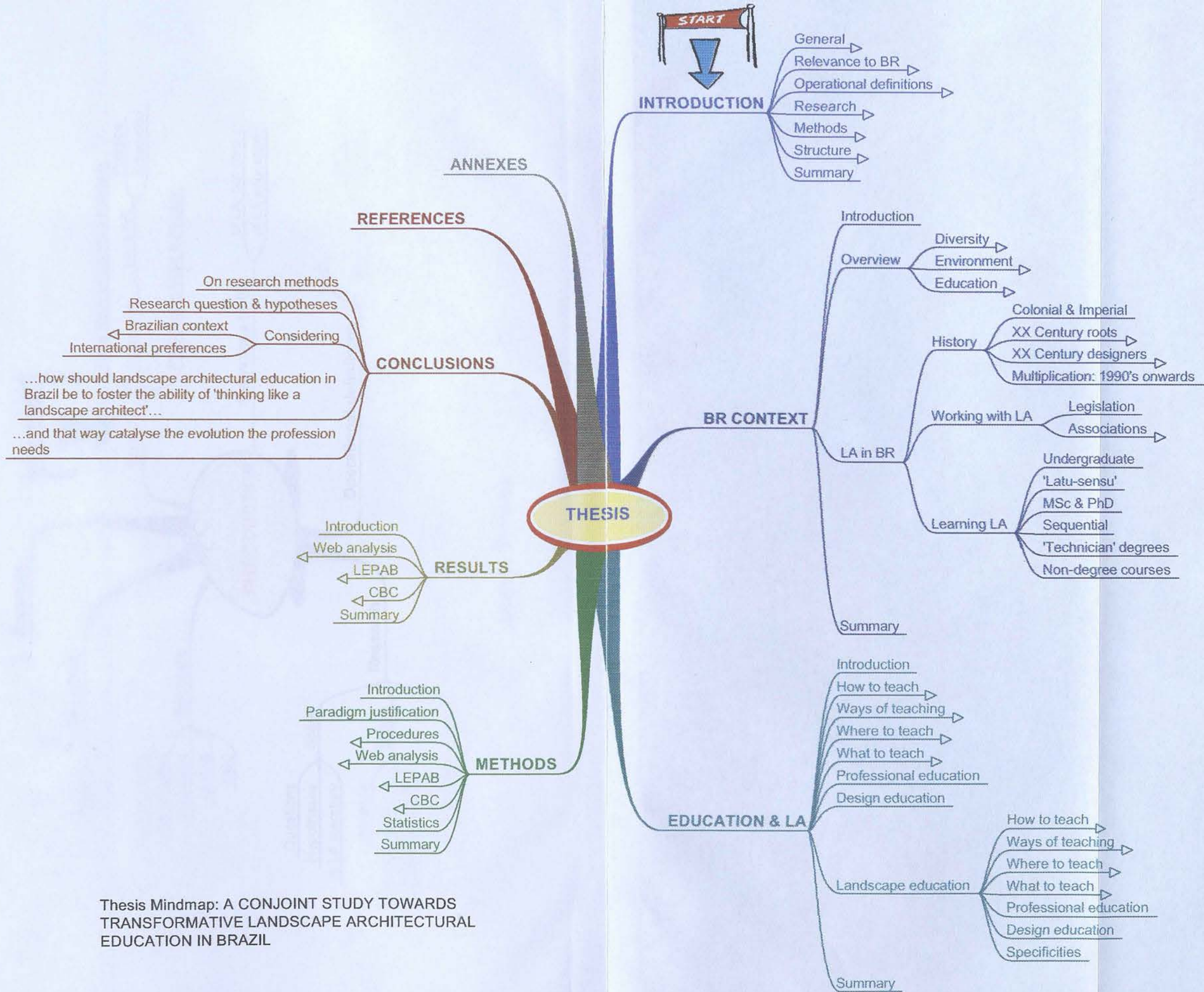
From 1994 until September 1998 I had the chance to teach c.a. 600 regular students and c.a. 300 in extension courses. Many of my former students presently work as *paisagistas* in different parts of the country.

It was only when participating at conferences like ENEPEA that I met the production of architecture schools, FAUUSP included, which motivated further experimentation in my intuitive teaching practice. From then, however, there was the awareness that there were many more doing the same as I was and the support of a few written accounts of those trials.

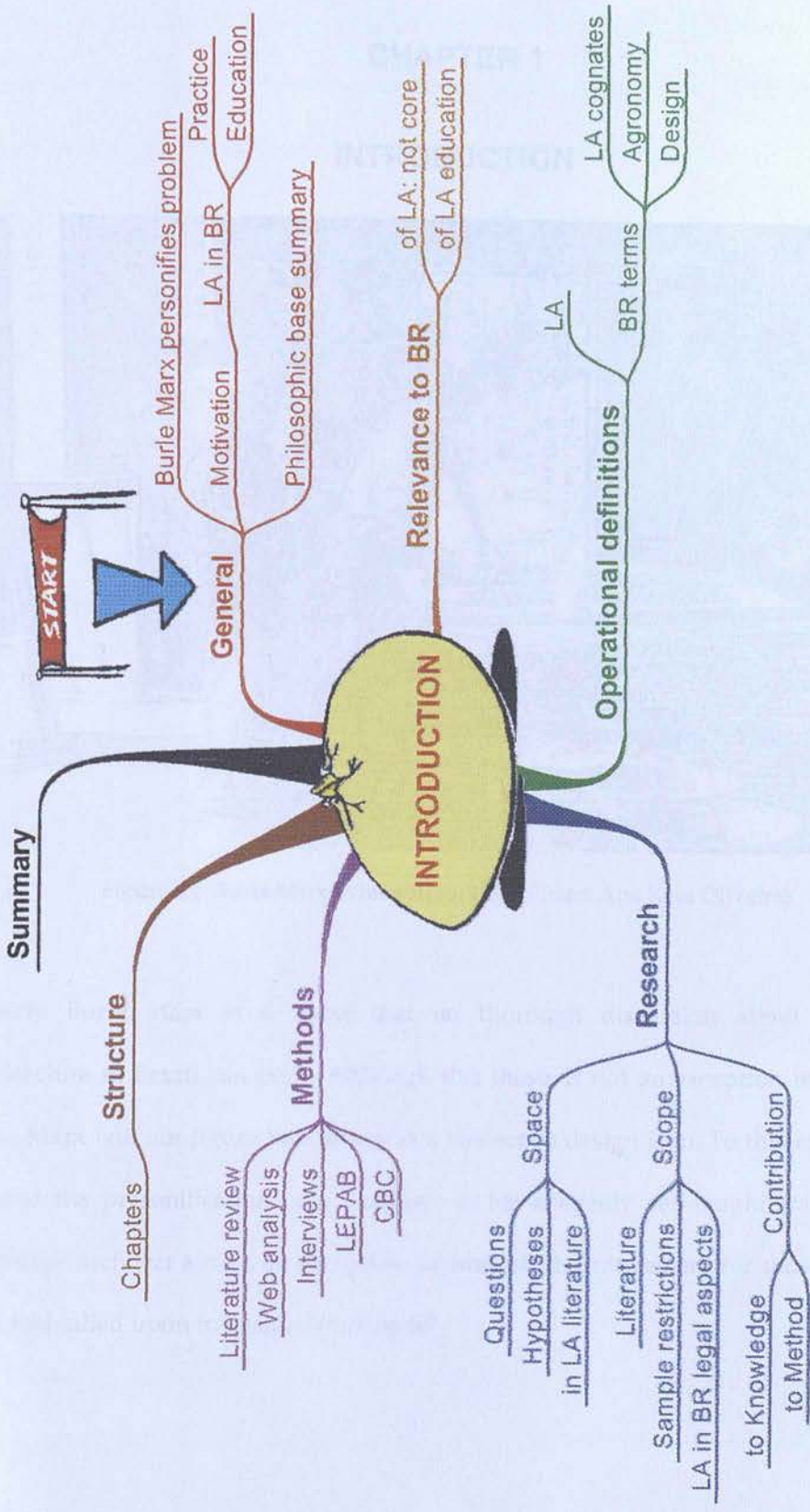
Subsequent experimentation in landscape education resulted in the work devised with the help of my friend psychologist/psychodramatist Dr. Esly Carvalho (Zuin and Carvalho, 1998) that applied principles of J. L. Moreno's psychodrama and role-playing to landscape education. Tested later with a voluntary group of nine agronomy students and a recently graduated agronomist, all from UFV, the procedures achieved instigating results. As published, this work showed concern with the continual usage of lecturing in landscape education for agronomists.

The thought that 'there must be a better way' for landscape education than that which I experienced and was offering challenged me to get on board the present research.

From 1994 to 1998, c.a. 30 agronomy students were formally registered for internship with me at UFV, when we developed designs for sites in UFV units, home gardens and public sites together. They populated my office most of the year, and that closeness with them strengthened my belief in relational pedagogy, as discussed in due chapter of this thesis. To them, the *Grupo Flor*, my most sincere thanks.



Thesis Mindmap: A CONJOINT STUDY TOWARDS TRANSFORMATIVE LANDSCAPE ARCHITECTURAL EDUCATION IN BRAZIL



Mindmap: Introduction

CHAPTER 1

INTRODUCTION

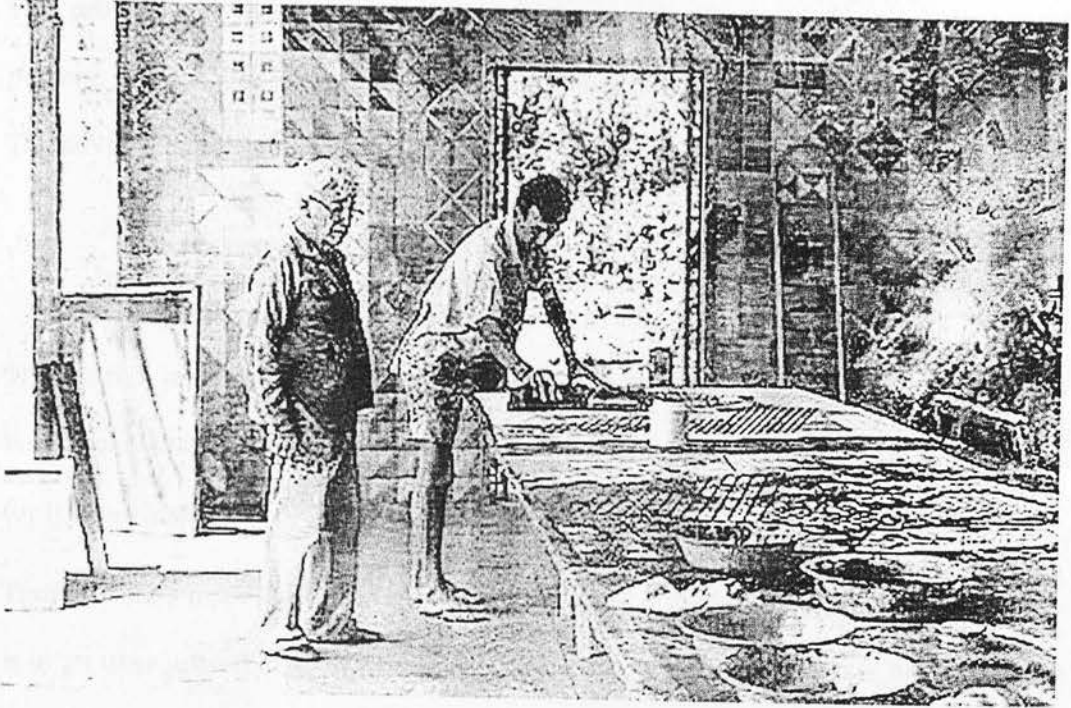


Figure 1.1: Burle Marx in his studio, 1992 (Photo: Ana Rosa Oliveira)

Roberto Burle Marx is a name that no thorough discussion about landscape architecture in Brazil can omit. Although this thesis is not an exception to this rule, Burle Marx will not figure here solely as a landscape design icon. To this research, he became the personification of a problem: is his allegedly self-taught training as a landscape architect a rule, an exception, or makeshift arrangement for those in Brazil who feel called upon to design landscapes?

The central motivation for the present work is the status of the landscape profession and the education of its professionals in Brazil. The intention of this research is to be an aide in the process of organising landscape architectural higher education in that country and a help to educators elsewhere to assess their educational practice.

The professional field of landscape architecture, despite its rich past history and present, is still being laid out in Brazil, as in many other countries, amidst controversy.

The architect Guilherme Dourado gave a frank account of the situation when he wrote:

“There is a perverse conflict in Brazil between architects and agronomists who work on landscape architecture. This conflict began as a battle for the job market, and was fuelled by the fact that professional attributions are legally overlapping.” (Dourado, 1997:11)

The conflict mentioned above gave rise to the first hypothesis this research took on board to investigate: there is discord in Brazilian landscape architecture and a solution for it is necessary.

Tension stems from the legal vagueness surrounding the landscape profession, which is in an unregulated state in Brazil. *Paisagistas* – landscape designers – are those who decide to call themselves so. Professional competencies, rights, and duties are not any clearer.

Legal measures or regulations, nonetheless, will not mitigate this position unless they are effective in re-defining the roles played by the actors in the landscape scene, resolving, at least in part, the identity crisis of many of them. For that, the discernment of what a landscape architect is must evolve and find minimal consensus among practitioners and educators from the various academic origins.

This situation, however, is not unique in the world scene of landscape architecture, as literature attests. Similar controversy is present in the history of the landscape profession in other countries, as is the case of the United Kingdom. The British association that later became the Landscape Institute published, in the April 1943 issue

of its 'Wartime Journal of the Institute of Landscape Architects', two important articles. They painted a picture where landscape architects seek definition of their work field with town and country planners, architects, and civil engineers. The group recognises the overlapping nature of these professions, alongside with their inter-dependence and the need for co-operation (Jenkins, Addison, Agar, Colvin, Jellicoe and Sharp, 1943; Jenkins, 1943). As part of a mitigation process, Jenkins (1943) proposed the formation of a combined committee with representatives of the four professions, with 'each prepared to sacrifice some of his sectional interests in order to reach an amicable agreement' (Jenkins, 1943: 13).

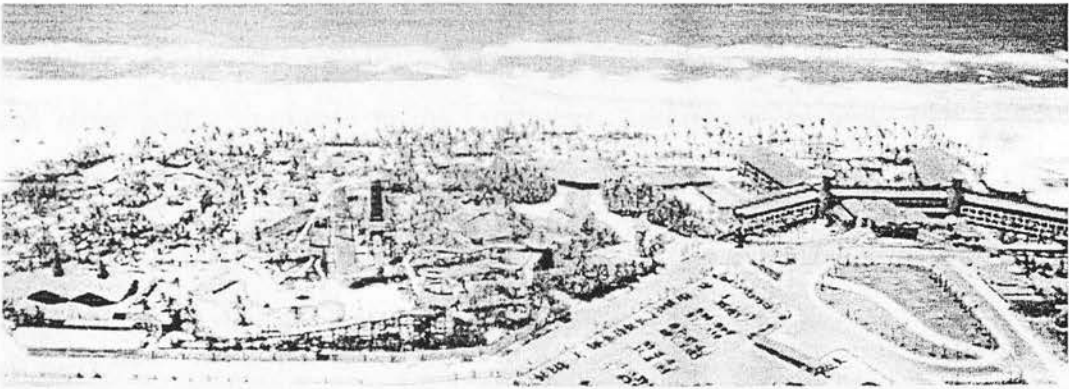


Figure 1.2: Beach Park – The largest aquatic park in Latin America, in Ceará, one of the poorest states in Brazil. (Photo: Secretaria de Turismo do Governo do Ceará).

The understanding of the profession of landscape architecture by the Brazilian public is just as obscure as the legal status of the profession. It is still considered a luxury for the very few, notion strengthened by works as 'Beach Park', shown in Figure 1.2, which is an exclusive resort placed in one of the poorest states of the country. The view of landscape architecture as a cosmetic treatment of the outdoors prevails widely (Franco, 1997). This appears often as a problem, though it is reputed to be changing (Leite, Bartalini, Macedo, Pellegrino, Mori & Lima, 1996). The public sector, increasingly employing landscape designers for the design of public sites, and the landscape

professionals who are aware of this stereotype and work against it, are responsible for this ongoing change.

General ignorance about the functions of landscape architects as professionals has been a deterrent to the advance of the profession. The image of the self made, supernaturally gifted designer of vast gardens for the elite —personified by Burle Marx— has been for decades the translation of the word *paisagista* for most Brazilians. This conjunction of factors has not helped the development of landscape education, which this thesis believes to lie in the roots of the existing problems and to be a fundamental part of their solution.

Education, it is hypothesised here, can lead to a solution for that 'perverse conflict' and the elitist profile attributed to the profession. This echoes the lessons of another Brazilian, the educator Paulo Freire, who wrote about education as an instrument of social change (Freire, 1972) and was a major influence in the understanding of adult education internationally, and for this thesis.

Specific education in landscape architecture in Brazil appears embryonic but is in a rapid process of development. The demand arising both from local environmental needs and from the increasing number of students interested in entering the discipline is pressing for growth.

However, the transition is bound to be long until courses of landscape architecture are widely available in Brazil. So far, attempts at establishing postgraduate landscape architecture courses were few. With a handful of exceptions, trials had little success or were short-lived.

A solution for the problems in the Brazilian landscape context will require future practitioners to be much more inter-disciplinary. More than that, they will have to

withstand pressure from the categories presently practising in the design of the landscape. Their work will permanently require the participation of other professionals such as agronomists and architects, exactly the ones from where most pressure is likely to originate.

As mentioned, the intention of this research is to contribute to the evolution of landscape architecture in Brazil through education. It became therefore necessary to lay a foundational understanding of education from the general, through professional and design training to landscape architectural education.

The view of education this thesis adopts is *transformative education*. This builds on tenets of different trends of humanistic education and uses George Kelly's 'constructive alternativism' as the structuring theory. Contrasting with the classic epistemological approach of 'accumulative fragmentalism', where 'truth is collected piece by piece' (Kelly, 1970:2), the Kellyan approach supports the preference for educational philosophies whose aim goes beyond the accumulation of knowledge and that privilege an equalitarian relationship between teacher and learner.

Professional education is understood here as an attempt to cause in students a personal reaction to the set of technical practices and body of knowledge that constitute a profession. The intended reaction is the starting point of the process that will foster in students the ability of 'thinking like a ____' (Schön, 1987:34) – where the title of the professional in question fills the blank. This is beyond reproducing techniques and information assimilated. The paradigm chosen for professional education in this thesis is reflection-in-action, as postulated by Schön (1987, 1991) and discussed by Denicolo & Pope (2001).

Professionals of design, landscape architects included, rely on a 'sophisticated mental process capable of manipulating many kinds of information, blending them all into a

coherent set of ideas and, finally, generating some realisation of those ideas' (Lawson, 1997:10). Since design is a skill (Lawson 1997) and involves a particular mode of thinking, design education is explored here as a process of 'coaching'.

In the bigger picture, this research hopes to assist landscape educators in examining their practice and moving towards a position of greater relevance to their context as 'enablers' – a concept that points to an evolution in the role of the teacher.

A. Relevance of this research to Brazil

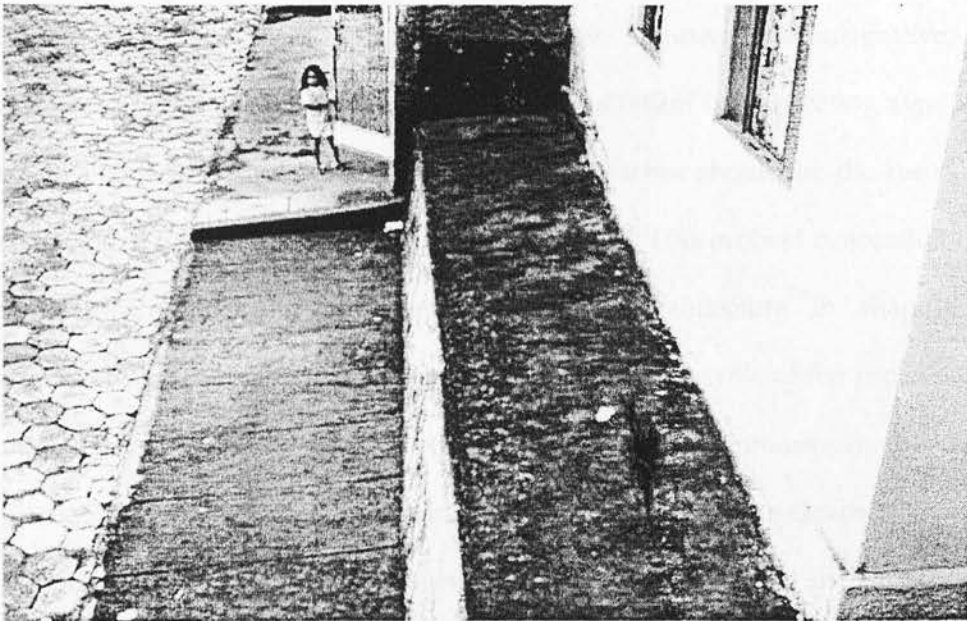


Figure 1.3: A vernacular garden in Viçosa, MG, reflects a lack of priority –but not its total denial– for the aesthetics of the built environment to the lower-middle class. (Photo: A. Zuin)

Although it is not the core of this research to examine whether or not and why Brazil needs landscape architecture, considerations on the relevance of landscape education to it are necessary, since Brazil is a developing country where basic needs – e.g., physiological and safety ones (Maslow, 1970) – of many are yet to be met. This understanding could diminish interest in fostering landscape architectural education there should the common but limiting 'cosmetic view' (Corner, 1999) of landscape architecture prevail. That approach projects the image of a profession that devotes

itself 'only' to the beautification of the land for the fortunate few. Aesthetics is an inalienable element in the work of the landscape architect. It is also a need that requires satisfaction, fact the history of humankind witnessed since its primeval days (Maslow, 1970). However, as figure 1.3 above suggests, it is a need of all that so often attracts misguided efforts for its satisfaction.

Gardens for the privileged and closed to the majority flourish in Brazil and in most of the world today as they did in the past, and they will be planted as long as the distribution of wealth remains uneven as it is. Still, this exclusivist practice of landscape architecture does not preclude another, inclusive and integrative, that contributes directly to the welfare of every social stratum by dedicating significant efforts to planning. This other style of landscape practice should be the result of a renewed and broader understanding of the profession. This evolved conception must contemplate the social significance of landscape architecture in shaping the environment where humans meet their needs. Moreover, the role of the profession in planning and managing the use of the land so that future generations can still benefit from a viable environment is a basic and universal requisite that landscape architecture exists to help meet. That way, the relevance of the profession and the timeliness of investment in landscape education cease to be questionable, as those who graduate from landscape courses will be prepared to contribute with far more than the beautification of the land.

Until the second year of this research, the existence of the landscape design – *Paisagismo/Composição Paisagística*¹ – course in the Fine Arts School of the Federal University of Rio de Janeiro was unknown to this researcher. It has gained little recognition in thirty years, and few people – even landscape professionals – are aware

¹ Literally landscape design

of its existence. Adding to that, the presence of architects and other professionals in landscape theory, practice, and education is patent. All that considered, more specific higher landscape architecture programmes could be redundant. The efforts for offering landscape courses in all levels, described in chapter 2, and the apparent demand for them counteract this line of reasoning. These conflicting interpretations of the status quo serve as illustration and add to the relevance of this research.



Figure 1.4: Galleria Shopping Centre, Campinas, state of São Paulo (Photo: A.Zuin)

The moment this research was undertaken is decisive for the future of landscape education in Brazil. With a long delay in relation to the existing demand, expansion is imminent. The Brazilian Ministry of Education has recently opened new doors, accepting new professional course formats and lengths, and regulating new levels of qualification, with the example of professional master's degrees.

The 'virtual mobility' offered by the Internet, with the possibility of offering courses to distant audiences (Stiles, 2000), is concrete, and is there to be explored. The 'virtual

studio' is a reality. Landscape architecture schools may or not benefit from that, taking these opportunities to expand their student catchment area. This will receive further attention in Chapter 3.

Schools are organising landscape courses, but their scope is still hazy and defined locally through the indigenous understanding of what landscape architecture is, who landscape architects are, and what they do. At least one post-graduate diploma programme in landscape design is now available in the distance learning mode in Brazil and will be discussed in Chapter 2.

Brazil's continental dimensions and notable environmental diversity require professionals and a knowledge base that will cater to particular regional needs. The situation highlights the requirement of local relevance for research and education, a point to which Brazilian practitioners and educators interviewed frequently referred.

Establishing courses that focus on coaching students into thinking like landscape architects, rather than on the mere assimilation of a knowledge base, is a principle also proposed to tackle the local and regional relevance issues.

B. Operational definitions

The flexibility and at times fickleness of terms involved in this thesis required discussion and the stipulation of definitions, in search of consistency. Language differences and translations tend to overlook local nuances and cause misunderstandings, as in the Brazilian case with landscape related terms. There is no pretension of offering final definitions, since, as constructs, they are dynamic. The definitions proposed here are, therefore, operational.

1. Landscape Architecture

'I am all the time bothered with the miserable nomenclature of Landscape Architecture. Landscape is not a good word, Architecture is not; the combination is not – Gardening is worse. (...) The art is not gardening, nor is it architecture'. F. L. Olmsted, 1865, in a letter to C. Vaux. (Pregill & Volkman, 1999:503)

Turner (1990) raised the issue of the propriety of the nomenclature, reviewing on the history of the term in the English language, dictionary definitions, and implications. He questioned the title and expressed his preference for 'landscape design'.

Hill (1995), when writing about landscape practice in tropical regions, observes that the term 'landscape architect' has not received the same protection that 'architect' has. He claims that the landscape architect is one who has received formal education in the discipline, whereas the landscape designer may as well be someone who has had no access to such education but practices in the field.

Landscape architecture is an interface between various arts and sciences, being itself art and science. Other disciplines are interfaces, but is any other as visible? Interfaces are, as seen in chemistry and other sciences, the site of more intense activity. This is evident in the landscape field, where other professionals besides landscape architects act –often with success. The 'ragged and ill-defined edges' (Stiles, 1998:104), fuzzy boundaries of the discipline account both for good neighbouring interactions and territorial conflict, where the alleged trespassers see themselves still within their own terrain.

Resulting from the interaction between environment and culture –perhaps in an 'act of mediation' (Eaton, 1997), landscape architecture as a discipline will have its local shades and will need to be understood locally. However, globalisation and phenomena as the formation of economical blocks demand some degree of homogeneity for professions. The mobility of landscape professionals across Europe, for instance,

requires some degree of standardisation as to what landscape architects *are*, which involves what they *know* and *do*.

Bourassa (1991) argued that landscape architecture should exercise discipline over architecture, whose exorcism, instead, it is invited to beautify by hiding with vegetation. That is merely juxtaposition. Interdisciplinary work is expected and marketed as the logical evolution towards an integrated environment where 'inside' and 'outside' are not two distinct worlds.

Landscape architects are professionals of synthesis, as the prominent Brazilian landscape designer Fernando Chacel emphasises in an interview to this researcher (int.:14 June 2000). As such, they have an essential role in teams making decisions about the environment.

A search for given definitions for landscape architecture brings a wealth of material. Ever-present concepts included are those of problem solving and decision-making.

The subjectivity of judgements makes the definition of 'problem' rather imprecise, especially when the subject of the interference is of a mainly aesthetic order. This may result in disagreement over one aspect or another being a problem or not. Difficulty is a concept inherent to the notion of problem. 'Something put forward', however, is the Greek etymological root for the word (Problem, Collins, 2000), which describes well the nature of the design problem described here.

Problem solving requires problem finding. *Finding* is as much a part of design as *solving*, and a solution for a design problem may become the problem itself (Lawson, 1997). This brings the notion of *creating* problems to the discussion.

Landscape architects could be those who 'create and solve problems with living things as well as the inanimate materials and processes of the environment that support them.' (La Dell, 2000:42).

The designer's mind creates problems when it, framed by a personal construct system, takes the landscape in, processes it, and projects a personalised view of that environment through the design solution proposed. Users/clients, who view the world through different goggles – their own set of constructs, process that solution differently. Thus, problems existing in the minds of the others around the designer might have remained unnoticed from the start, and new ones created with the intervention.

Another side of 'creating problems' is that designs may become obsolete and, after some time, require intervention to 'update' the solution according to the new context –including all its aspects, as changed environmental and social aspects, different site use, new or reconstructed scientific knowledge, and technology. Hence, what is implemented as a solution today may become or cause problems later.

Clients/users and designer have, therefore, to formulate the problem in such a way that the holders of different sets of constructs involved will understand it and view it as a problem needing solution –a clear brief, in other words. *Formulation* now comes into to the discussion. Added to the various connotations of the terms raised so far it opens ground for an allegorical approach: landscape architecture as hypertext poetry.

An exploratory way of looking at the landscape architect can be as the 'hypertext poet'. For this metaphor, let the designed landscape be the text, and the act of writing, the design process itself.

The hypertext writer is the professional who writes the text to the given theme of the brief, putting into coherent discourse a host of information and professionals. Otherwise, such information and professions would lack meaning in the landscape. However, as in Internet hypertexts, the text itself may not show immediately the complete array of knowledge and information it embodies, but provides links to them – it is all virtually there. This can imply that the hypertext writer does not necessarily have deep knowledge of everything to which the text is linked, but knows enough to embed that in the context.

However, the hypertext poet would go further. More than prose, the poetic text – beyond the boundaries of rational thinking – will be personal, emotional, and connotative, having form as an inalienable attribute.

Poetry allows contradictory pieces of information to be associated in the same text and still have meaning. Landscape architects are frequently confronted with situations where information conflict arises. A brief can conflict with the user or with the site itself. The designer then has to process and decide. A denotative view of the task would force professionals into an endless technical or ethical crisis. Connotatively, however, it becomes possible for them to find the point of touch. The poet needs the command of language and its rules to an extent that syntax and morphology become bridges, rather than hurdles.

In short, landscape architects are hypertext poets who find, create, formulate, and solve problems with processes, living and non-living organisms in their environment. Landscape architecture is what they do, with the addendum that, as discussed earlier, it should be accessible to all – unlike hypertexts and the Internet.

2. Brazilian Terminology

Some central terms for this research used in Brazilian Portuguese require explanation, rather than simply translation. Because of the way the profession and the use of its language evolved at different paces in Brazil, translations can be misleading.

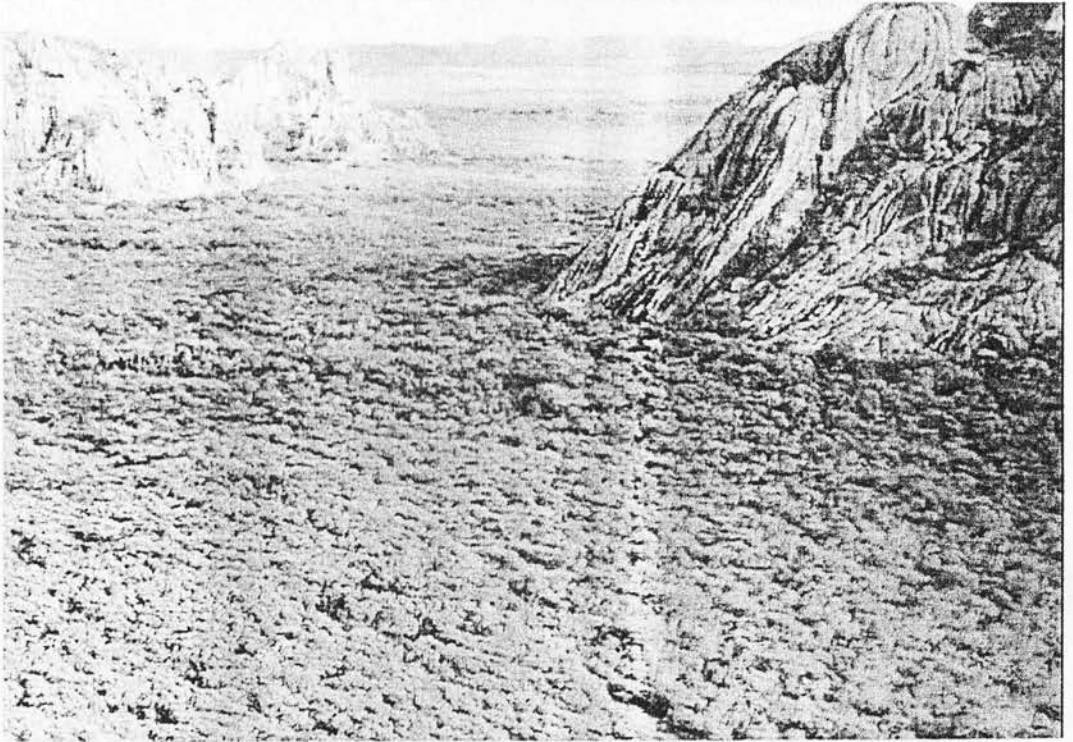


Figure 1.5: Sertão –inland landscape of the state of Ceará (Photo: Secretaria de Turismo do Governo do Ceará).

Landscape architect/landscape architect

Paisagista (masculine and feminine; plural: *paisagistas*) is the word generally used for landscape designer/architect in Brazilian Portuguese. It can also mean, as it was originally and literally, landscape painter (*Paisagista*, Porto Editora, 1999), as in other Latin languages. Commonly, garden designers are similarly given the title of *paisagistas*.

Although he used to refer to his own works in general as 'gardens' (Marx, n.d., 1962, 1967, 1975), this research accepts as a basic assumption that what the *paisagista* Roberto Burle Marx did as landscape architecture, as much as the *paisagismo* of many other practitioners in Brazil is also landscape architecture, rather than only garden design.

Arquitetura paisagística should be the equivalent of landscape architecture; however, it is used almost exclusively by architects. A less common variant also exists, which is *arquitetura da paisagem*, meaning exactly 'architecture of the landscape'. *Paisagismo*, however, is a term accepted by all strands of professionals for the discipline.

Arquiteto paisagista (fem.: *arquiteta paisagista*, masc. plur.: *arquitetos paisagistas*, fem. Plur.: *arquitetas paisagistas*) is the literal equivalent of 'landscape architect'. However, since landscape architecture does not receive any legal state recognition as a profession in Brazil, *arquiteto paisagista* will mean, to most people, an architect that does landscape design.

The situation is similar in Spain where *paisajista* should be used instead of *arquitecto paisajista*, because of restrictions by the architects' professional association, 'jealous of the use of the term *arquitecto*' (Holden, 2001: Summary). Although there is no restriction from the Brazilian association of architects, there is some discomfort to non-architects in using *arquiteto paisagista*, which sounds restrictive and is then abandoned in favour of *paisagista* as their chosen title. The Brazilian Association of *Arquitetos Paisagistas* – ABAP – only accepts qualified architects or landscape architects who, in that case, studied abroad, for full membership. Differently, the National Association of *Paisagistas* – ANP – is open to anyone who produces curriculum vitae showing activity in the field, regardless of their educational background.

Turner's (1990:29) proposition that "'landscape design' is the basic name of the art which we practice" subsidises the usage of the term 'landscape designer' here for

Brazilian practitioners in general, except those trained abroad in landscape architecture. However, the Portuguese word *paisagista* is preferred here to refer to Brazilian professionals.

The section about Brazilian practice of landscape architecture and its regulations, in chapter 2, will expand this matter.

Agronomy and horticulture

Other terms that need clarification are 'agronomy' and 'horticulture'. The general understanding amongst Brazilian professionals in the field is that horticulture is one of the fields of study contained in agronomy.

If agronomy is 'the science whose objective is the cultivation of fields' or 'theory of agriculture' (Agronomia, Edições Melhoramentos, 1999), horticulture, being a 'branch of agriculture concerned with the cultivation of vegetables, ornamental plants, flowers and fruits' (Horticultura, Edições Melhoramentos, 1999), is included there.

Horticulture is popularly understood in Brazil simply as the cultivation of vegetable gardens – *hortas*. A search on the IBGE – Brazilian Institute for Geography and Statistics – brings exclusively edible crops under the title *Horticultura* (IBGE, 2002), illustrating this common understanding. For this reason, it is seldom employed outside professional circles. In agricultural schools and universities, it is common to find Horticulture departments. These will normally offer courses and conduct research on fruit, vegetable, and flower crops, ornamental plants, gardening techniques, and landscape design.

Therefore, in Brazil, a professional horticulturist is necessarily an agronomist and not necessarily involved with the care or cultivation of ornamental plants or gardens.

Another necessary observation is that agronomists are equally known as 'agronomic engineers', and agronomy, 'agronomic engineering'. There is technically no difference between these notations.

Design

The word 'design' itself is of obscure translation. Most frequently, it is used in Brazilian Portuguese not translated. Three dictionaries bring it as a noun – never as a verb – already incorporated to the Portuguese language (Design , Holanda, 1996; Editora Melhoramentos, 1999; Porto Editora, 1999), and one, edited in Portugal, does not contain it as a valid entry (Priberam Informática, 1999). When translated, the words used as equivalent to 'design' would be, literally, 'drawing', 'project', 'draft', 'plan', 'planning or its result', and 'conception'. Nevertheless, *desenho* (literally 'drawing') is currently used by many authors, figuring in translations as of 'environmental design' – *desenho ambiental* (Franco, 1997:10).

C. *Research space, scope and contribution to the field*

Reflection on several aspects this research could comprise generated a series of questions for which answers would be desirable but would extrapolate the intended scope. For that reason, better discrimination became essential.

From the application of Schön's (1987, 1991) reflective practice to landscape architecture, one question that emerged was, 'how do landscape architects think?' After a brief incursion through cognitive psychology, this researcher concluded that, in practice, this is virtually unanswerable, belonging to the realm of tacit knowledge of landscape architecture. However, qualification and specification of situations broke this fundamental question into other more manageable ones that set this research in motion.

The assumption that the landscape school is a major influence in the way landscape architects think and practice lead this research to relate the query above to education, hence asking, 'how should landscape architecture be taught?' Literature review was the first method used to respond to that by structuring a theoretical approach to education and landscape education. Once established the theoretical framework, one way this thesis found valid to examine the practice of landscape education was through looking into the value those who offer, receive and have received it attribute to some of its fundamental aspects. Therefore, the question that emerged was 'what do landscape practitioners, educators and students value most in a landscape architecture programme?'

As mentioned, the Brazilian context was the main aim of this research, which specified situations and conditions for the investigation. Further specification came when considering the hypotheses already raised, which, in summary, were:

- There is discord in Brazilian landscape architecture and a solution for that is necessary.
- Education is an instrument of transformation.
- Education can contribute to a solution for the 'perverse conflict' and the elitist profile attributed to landscape architecture in Brazil.

Thus, a more structured question this thesis endeavoured to answer was:

Considering the Brazilian context with its assets and needs, and international preferences, how should landscape architectural education in Brazil be to foster the ability of 'thinking like a landscape architect', and that way catalyse the evolution the profession needs?

Regarding the context, it surfaced that information on Brazilian landscape architectural education is, in general, sketchy and scattered, as is the knowledge on those who practice nationwide. Reviewing literature on Brazilian landscape practice and education and filling the gaps it left by means of interviews and a survey became a need for this research and, finally, part of its original contribution to knowledge.

To complete the picture of Brazilian landscape architecture, needed to answer the question broached above, this research also comprised an analysis of Brazilian web sites of landscape interest, described later. This procedure, though not original, was applied to Brazilian landscape sites for the first time.

The literature in landscape education, however scantily distributed, is significant, but didactics of landscape architecture is a field that, internationally, is yet to receive the amount of in-depth research work it deserves and needs. This is understandable when bearing in mind the relative youth of Landscape Architecture as a discipline and its recent formal existence in the academia.

With that background, this thesis endeavoured to offer practical and new elements for helping landscape educators to become relevant 'enablers'. That happened here through the collection and analysis of data from a universe of practitioners, educators, and students. Conjoint analysis –CA–, one of the methods employed, for this collection, provided rich insight into the valuation of different attributes of landscape architectural education programmes by a wide international audience. The application of CA as a research instrument was an original contribution of this thesis to the methodology of landscape architectural research, bringing also new international information to the field, as contribution to knowledge.

Concerning its scope, this research did not intend to be a thorough examination of educational practice in landscape schools. Therefore, an overview of landscape education ideas, rather than a comprehensive and in-depth review, helped set the parameters for the field investigation. There is plenty of descriptive and narrative literature on landscape education practice in conference proceedings and periodicals, and that found use here as background information.

However, as the paradigm defended here supports, it is necessary that the context and people involved in the process have their say and be actively engaged in every stage, generating the curriculum, the pathways through it, and instruments for the verification of effectiveness of the process –assessment that will be constructive for learner and teacher alike.

The nature of the instruments of data collection posed clear limits to what part of the population of the world of landscape architecture would be examined. As discussed in later chapters, Internet users constituted solely the samples used for both the Brazilian and the global studies. Although misrepresenting some of the sections of the population –e.g., giving a higher than usual degree of instruction to the Brazilian

contingent of landscape designers— the findings give rise to relevant information, new questions, and elements for further research.

When discussing and presenting solutions for the situation in Brazil, the legal aspect of landscape practice, though understood as part of the problem and necessarily of the solution, was not examined in depth. This remained as object for subsequent research. Hence, the solutions and recommendations presented here refer to the educational arena.

D. Research Methods

An array of methods was employed for the development of this work, informing one another and giving the study the *conjoint* nature indicated in the title of this thesis.

Literature review was the first method used, instrumental in refining research objectives, identifying its space and situating this research in the field, and selecting methods of investigation for the other phases of the work.

A systematic analysis of the content of a number of Brazilian *Paisagismo* web sites offered insight into what Brazilians divulge landscape architecture is and of activities in which *paisagistas* are involved.

When collecting data in subsequent phases, the subjects selected were practitioners — including educators — and students. Part of the investigation endeavoured to establish a profile of Brazilian landscape designers, while another part sought to determine the preferences of subjects to several aspects of landscape education.

Preliminary interviews with selected Brazilian landscape practitioners searched for their educational history and impressions on the present state of their field of work.

Subjects for this part of the investigation were chosen amongst practitioners with expression in landscape design and education. These interviews were useful in providing some of the first references for mapping the territory for later examination with a web based survey with *paisagistas*, which is referred here as LEPAB. These interviews also yielded elements for conjoint analysis.

The final part of the investigation applied conjoint analysis –CA– term that relates to a range of techniques developed from mathematical psychology, and popularised as an instrument for marketing research. It measures the value subjects assign to product attributes, through the trade-offs respondents make between attributes. CA, therefore, emerged as adequate for this research as it allowed quantitative assessment of the value by Brazilians and participants from other countries attribute to educational variables in the landscape field. Choice Based Conjoint analysis –CBC– was the type found most suitable to this study. Making CBC operational over the WWW allowed for a larger sample, overcoming geographic limitations. The advantages and limitations of the method, its usage via the Internet, and lessons for future research are discussed in chapter 4.

The Internet was the means for administration of the survey questionnaire and conjoint analysis, as well as source of information and data.

E. Structure of the thesis

This thesis is organised in six chapters, described as follows and in MindMaps® preceding each of them, which should be read clockwise from the 'Start' point marked..

Chapter 1 – 'Introduction', spells out the objectives and motivations for the research, raising the central problems that motivated it. Operational definitions and a summary of the main research methods employed are given.

Chapter 2 – ‘Brazil as a context for landscape education’, presents the conditions to consider when setting up landscape programmes in the country. The chapter also exposes the current situation of the landscape profession and education in Brazil, with highlights of their history.

Chapter 3 – ‘Learning to teach while teaching how to learn – fundamentals for landscape architectural education’, presents a review of educational paradigms and philosophical grounding of this thesis. Education is discussed in general, and in the spheres of professional and design training, to support considerations on landscape architectural education. Related aspects of relevance to the contemporary practice of education are also included.

Chapter 4 – ‘Research Methods’, presents the procedures used in the investigation, with considerations on the paradigms underlying their choice.

Chapter 5 – ‘Data analysis’, gives the results of the procedures described in chapter 4, with statistical analysis of the data obtained and the criteria used for it.

Chapter 6 – ‘Conclusions and Implications’, finalises this thesis by relating the findings exposed in chapter 5 with the research questions, problems and needs raised at chapters 1, 2 and 3. Implications of the findings to landscape architectural practice and education in Brazil, limitations of the work, and possibilities for further research are raised, closing the chapter.

Annexes – A CD-Rom is an integral part of this thesis and contains tables and files related to the research procedures, including the webpages for LEPAB and CBC. A printed version of the webpages is also presented as annex.

F. Chapter Summary

It is the intention of this thesis to be a catalyst in the growth process of landscape architecture education in Brazil and internationally. For that purpose and according to the educational paradigm adopted, there is no emphasis on suggesting a curriculum, since it is a response to local needs and possibilities. Likewise, no laws or rights-and-wrongs lists are proposed.

Recommendations this study makes resulted from new findings achieved via the various methods employed conjointly, including literature review, interviews, web site analysis, web based survey, and conjoint analysis.

This thesis offered original contribution to the field of landscape architecture in knowledge, with the generation of new information about Brazil and international landscape architects, and in methodology, applying methods new to landscape architecture and to Brazil and, conversely, presenting new applications to the methods, used in other fields.

This chapter laid the foundations of this thesis. It introduced the research problem, questions, and hypothesis. This Introduction also examined the relevance of this research to the context that generated it – Brazilian landscape architecture –, the space for this kind of investigation in the field, and, briefly, the research methods employed. It brought operational definitions of key terms, along with explanations of terms used in Brazilian Portuguese and their equivalence in English. An outline of the sections and chapters composing this thesis concluded this Introduction.

On this foundation, this text proceeds, with a detailed description of the research.

CHAPTER 2

BRAZIL AS A CONTEXT FOR LANDSCAPE EDUCATION



Figure .2.1: Brazilian Tourist Board, Brochure covers for four of the five Brazilian geographic regions

A. Introduction

The present chapter examines aspects of Brazil that are relevant to the development of landscape architectural education and identifies lacunae this research can help fill.

The right to an ecologically and sustainable environment is granted to all Brazilians by the 1988 Constitution, which dedicates a whole chapter to environmental issues. The country's *carta magna*, associated to state constitutions and municipal laws, makes up one of the world's most advanced legal systems in that respect (Rodrigues, 1998). Many of the constitutional responsibilities of the government and communities are functions of landscape architects in most parts of the world. Preservation and restoration of ecosystems and their processes, definition of spaces for protection, environmental impact studies, reclamation of mined areas, and protection of cultural heritage – including natural and ecological values – are some of the explicit duties of governments and citizens in regard to the Brazilian environment (Brasil, 1998).

Though slowly, the understanding of the landscape profession in Brazil is evolving, as citizens and government learn that landscape professionals can help them fulfil their environmental obligations and improve living spaces not for a few, but for all.

Brazil —an overview

Diversity

The country, fifth of the world in size, is known among many environmentalists as the country of 'megadiversity', with approximately 20 per cent of all known living species on the planet (WWF, 2002).



Figure 2.2: Brazil's seven biomes (Source: *Ciência Hoje/RJ*, 19/07/00)

Geophysical and climatic variations made way to the formation of seven main biomes, as in figure 2.2: Amazon—*Amazônia*, Atlantic Forest—*Mata Atlântica*, Caatinga², Cerrado savannah, Coastal —*Costeiro*, Wetlands of the Central West—*Pantanal*, Southern Grasslands—*Campos Sulinos* and Transition zones—*Transição*. From soil chemistry to animal life, their differences are dramatic. The individual richness of each of these environments demands professionals working there to have, allied to the understanding of their physiographic aspects, the ability to research and perform, at times, with little information on particulars one task or another may require.

Socially, the country is equally varied. With the input of foreign settlers since the very early days of its recorded history, Brazil is the home of a racially mixed population with regional identity. Population history starts from the native Amerindians, divided in numerous groups and tribes, numerically estimated as five million at the start of the 16th century, greatly reduced by disease and killing and diluted by intermarriage to a present number of 325 thousand (Ministério das Relações Exteriores, 1996). Distributed in 215 ethnic groups and speaking 170 distinct languages, 60% of the indigenous population inhabit the Amazon region, although only three of the 27 federative units have no Amerindian population. (MRE, 1996).

Starting from the arrival of the Portuguese in 1500, European immigration was important. As agriculture developed, millions of Africans from Angola and the Guinea coast were brought to work as slaves, becoming another fundamental component of the Brazilian people (Newson, 1987; Smith, 1987). The settlement of Germans and Italians in the Southern states started during the second quarter of the 19th century, and to them, a small contingent of Poles and Ukrainians was added 50 years later. The 1880s saw a massive influx of Italians, who replaced the Portuguese as the most

² Bush lands, North-eastern landscape of Brazil, in the semi-arid climatic region

numerous group and were associated mainly with the production of coffee (Preston, 1987). Japanese groups were also a significant addition, particularly in the states of São Paulo and Paraná, in the early 20th century (Preston, 1987).

Because of the interactions between such varied environment and spectrum of cultural origins, the built environment is also rich in nuances. Both the vernacular and the professionally designed architecture and landscape show a multiplicity of influences, in the past and present. This topic is developed further in the next pages, when reviewing topics on history.

Environment

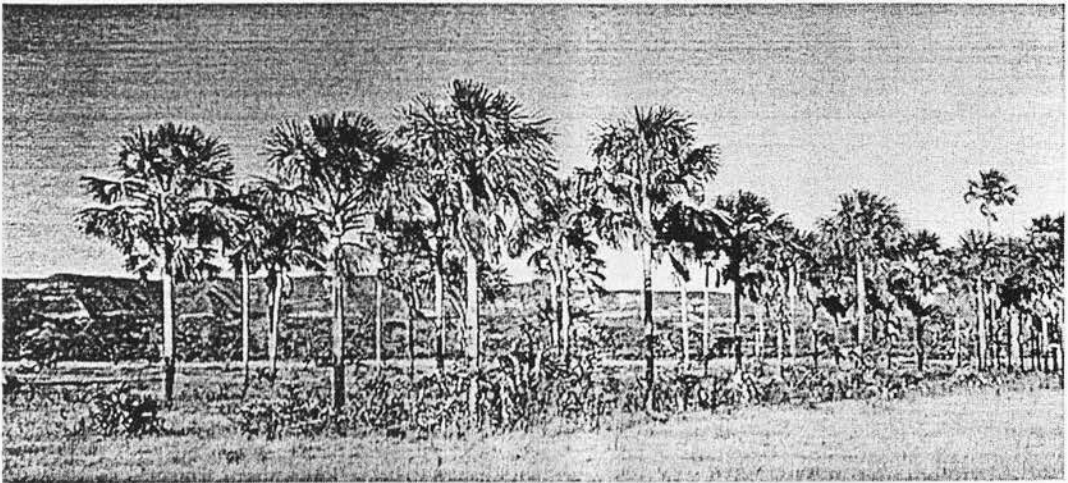


Figure 2.3: Veredas: Brazilian natural form, frequent in the central dry areas and North-eastern Sertão. The Babaçu palm drops its nuts on the creek, which carries them along the stream, where germination occurs. Photo: L. C. Marigo

Complementary laws to the constitution have made most acts against the environment and native species criminal offences, weighing heavily on transgressors with fines and/or imprisonment as penalties (Brasil, 1998a). The enforcement of environmental laws, however, is jeopardised by the lack of financial resources in competent organs and by opposing economic interests.

Brazilian ecological arena is effervescent and internationally marked by stereotypes. Logging and burning in the Amazon Rainforest, its consequences in global warming and extinction of flora and fauna are usually the limits of international concern, set by the media. Deforestation of the Amazon is indeed a major concern and requires action. The magnitude of the devastation is suggested by with a single number: the 222 million cubic metres of wood apprehended by government agents in the region in 2001 (Sociedade Brasileira para o Progresso da Ciência³, 2002). As serious a threat as this is, it does not correspond to the whole reality Brazilian professionals of all related fields have to face.



Figure 2.4: Itamarati farm, known in the 1980s as the largest soybean plantation in the world, situated in the Cerrado region, Central West. (Photo: Isaias Medeiros)

Other ecological domains suffer other types of threats. As an example, Cerrado, the savannah vegetation that is second to the Rainforest in surface and occupies most of the central plains, is under threat by farming. Considered for many years the main

³ SBPC: Brazilian Society for the Progress of Science

agricultural frontier, it has lost vast portions to agriculture, due to its gentle topography, deep and well drained soils, which adapted well to high technology agriculture (Grossi, 1996), as illustrated in figure 2.4 above.

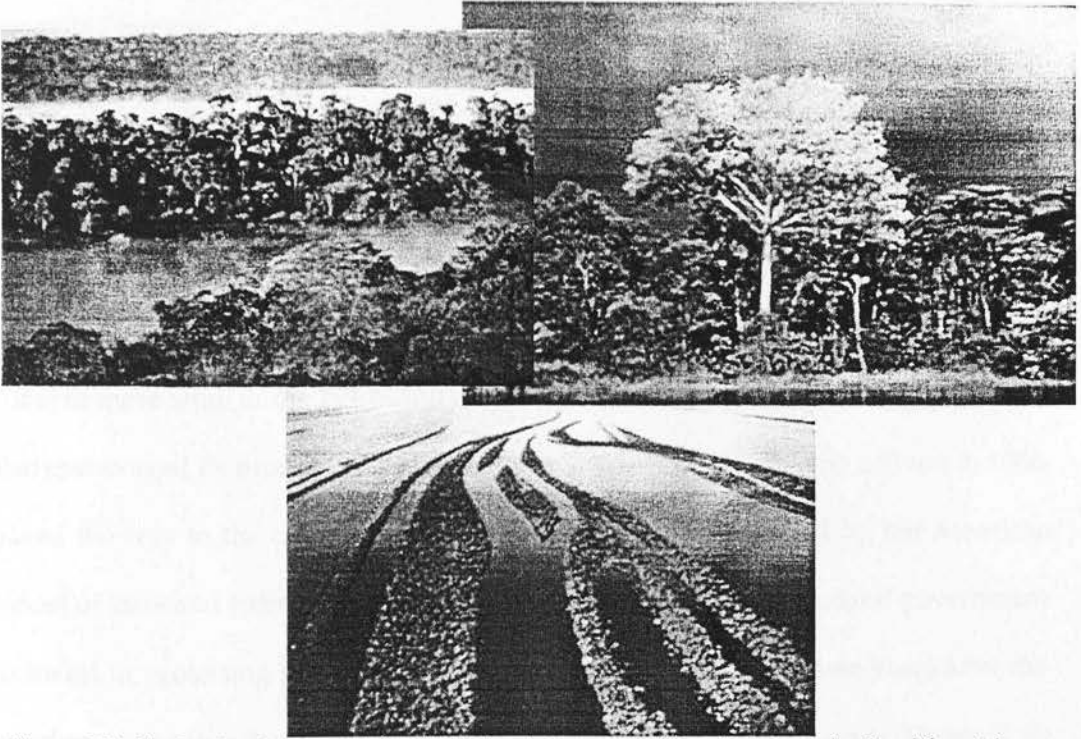


Figure 2.5: Clockwise, from top left, three physiognomies of the Amazon: dry land forest in Carajás, *Pythecolobium corimbosum* flowering in wet land forest by the Mamirauá river, and the Anavilhanas Archipelago. (Photos: L. C. Marigo)

In a historical account of conservation efforts in Brazil, Urban (1998) raises the point that has characterised international relations concerning Brazilian nature. In her description, since the days of the arrival of the Portuguese in 1500, the same countries that sent scientists who studied and revealed the wonders of Brazilian nature to the world, have been the ones to consume avidly the products whose extraction meant gradual destruction of their source.

Devastation has a history as long as the country's own, and conservationist initiatives, though timid, date back almost two centuries, giving the former an advantage of 300 years. The first official conservationist measure registered in Brazilian territory was a

decree by Dom João, the Portuguese regent. It protected the forests around the main water source in Rio de Janeiro, in 1817, when the dwindling supply of water to the town was a consequence of deforestation (Franco, 2000). In the following years, the transit of naturalists from the Old World grew, as did that of Brazilian specimens in the opposite direction.

At the time of the independence, 1822, José Bonifácio de Andrada e Silva was a strong voice against the exporting-predatory-extractivist model of development. His words on that matter, however, did not influence his generation as much as his political positions that earned him the title of 'Patriarch of Independence' did (Urban, 1998).

Some of those who, in the 19th century, identified and studied Brazilian natural wealth also encouraged its protection. People like the Swedish Loeffgren, who arrived in 1886, paved the way to the creation of the first nature reserves. Inspired by the American model of state and national forests, they insistently pressured the federal government to invest in protecting forest ecosystems. As a result, in 1937 – three years after the creation of the Brazilian Forestry Code, the first national park, Parque Nacional de Itatiaia, became fact (Franco, 2000). At that time only two other forest reserves existed, one in the state of São Paulo and the other in the state of Rio de Janeiro.

Other campaigners of that time, Roberto Burle Marx included, strongly advocated the protection of natural landscapes. His stance was particular in that it stressed the value of the other ecosystems as much as that of forests (Marx, 1976, 1976a)

Decades of internal and external debate, motivated by the continuous degradation of the various ecosystems and disastrous consequences to climate and land in many places have led to increased awareness, motivating further study, legislation, and action – with both positive and negative outcomes. One of the developments of the

1980s, for example, was the *Política Nacional de Meio Ambiente*⁴— PNMA. Strongly influenced by the American National Environmental Policy Act of 1970, the PNMA, through one of the organs created with it, defined and regulated the existing concept of APAs⁵, environmental protection areas, taking care of both nature preservation and quality of human life (Franco, 1997, Urban 1998). Since then, the creation and management of APAs became an opportunity for the work of multidisciplinary teams of which landscape professionals are frequently members.

Over the years, a large number of initiatives were fruit of the environmental debate. Among the people responsible for them are several names strongly connected to *paisagismo* who, either designing or associated with designers, as the botanist Mello Filho, seized every opportunity to denounce environmentally destructive practices. In a rare integration of discourse and praxis, professionals like Burle Marx and later Fernando Chacel apply the principles of their claims to an environmentally sound design practice.

While a landscape practice devoid of attention to phyto-geography exists, the respect for the original context of plant species is a constant in the designs authored by significant names in the country. Their practice is an example to other landscape designers and an important tool for environmental education. These works awaken in users the sense that the vegetation in treated sites is a community connected to time and place, of which they are part and with which they interact.

⁴ PNMA: National Policy for the Environment

⁵ APA: Área de Proteção Ambiental



Figure 2.6: Proposal for the Aquarium of the Flamengo Landfill, Roberto Burle Marx, Rio de Janeiro, 1969. The project presents two didactic sets: aquatic plants and shade loving plants, through which visitors would walk (Marx, 1986).

Another facet of the Brazilian environment to consider is the urban. A rapid process of urbanisation happened in the second half of the XX century, and, as Dourado (1997) raised and figure 2.7 illustrates, the agricultural country of the 1950s changed into one whose population lives mostly in cities – forming agglomerations like the megalopolis of São Paulo, the world’s third largest, with 17 million people. There, environmental deterioration is a capital concern. The situation is aggravated when data about the economic standard of the population are considered. Examining data from 1994, Rodrigues (1998:107) raises that 70.8% of the poor and 57.6% of the extremely poor in Brazil live in urban areas, causing the phenomenon of slums, as in figure 2.8.

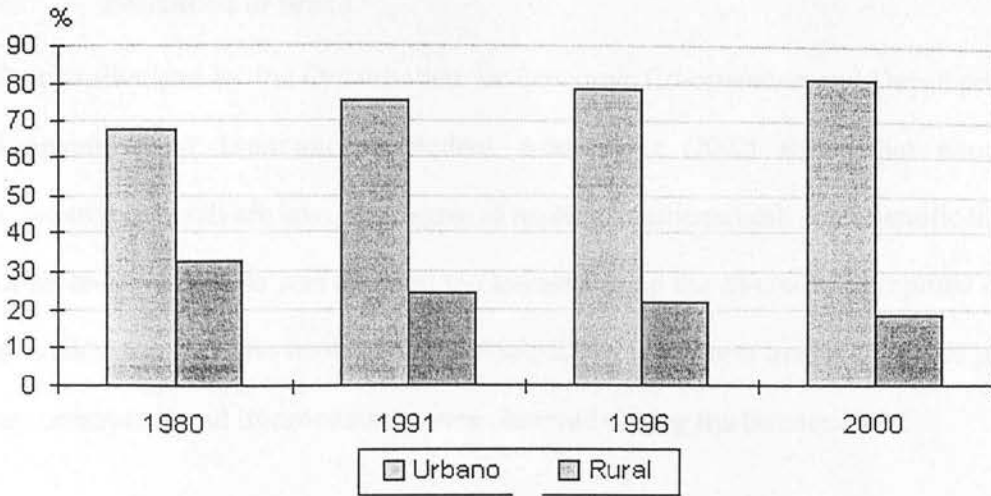


Figure 2.7: Distribution of Brazilian population (Instituto Brasileiro de Geografia e Estatística, 2002).

Distribution of the population is uneven. The historical predominance of certain regions over the others with regard to production and consumption causes the imbalance, polarising development (Barton, 1997). Sustainable urban development is another opportunity for landscape architects in Brazil, as members of planning teams.

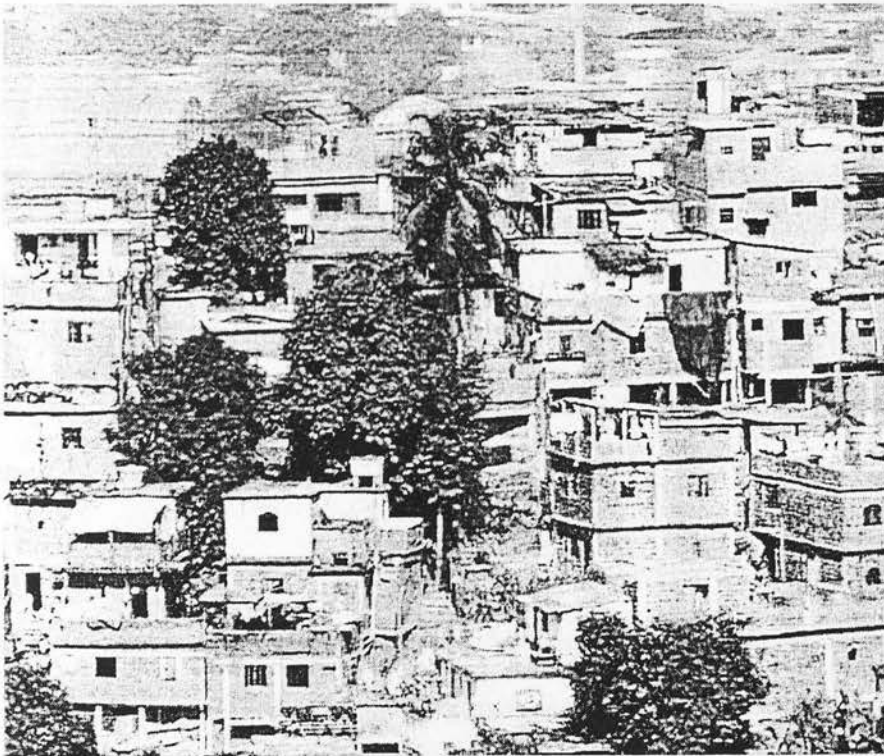


Figure 2.8: Vila Cruzeiro, one of Rio's favelas (Photo: Marcelo Sayão, Agência Globo)

Education in Brazil

Results divulged by the Organisation for Economic Co-operation and Development's Programme for International Student Assessment (2002) show that education standards in Brazil are low. The degree of reading, mathematical, and scientific literacy of secondary students was assessed the lowest among the 28 countries reputed as the most developed in the world (OECD/PISA, 2002), but efforts in changing this profile are continuous and improvements were observed during the last decade.

Recent reforms in the national system of education have included secondary education as the final stage of the basic school cycle, a right of every Brazilian.

The outlook is changing towards the 'mastery of basic competencies, as opposed to mere accumulation of information' and lifelong learning (Ministério da Educação, 2002a: 3). The Ministry of Education recognises that the parcel of 15 to 17-year-olds with access to secondary education is very low vis-à-vis other South and Central American countries – 25% against 55% to 60% for Mercosur and 70% for English speaking Caribbean countries (Ministério da Educação, 2002a).

With a curriculum that seeks to empower learners for 'life in society, productive activity and subjective experience' (Ministério da Educação, 2002a: 11) the education for Brazilians endeavours to follow UNESCO's guidelines for the four axles: 'learning how to learn, learning how to do, learning how to live and learning how to be' (Ministério da Educação, 2002a: 11).

For that, the organization of knowledge into three fields, namely, Languages, Codes and Related Technologies, Natural Sciences, Mathematics and Related Technologies and Human Sciences and Related Technologies, is set into a programme that privileges interdisciplinarity and contextualisation of knowledge (Ministério da Educação, 2002a).

A diversified portion, dedicated to meeting local needs of the society, culture, economy, and target audience, complements the common national base.

Table 1 below, exposes the model of progression through the education system in Brazil.

Level	Options	Expected duration (years)	Pre-requisites
Basic/primary Usual ages: 7 to 14		8	Mandatory from the age of 7
Medium/Secondary Part of the basic mandatory cycle Usual ages: 15 to 17	Regular – pre-university	3	Primary completed
	Technical – professionalizing	3-4	Primary completed
Higher	University	4-6	Secondary completed + approval in entrance exam or serial assessment
	Sequential courses – ‘complementation of studies’	1	
	Sequential courses – ‘specific training’	2	
Post-graduate	<i>Latu sensu</i> (UK: Diploma)	1-2	Higher degree completed
	MSc	2	Higher degree completed
	Professional Master’s Degree	2	University degree completed
	PhD/DSc	4	MSc completed (exceptionally: direct transfer from MSc before completion)

Table I: Education in Brazil from the basic/primary level

Starting from literacy and numeracy at the age of seven, optionally at six, the primary cycle is expected to last eight years. The following stage, secondary or medium, normally lasts three years, leaving the student ready for the selective processes for higher education. An option is the professionalizing secondary degree, lasting three or four years, which emphasises professional training and awards the degree of

'technician' in the chosen area, still allowing the student to apply for selection to higher education courses.

With varying emphasis and quality, Brazilian secondary students go through an extensive program that introduces them to sciences – Biology, Physics, Chemistry and Mathematics; humanities – Geography, Languages, History, Sociology, Anthropology, Politics, Philosophy; Physical education and the arts. With the exception of those following the 'technical' professionalizing programmes, all students are exposed to an extensive programme in all the above areas.

At the end of the basic cycle, students are ready to try entrance exams, organised by each higher education institution. More recently, approval in a system of serial exams, which take place at the end of each of the three years of medium education, can also grant entry to universities. Entrance exams are open to any person who has concluded a secondary degree, which increasingly creates opportunities for mature students. Most undergraduate courses last four or five years.

As a recent introduction, approved by the ministry of education in 1999, a new format of higher education are the 'sequential courses', which exist in two modes: 'complementation of studies', and 'specific training'.

The first, 'complementation of studies', allows candidates who have successfully completed secondary education to receive, within a year, a certificate of instruction in a given field of knowledge, but no degree is awarded (Ministério da Educação, 2002).

Only authorised tertiary education providers can offer complementation programmes, and these may either be set up for regular offer or in an individual basis, consisting of existing courses from one or more undergraduate programmes grouped into a field (Ministério da Educação, 2001). No further authorisation from the ministry of

education is required once the competent internal organism approve the programme. Classes are shared with undergraduate students regularly registered.

The second, 'specific training', are pre-structured programs offered regularly, lasting two years, and awarding a higher degree. They require special authorisation—waived in the case of universities— and accreditation from the ministry of education to function, and only schools with at least one accredited programme in the field can offer them (Ministério da Educação, 2002). The minimum number of class hours is 1600, distributed in no less than 400 days. Upon completion, students receive a higher degree and have the option to pursue further studies towards a full undergraduate degree, for which credits completed may be accepted, or follow a *latu sensu* postgraduate degree —but not *strictu sensu*, i.e. masters and doctoral degrees.

Postgraduate studies are offered in three levels. *Latu sensu* or 'specialisation' programmes last one year and are equivalent to postgraduate diploma courses in Britain. *Strictu sensu* programmes, only open to those with full undergraduate degrees —not sequential degrees—, are MSc's, lasting two years, and doctoral degrees, lasting four. Completion of an MSc is usually required before admission to a doctorate.

The Ministry of Education —MEC— oversees all levels by means of dedicated bureaus. The Higher Education Bureau —SESu⁶— is the unit responsible for the process of formulation and implementation of the National Policy of Higher Education. SESu was also in charge of supervising and coordinating governmental and non-governmental funding for all of the 1,180 higher education institutions existing in 2000, of which 61 were federal, 61 state, 54 municipal, and 1,004 private (Secretaria de Educação Superior, 2002). Those schools offered 10,585 undergraduate courses to 2,694,245

⁶ *Secretaria de Educação Superior*

students in that same year, of which more than half, 1,807.219 were enrolled in private schools (Instituto Nacional de Estudos e Pesquisas Educacionais⁷, 2000). Federal, state, and municipal institutions charge Brazilian students only symbolic enrolment fees.

Accreditation and re-accreditation of higher education programmes are within the attributions of MEC and SESu, which are independent from professional organisations, although receiving input from their education commissions or departments. Specific committees in SESu write and publish curriculum guidelines, rules and criteria for assessing the conditions for offer of courses. Including the content of programmes, the necessary facilities and equipment, and the qualification of staff, a structure is growing for thoroughly assessing courses and schools.

CAPES⁸, another bureau of MEC, regulates, accredits, assesses, and, to variable extents, funds postgraduate studies in all levels. Again, there is no formal relationship with professional associations, but similarly to undergraduate education, input from practice in the various disciplines comes through a variety of channels.

B. Landscape Architecture in Brazil

“Will we ever have the means to replace our project practice, which has been preponderantly to the rich and real estate speculators, with a practice where close articulation between public and private action will make enterprises viable? Enterprises that not only consider the technical, financial, economic aspects, but are also concerned with social and aesthetic values?” (Magnoli, 1996:17)

Miranda Magnoli's thoughts above on the state of affairs in Brazil refer to a reality common to possibly every place on the planet, at some point in their history of landscape architecture. Her wish for change is shared by this research.

⁷ INEP: National Institute of Educational Studies and Research

⁸ CAPES: *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* – Coordination of Graduate Personnel Training

The introduction of this thesis stated that Roberto Burle Marx personifies the problem that motivates this research, because of his professional development route. In addition to that, however, another facet he typifies is the practice of landscape design for the rich and the powerful. His practice was an expression of the desires of either the economical elite –in monumental private gardens, or of the government –in squares, parks, and gardens for governmental buildings. Oliveira (2000) emphasised his commitment to fulfilling his mission as an artist, scientist, and educator in his society and time. Even so, not denying his concern for the welfare of the whole population and the social function of landscape design—vehemently stated in his conferences (Marx, 1983), the realisation of his designs was invariably connected with political or economic power.

Just as his culturally privileged upbringing is not the norm in Brazil, his practice is not typical either. Although a watershed, Burle Marx's work is not the sole or the first landscape design of expression in the country. To offer a broader picture of the landscape context, the following pages present a summary of Brazilian landscape architectural history. As no comparison is sought, no attempt was made to offer parallel descriptions with the same sort of information on each of the designers described. The diversity of their training reflects Brazil's own diversity, as do their careers and the designs they produced.

1. People, Places and Times of Landscape Architecture in Brazil

Literature on the history of Brazilian gardens and parks has recently grown in quality and quantity. The main writers in the subject are architects, and the production of landscape postgraduate research with historical focus has thrived in architecture schools during the last decade. Names, places, and times

connected with the design of space are examined briefly in this section, looking for their role in shaping the present of landscape practice and education.

Kliass (1996), backed up by many others, states that landscape architecture as a profession only started to develop in Brazil during the 1950s, strongly marked by the activity of Burle Marx. However, punctual as they may be, some early works that preceded his are worth mention.

Early History—Colonial and Imperial Times

Brazilian recorded history starts with the arrival of the Portuguese on April 22, 1500. Until then, human influence in local landscape was inconspicuous, since the millions of native Amerindians populated the vast land with a minimal density and their use of natural resources was both negligible in relation to the availability and sustainable. The agricultural tradition of many of those peoples is still a matter of research in several agricultural institutions where their techniques and selection of plant varieties for cultivation have become a paradigm of sustainable food production.

The earliest records point to the grounds of the Friburgo Palace, in Recife, PE, Northeastern Brazil, as the first designed gardens in the American continent and first public park built in the country. This palace, destroyed in 1770, was the residence of the Dutch Prince Nassau, who ruled the region of Recife, state of Pernambuco, during the 24 years of Dutch domination. The landscape design is attributed to Peter Post, between 1637 and 1644, and is documented in engravings of that period (Vieira, 1994). The depictions reveal well divided areas, paths, and copious usage of palm trees. Recife was probably the first urban area in the Americas to have planned street tree plantings (Macedo, 1999).



Figure 2.9: View of Friburgo Palace, Frans Post (in G. V. Baerle, *Rerum Per Octennium*, Amsterdam, 1647)

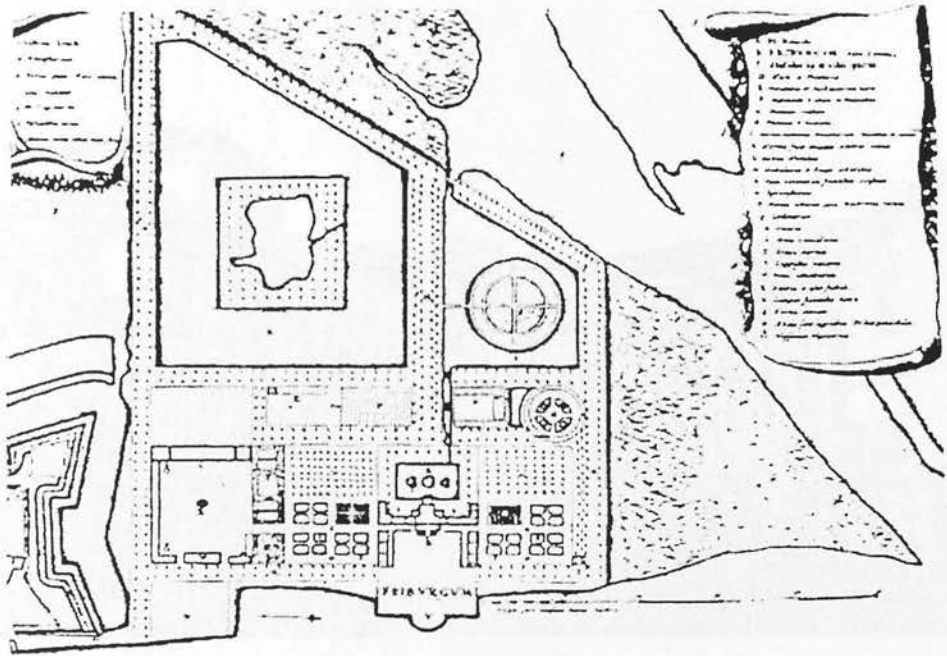


Figure 2.10: Friburgo Palace grounds plan, by Pieter Post, between 1637-1644 (Etching by Geroje Markgraf, in G. V. Baerle, *Rerum Per Octennium*, Amsterdam, 1647)

Rio de Janeiro was only a commercial post until it became the capital of the vice-kingdom in 1720. From that point in time, an urban population more stable than the colony had seen so far started to develop. As the transit of economical resources between Portugal and the colony was channelled from then on through Rio, some investment in the city's structural development happened. Then and throughout the whole colonial period –1500s to 1800s, it was not possible to characterise a 'Brazilian garden' (Marx, 1954).

Colonial architecture, a reproduction of Portuguese architecture of the period, had its own way of treating the landscape: urban buildings had their façades aligned at the streets, and open spaces, when available, were the backyards – sometimes planted with fruit trees and vegetables. Church courtyards and public plazas were devoid of vegetation or furniture. The capital of the province and of the state of Minas Gerais until 1897, Ouro Preto, now world heritage town, is a living example of the colonial architecture, landscape, and urban design.



Figure 2.11: Ouro Preto, MG (Photo: A. Zuin)

Macedo & Ceniuel (1992), describe the Passeio Público de Mestre Valentim⁹ as another pioneer work of landscape design in Brazil, built in 1769 inspired in a similar space existing in Lisbon. Built in a site resulting from the filling of a polluted lagoon, Valentim's promenade was open to the public in 1783, and it was used for leisure and public celebrations of the Portuguese crown (Bartalini, 1995). The gardens of the

⁹ The Public Promenade, by Valentim da Fonseca e Silva, (1745-1812)

promenade are also considered the cornerstone of urban spatial structure in Rio and of the city's landscape architectural tradition (Ceniquel, 1995).

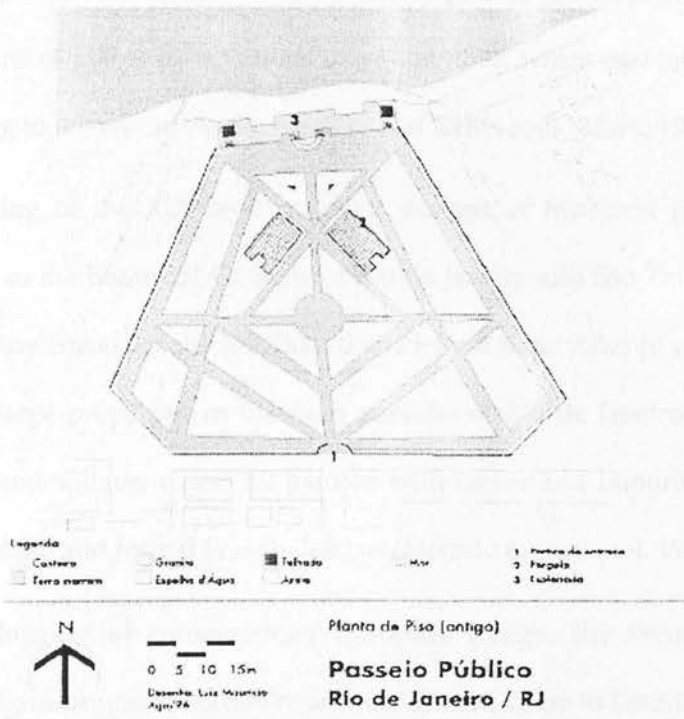


Figure 2.12: Passeio Público de Mestre Valentim (redrawn by Luiz Mauricio Brandao, in QUAPA-Paisagismo Brasileiro, Guia de Parques e Praças)

The opening of Passeio Público was, according to Macedo (1999), the start of the long period of Eclecticism in Brazilian landscape design. This lasted until 1932, when the first gardens by Burle Marx were planted in Recife, and was divided into two main currents, according to their way of organising space and vegetation. A Classic strand treated space starting from a geometric partition of the terrain, creating paths structured by axes and a main focal point. In opposition, the Romantic strand conceived space as a reproduction of the Anglo-French parks and gardens of the second half of the 19th century (Macedo, 1999).

The transference of the Portuguese court to Rio in 1808, the French artistic mission, and the visiting naturalists were, according to Burle Marx (1954), the main factors for the complete change in the ideas concerning the construction of the landscape in colonial times. The period also witnessed the shift from the Portuguese colonial architecture to neoclassicism, as an inheritance from the French mission (Macedo, 1999). Selection and use of native plants with decorative purposes in private places started, coincidentally with the imports of plants from various other countries, which met immediate success in acclimatising to the warm, humid weather and fertile soils (Marx, 1954).

In the beginning of the XIX century, other designs of historical importance were realised, such as the Botanical Gardens of Rio de Janeiro and São Paulo. At the same time, the wealthy barons of the Brazilian Empire built their villas in extensive private parks. Those large properties in the rural suburbs of Rio de Janeiro and São Paulo, public parks, and squares were all planted with native and imported plants under British Picturesque and formal French designs (Macedo & Ceniuel, 1992).

With all his luggage of contemporary European design, the French botanist and landscape designer Auguste Marie Francisque Glaziou came to Brazil in 1860. Besides the complete refurbishment of the run down Passeio Público, where he introduced substantial alterations that led to its present state, Glaziou authored the most noticeable landscape works of the period, like Campo Santana in Rio de Janeiro, show in the next two figures, all with an evident romantic style.

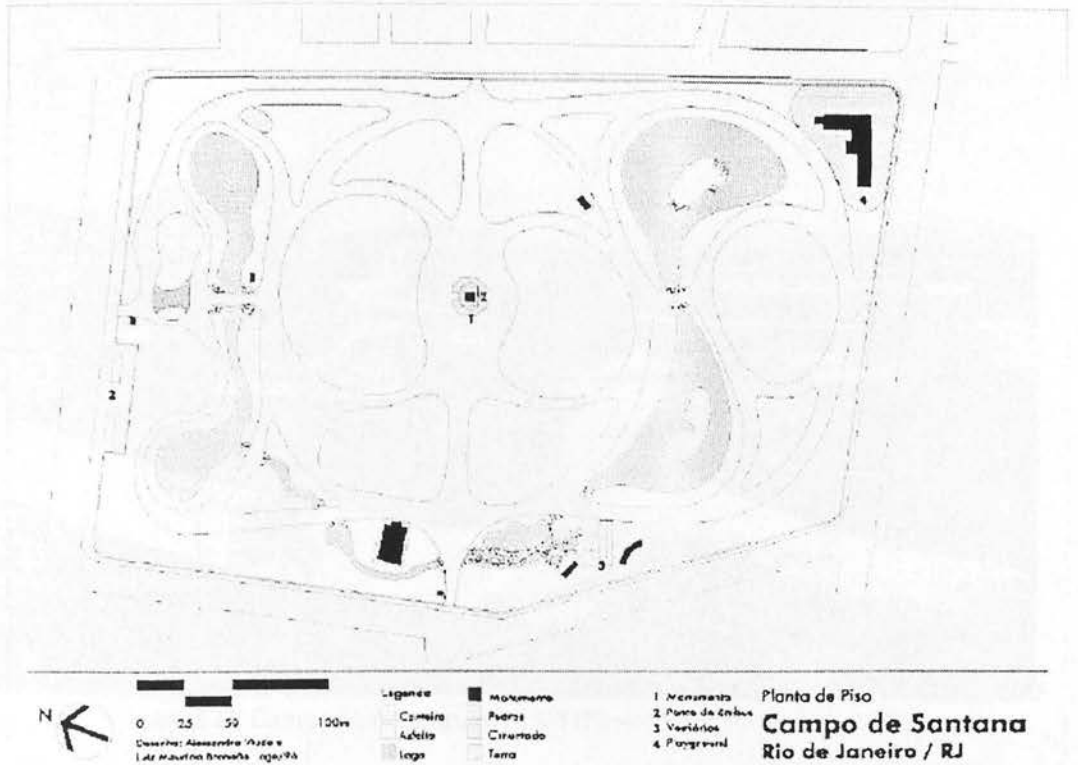


Figure 2.13: Campo de Santana, by Glaziou (plan redrawn by Alessandra Viude and Luiz Maurício Brandão in QUAPA-Paisagismo Brasileiro, Guia de Parques e Praças).

Glaziou's work marks the first glimpse of institutionalisation of the landscape profession in that town, with his close association with the public power. He thus created an interface with the urbanistic interventions that shaped Rio (Ceniquel, 1995).



Figure 2.14: Campo Santana around 1885 (Photo: Marc Ferreez, ca. 1885)

Large pieces of topiary, as an easy way to impose order to plants, became commonplace and persist to present. Nonetheless, their laborious maintenance, with plants growing year-round much faster than in Europe, and diminution of available space in urban plots caused topiary to lose great part of its appeal (Castilha, 1992).

The roots of Brazilian XX Century landscape design

Rio de Janeiro and São Paulo were the two main urban centres already in the early XX century. The growing urbanisation created a setting where local landscape professionals could appear – the creation of urban public spaces demanded people who could plan the landscape. Although still designing under imported canons, they made abundant use of the lush tropical vegetation side by side with the plants of traditional use in Europe.

Architecture was then profoundly eclectic and pastiche. Projects for the outdoors produced spaces focused on the buildings and enhancing them. The names that

dominated landscape design in São Paulo at the period were Germano Zimber and Dieberger & Cia with João Dieberger in the late 1800s and his son, Reynaldo, who studied gardening in Dresden, from 1919 (Macedo, 1999).

The years previous and subsequent to World War II marked a meaningful change in Brazilian architecture and urban design: modernism, which imposed a new language and banished all the stylistics from Eclecticism. Modernism in the landscape was a response to the worn out way of laying out planting, but still needed to evolve. Magnoli (1986) states that the designs of the fifties were nothing but adornments to buildings, reason for the easy acceptance of the work done by these landscape designers, who had no say until buildings were finished.

Three names represent the vast majority of known landscape designs of the post-war in Brazil. They were not the only ones, but their production is almost all there is documented for the period.

Roberto Burle Marx in Rio de Janeiro and Waldemar Cordeiro and Roberto Coelho Cardozo in São Paulo were the main figures of their time. Their professional training differed, as did their approach to landscape design and professional outcomes, which this thesis does not try to compare.

Roberto Burle Marx

Focus of the majority of works published internationally about landscape architecture in Brazil, Burle Marx's life and work are well recorded in books, articles, and postgraduate theses. Throughout his life, he gave numerous interviews on his work, often mentioning his professional upbringing. Likewise, in many of his conferences he would bring up references to people and places that played a part in his learning.



Figure 2.15: Burle Marx and Ian McHarg at ILASA's Congress, Pretoria, 1973 (Source: Landscape Architecture 1971-2001, University of Pretoria)

His wealthy family with strong interest and involvement with art in general was the start of his training. He mentioned that his mother was a keen and open-minded gardener and that, when he was fourteen, his father started buying garden reviews, which he examined with gusto. At that time, he was already starting his plant collection (Marx, n.d.). A trip to Berlin with his whole family in 1928, for an eye treatment and studies, is often regarded as the turning point when he was still undecided whether to study music or visual arts. With his eyesight improved by glasses, he had the revelatory experience at the Botanic Gardens of Dahlen, which

introduced him to Brazilian plants and their plastic potential. That happened while he learned painting, as part of his German cultural immersion (Marx, 1962; Oliveira, 2001). The contact with Engler's ecological gardens was also influential in his understanding of vegetation as an intricate and inter-related system (Marx, 1962). At that time, he had the chance to visit galleries and exhibitions, being particularly impressed by the German expressionists. He also said that, in his holistic understanding of art, music had great influence, stressing the importance of experiencing opera on stages designed by the best of the time (Oliveira, 2001a).

Returning to Rio, he started a three-year degree in painting at the *Escola Nacional de Belas Artes*¹⁰, at the time directed by Lúcio Costa, who persuaded him to choose painting rather than architecture. Costa, the urban designer of Brasília two decades later, was the main theoretician of the Brazilian modern movement. Costa's unorthodox thinking led him to be dismissed shortly afterwards, but his attempt at introducing in the school some of the changes that artistic and architectural Modernism demanded bore fruit. That happened before the eyes of the young Roberto and influenced not only him, but also many of the architects with whom he would work later (Montero, 1997; Oliveira, 2001).

With the modernist movement gaining terrain, Burle Marx sought to complement his learning through reading, frequenting studios of several modern architects and artists, and experimenting. As architecture students at the time, his engagement in professional studio culture meant learning by doing, through dialogue and connivance, in an environment where the roles of teacher and learner were performed by all at one time (Oliveira, 2001).

¹⁰ National School of Fine Arts

In Recife, Burle Marx was active in architectural circles and influential in the renewal of that capital. New friendships, as the one with the prominent engineer and poet Joaquim Cardozo, continued to play an important role in his personal and professional growth. He finished at that post in 1937, having started in 1934 (Oliveira, 2001).

Extensive travelling and observation all over Brazil and the world, received explicit mention in his own accounts as major formative elements (Marx, 1962; 1967). Travelling also sharpened his eye for the beauties of Brazilian nature that, he observed, the drive to copy the Old World so often overshadowed (Marx, 1975).

Similarly, trial and error was also part of his personal didactics, as he looks back at some of his earlier works, sometimes with certain criticism, using their assessment as foundation for posterior designs.

Although yet to show the later firm grasp of the composition of plant communities, some of his first works made abundant use of local flora. The garden for Euclides da Cunha Square, of 1935, illustrated that with the use of plants from the *caatinga*, including many species of cacti native to the region (Marx, 1962).

At first, he recognised that there was no aesthetical difference between his 'painting object' and his 'built landscape object' (Marx, 1954:11), but this position changed through the years. In later declarations, he stressed that the design of gardens required the attention to other dimensions, as the relationship between species and their development through time, giving the art of the garden a particular status (Marx, 1967).

As modern architecture gained evidence in the 1950s, it laid a track of projects that Roberto Burle Marx followed closely, designing a series of important works, adequate to the current modern and nationalistic standards. He valued native plants as major

building blocks, and explored them scenically, as his fine arts background would encourage (Macedo & Ceniuel, 1992; Macedo, 1999).

At the time of the project for the Ministry of Education, whose first drafts were authored by Le Corbusier, Burle Marx had read his writings and benefited from personal contact with the French architect, to whom he 'listened as if to music' (Marx, n.d.).

Experienced botanists often accompanied him in his expeditions and account for the richness and phyto-geographic propriety of his compositions (Marx, 1967; Franco, 1997). In his address to the Brazilian Society of Botany when receiving his honorary membership title, he acknowledged the great contribution that so many of the country's most respected botanists gave to his training (Marx, 1983b). The name of Mello Barreto is possibly the most frequent one in that respect.

Part of his contribution to the knowledge of botany lives at his Sítio Santo Antônio da Bica property. There he set up large collections of plants, brought together gradually with specimens found during his many excursions to the interior and coast. Donated to the Brazilian government in 1993, the Sítio is visited by thousands every year, fulfilling its creator's original objective: 'to dignify our plants, contributing for the creation of respect and love for them' (Marx, 1975:52).

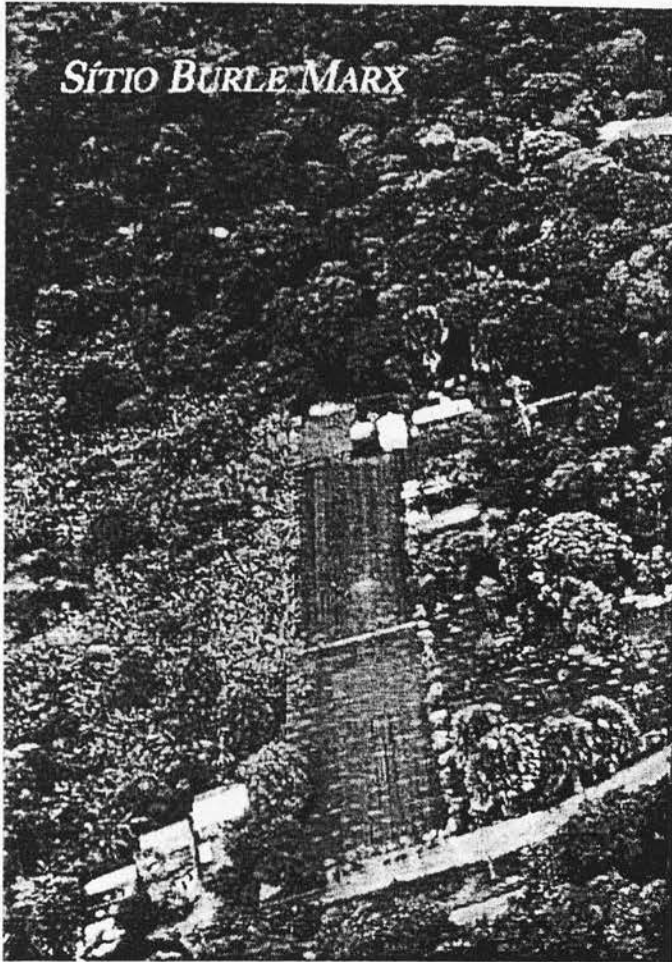


Figure 2.17: Shaded areas with Burle Marx's plant collection, at Sítio Santo Antônio da Bica (in *Guia Planta Rio. 01:01*),

The majority of his built projects are located in the Brazilian states of Rio de Janeiro and São Paulo. However, 17 of the 27 Brazilian states and the federal District have at least one site design signed by him (Adams, 1991; Eliovson, 1991). His work reached far beyond the Brazilian borders. He designed in Puerto Rico, Caracas, Buenos Aires, Quito, Santiago, Lima, Havana, California, Kentucky, Pennsylvania, Washington DC, Paris, Geneva, Osaka, and South Africa.

Burle Marx clarified the distinction between the conceptual and the practical stages of landscape design, highlighting the importance of the project as the initial step. His particular approach to the landscape design process still deserves in-depth research (Dourado, 1997), and, therefore, the 'Burle-Marx research group' was founded in June

2000 (Oliveira, 2000) with the initial objectives of inventorying and organising electronic storage of his works. Some of his many conferences have been transcribed and published, inspiring and challenging those who read them.

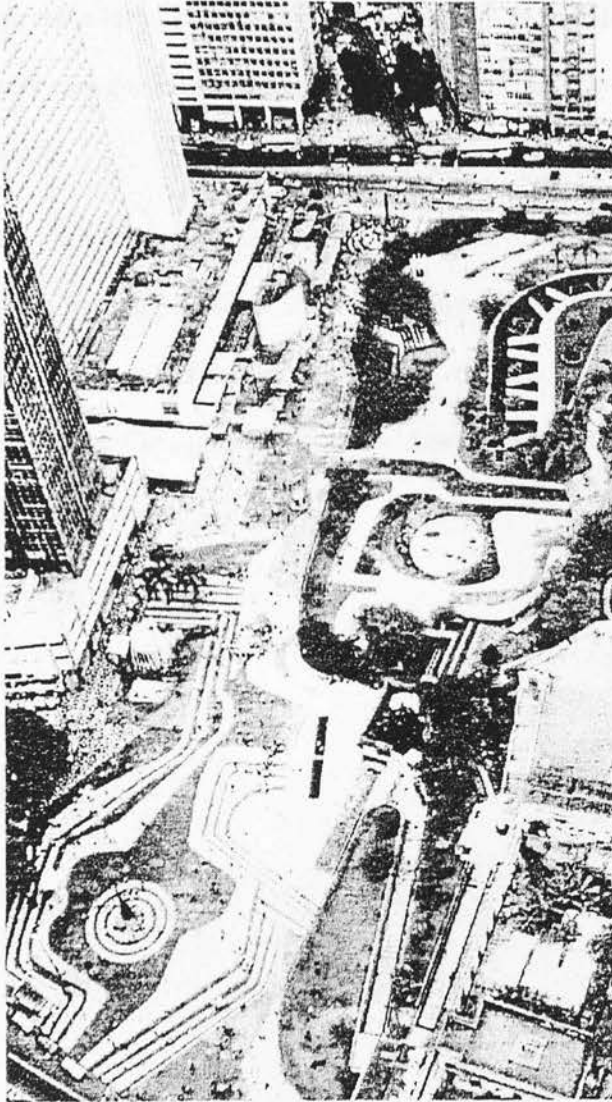


Figure 2.18: Largo da Carioca, redesigned by Burle Marx, 1981-1985 (Source: Macedo, 1999:71)

Franco (1997) stated that his major contribution was the creation of design patterns that incorporated natural formations without either imitating them or submitting plants to the rationalist order of topiary. In addition, Burle Marx was emphatic in attributing social and educational functions to his designs (Marx, 1967). The desire to create a work that would become a model for transforming social and economic realities was

always the starting point for Burle Marx, Lucio Costa, and Oscar Niemeyer, uniting them, who drew inspiration from Brazilian history but with different expressions (Montero, 1997).

His endeavour to grasp a large area of knowledge led him to develop in the activities of painting, jewellery design, music, sculpture and botany besides that of landscape design (Oliveira, 2000).

Burle Marx, who died in 1994, influenced deeply the practice of landscape design in the whole country, becoming a signpost. In São Paulo, however, his work did not shape the city's face as deeply as it did in Rio. For various reasons, including climate and social structure (Macedo & Ceniuel, 1992), other designers produced the works that changed the face of São Paulo.

Roberto Coelho Cardozo

A strong influence in São Paulo was Roberto Coelho Cardozo. Born in Portugal in 1923, he grew up in the United States. There he trained as a landscape architect at the University of California, Berkley, receiving direct influence from the exponents of the American East Coast at the time – Halprin, Eckbo, Royston, and Williams, with whose work he had close contact (Cardoso, 1992; Macedo, 1999; Magnoli, 1986).

Along with his wife, Susan Osborn Coelho Cardozo, Roberto started work designing for Garret Eckbo. Upon their transfer to Brazil, in 1952, they met Burle Marx and his work (Cardoso, 1992; Macedo, 1999). After their short stay in Rio they set roots in São Paulo, where most of his activities happened – in design, writing and teaching.

Lima and Sandeville (1997) state that Cardozo brought a new slant to offer variety to a landscape practice that was based in artistic presuppositions, as seen in the works of Burle Marx and Cordeiro. His analytical and conceptual approach, inherited from Garret Eckbo, dislocated landscape design from focusing solely on art and botany to considering explicitly function and structure – a needed shift at the time.

This view of landscape architecture infused his teaching at the Faculty of Architecture of the University of São Paulo, to which he was personally recommended by his master Eckbo. There he started in 1954 and stayed until 1968 (Macedo & Magoli, 2000). The training of landscape designers continued, in parallel with his teaching, at his private practice, nurturing a few of a first generation of architects dedicated to landscape design (Lima and Sandeville, 1997). Kliass, quoted by Dourado (1997), declares, however, that his teaching was for architects, having no intention to form landscape architects – which nonetheless happened; motivated by the change of perspective he brought to the school.

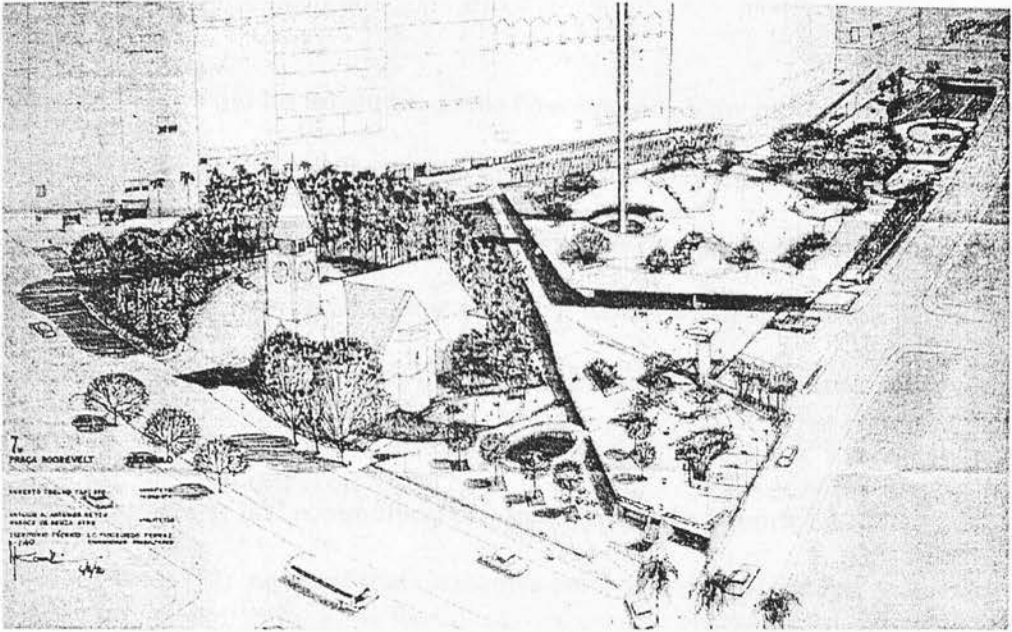


Figure 2.19. Roosevelt Square, by Coelho Cardozo (Source: Macedo, 1999:96)

He founded a new project trend in Brazil, offering a counterpoint to the European tradition prevailing (Cardoso, 1992). Some of his academic descendants were, with him, the founders of the Paulista strand of landscape design. However, in 1968 Cardoso brought his teaching activities at FAUUSP¹¹ to an end, and moved to London in the following year (Macedo & Magnoli, 2000). There he taught at the landscape architecture programme of Greenwich University.

¹¹ FAUUSP: *Faculdade de Arquitetura e Urbanismo da Universidade de São Paulo* – Faculty of Architecture and Urban Design of the University of São Paulo

Waldemar Cordeiro

Waldemar Cordeiro did his art studies at the Fine Arts Academy of Rome and returned to Brazil in 1946. With his very particular, controversial, and articulate views of art, he became the leader and theorist of the Concrete movement in plastic arts in São Paulo. Cordeiro started his career in landscape design in 1950, initially as a means of earning support for his art. Until his death in 1970 he designed over one hundred projects (Macedo, 1999). He transposed his understanding of art as an interactive and participant element at life, communication, and society into his practice in landscape design. Castilha (1992) mentions that Cordeiro's landscape design did not come out of rules or intuition, but from strong scientific concepts. Such tendency was formalised at the field chosen for his last research activities: computer art, where he was a pioneer.

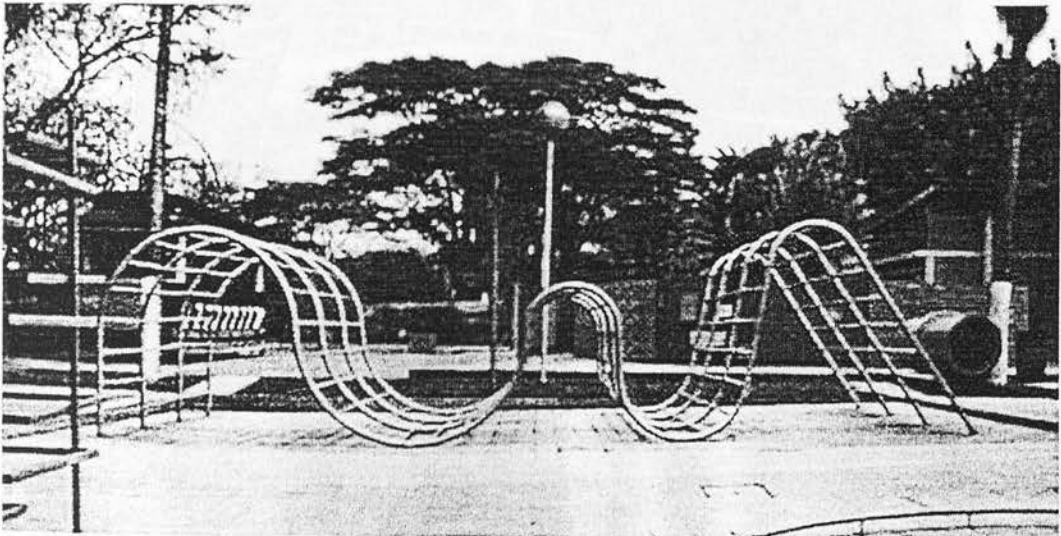


Figure 2.20: Clube Espéria, São Paulo, by Waldemar Cordeiro (Source: Macedo, 1999:97)

In distinct phases of his work, Cordeiro showed, first, views of the terrain as a geographic field on which he could place a patchwork of materials. The emphasis was on two main dimensions: line and colour, and not so much on volume. At a later period, vertical planes and volumes gained more prominence even in his small garden designs, where textures, colour, and contrasts between vegetation and the straight

white lines of modern architecture became outstanding (Castilha, 1992). According to Macedo (1999), Cordeiro's design followed the same principles as Cardozo, but incorporated, like Burle Marx, his own conceptions derived from his arts background. As his two contemporaries described here, his clients were mostly builders, private home owners, and health clubs.



Figure 2..21: Santa Terezinha da Floresta, Campinas, by Waldemar Cordeiro (Source: Macedo, 1999:97)

Waldemar Cordeiro's influence in landscape education in São Paulo exists as his projects figure as paradigms for their time: they are frequent study matter for architecture students in that state. Apart from that, he was isolated from teaching practice, opportunity that might have happened were it not for his early death (Macedo & Magnoli, 2000).

Brazilian XX Century landscape design —consolidation and growth

From the 30's to the 70's, the partnership between architects and landscape designers became a standard, according to Dourado (1997). The wish for communication with the building was the reason for hiring a specialist to lay out the greenery around it. That, however, created opportunities for challenging and changing this conception of *paisagismo*.

At the early sixties, several more crossed the threshold into professional landscape design. This time, three architects and one agronomist are featured, three in São Paulo and one architect in Rio de Janeiro, all of them descendents of the two Robertos. This choice does not mean that the contribution of others from the same period is not significant. On the contrary, other names could also figure here, as the national picture of landscape practice was already expanding in many different directions, and other professionals with different backgrounds were training and starting practice. However, these four suited the purposes of this research as representatives within the larger number of landscape designers emerging at that time.

Two of Cardozo's students at USP, Rosa Kliass and Miranda Magnoli, learned and perfected his postures and still transmit them to new generations of architects studying landscape design, taking this trend further. Cardozo and his pupils were the father and mothers of what Macedo & Ceniuel (1992) call the *Paulista*¹² or Architectural strand of landscape design. These, along with Fernando Chacel and Rodolfo Geiser are viewed in more detail in the following pages.

The information presented below comes from the literature available, complemented by the designers in interviews and other contacts.

¹² from São Paulo

Miranda M. E. M. Magnoli

She graduated at USP in 1955, in the same class as Rosa Kliass in the school of architecture. Miranda Magnoli is, since, one of the most influential landscape professionals living in Brazil, who has been for decades the leading theoretician in the field. She is responsible for groundbreaking work in establishing landscape architecture as an academic discipline at USP, following the seminal work of Cardozo. Years of apprenticeship with Roberto Cardozo at his office were vital to her professional upbringing (Macedo & Magnoli, 2000), and gave her the chance to see critically how the concepts he transmitted in the classroom worked in practice.

She started straight into landscape practice, and Miranda's entry at the first public competition for the design of an urban area in Brazil was very successful. She won first place and judges, sponsors, the state construction organ, and architects of the region were very receptive to her scheme (Magnoli, 1986). That happened in 1958, and, Magnoli (1986) goes on to say, although completely detailed, neither the design was built nor she was paid. The next public competition in the country, for the Anhangabaú Valley, only happened in the 1980s and her classmate Rosa Kliass submitted the winning entry and had better luck, seeing the work completed.

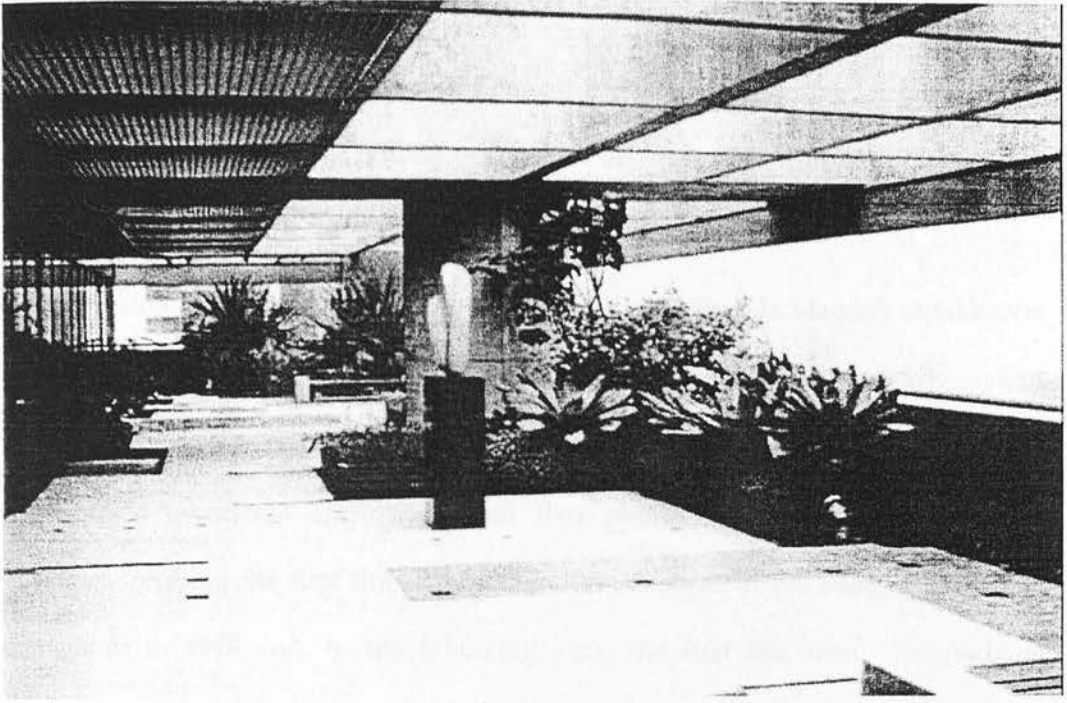


Figure 2.22: Home in Iporanga, by Miranda Magnoli (Photo: Silvio Macedo –QUAPA)

Criticising the direct transposition of foreign canons and the subservience of landscape designers to architecture, as her master Cardozo did, still, Miranda (Magnoli, 1986) accredits some of his and his disciples' works of the time. Her strongest criticism, however, is against the resignation of landscape designers to working with 'residual spaces' from edifications or from the road network (Magnoli, 1986).

Her next professional move was, in partnership with Rosa Kliass and Madalena Ré, the survey and analysis of green areas at the city of São Paulo and the design of a series of public squares (Macedo, 1999).

She started teaching at USP in 1971, and from 1974, unsatisfied with the practices employed in the landscape education of architecture students, Miranda proposed a deep analysis and realignment of the teaching of landscape design to the changed world order and to projections for the future that resulted from World War II. In her opinion, Cardozo' educational practice at USP did not evolve in that sense. Committed to change this reality, she invested all in the development of a programme that had lost

staff and multiplied its number of students. Her goal was to cultivate the new optics of a profession that has to deal with social relations instead of individuals, striving for the harmonisation of interactions among people and between them and nature (Magnoli, 1986; Macedo & Magnoli, 2000).

The conclusion of her doctoral studies, in 1973, allowed Miranda Magnoli to take over the coordination of the landscape architecture course that, since Cardozo's resignation in 1968, had been surviving with the help of a few temporary hands that never developed a consistent approach. From that point, a prolific academic career developed, offering the first Brazilian postgraduate course in the field of landscape architecture in 1978 and, in the following year, the first *latu sensu* postgraduate programme (Macedo & Magnoli, 2000). With the geographer Dr. Milton Santos, Miranda was responsible for the liberation from past methodological and conceptual canons, so connected with American and European standards. Their influence, basis for the ongoing process of change in the light of the national reality, was engendered through their theoretical and methodological approaches.

Rosa Grena Kliass

Another pupil of Cardozo's at FAUUSP, Rosa Kliass, in her turn, dedicated a large slice of her efforts to the establishment of the profession, founding and steering ABAP and actively representing Brazil at IFLA. There she is one of the first Brazilian members, later only than Fernando Chacel and Luís Emygdio de Mello Filho, a botanist whose name is associated with many landscape designers in Rio since the early days of Burle Marx (Kliass, 2000).

Although involved occasionally in formal educational practice and responsible for the first colloquy on landscape education, Rosa established herself as a designer. She practiced as an architect from her graduation in 1955 to 1968, when, she declares, she did her last architectural work (Moura, Serapião and Melendez, 2002).



Figure 2.24: Rosa Kliass (Photo: A. Zuin)

Motivated by a request made directly to her at the IFLA 1975 conference in San Antonio, Texas, Rosa Kliass gathered in São Paulo a group of architects practicing landscape design and founded the *Associação Brasileira de Arquitetos Paisagistas*¹³, ABAP, in 1976. (Kliass, 2000). She has served six two-year mandates as the president of ABAP, campaigning intensely for the recognition of the profession in Brazil.

¹³ Brazilian Association of Landscape Architects –architects in landscape design

She was also one of the initiators of the now well-established ENEPEA conferences, gathering, in its first edition, landscape design teachers from 18 schools, as she informed in an interview (Moura, Serapião, Melendez, 2002). Her constant presence at

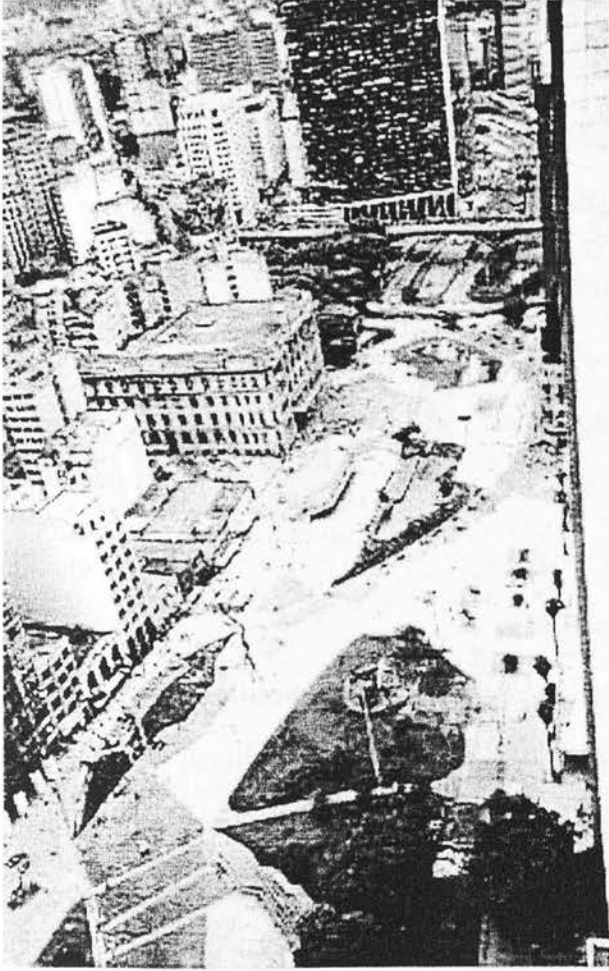


Figure 2.25: Vale do Anhangabau, Rosa Kliass (Photo: Silvio Macedo –QUAPA)

ENEPEA's since their foundation, frequently as guest speaker, evidences her commitment with raising the quality of landscape education in architecture schools.

Rosa Kliass is probably the living designer with the widest distribution of projects in Brazil, though concentrating a large number of them in the state of São Paulo. Her best known project is the Anhangabaú Valley, the winning entry at a 1980 competition.

Dourado (1997) highlights her educational role as provider of opportunities for young architects interested in landscape design. In interview to this researcher (int. Kliass, June 21, 2000) she defends the 'training in practice' route, as happened predominantly in her case, without, however, the chance to experience the closeness of an apprenticeship as the one she offers, bringing her young associates to work in the comfort of an office adjacent to her dining room.

Fernando Magalhães Chacel



Figure 2.0.26: Fernando Chacel
(Photo A. Zuin)

Fernando Chacel trained as an architect in Rio de Janeiro and added to it Burle Marx's artistic flair and plantsmanship during a period as an apprentice in the master's office. His professional life started concurrently with Rosa Kliass and Miranda Magnoli, in 1955.

In a personal interview (int.: Chacel, 2000, June 14), Chacel stated that his training as a landscape designer was auto-didactic, although admitting that his degree in architecture was instrumental in his professional upbringing. The influence of

Burle Marx came during the time Fernando spent with him as an apprentice. After finishing his degree in architecture, he went on to work for the municipal administration of Rio de Janeiro in a sector responsible for designing and maintaining the city's open spaces.

In his private practice, he had a partnership with the botanist Luis Emygdio de Mello Filho for 8 years. Chacel attributes to Mello Filho the strong environmental facet of his work, further developed working in commissions for several reclamation projects for hydro-electric power plants. While these were primarily embellishment projects, the problems he had to tackle during the design enhanced his interest and knowledge on environmental impact mitigation.

Burle Marx's pioneer work provided Chacel in Rio with a better ground than the fallow one his contemporaries found in São Paulo. That may have made it easier for

him to go straight from the architecture school into landscape design practice, differently from his counterparts in the other state capital.

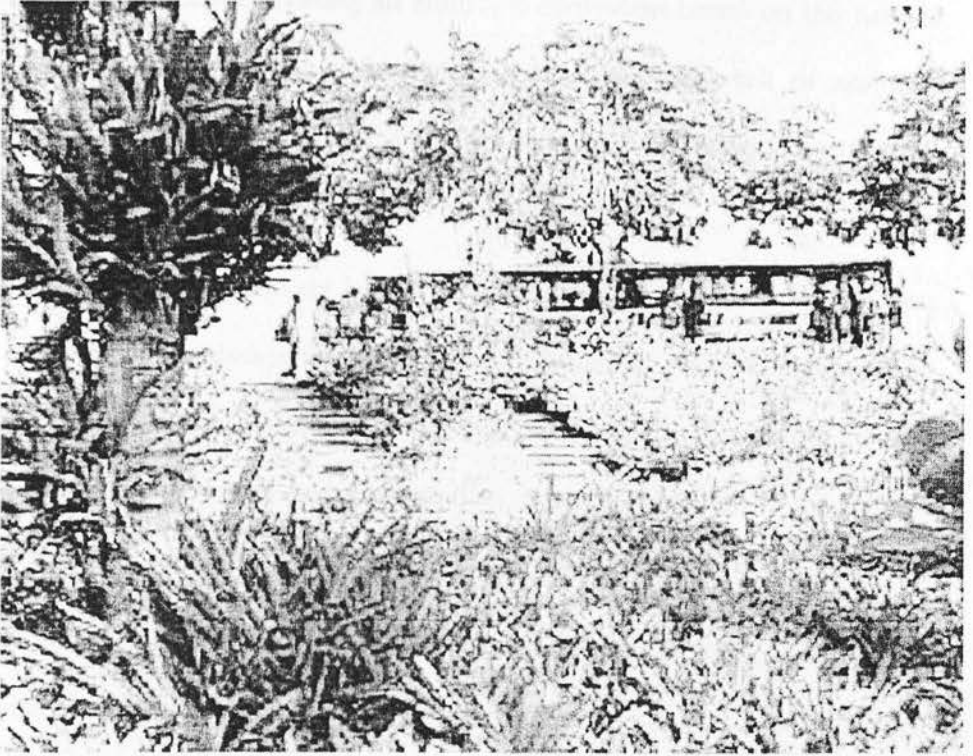


Figure 2.27: Parque da Gleba E , Fernando. Chacel & Sydney Linhares (Photos: A. Zuin)

His involvement with education includes teaching diploma level landscape courses in the states of Rio de Janeiro and Paraná, and undergraduate teaching at the *École d'Architecture du Paysage*, University of Montreal. In the latter, he taught terms in 1973, 77, 81, 84, and 85 – year when his teaching assistants were some of his first pupils there (int.: Chacel, 2000, June 14).

Even though not presently attached to any educational institution, he is regularly giving lectures on his work and teaching short courses on various topics, transmitting his strong environmental approach to design.

His vast portfolio contains the co-authorship of the largest landscape project built in Brazil. That was the reclamation of the surroundings of the Itaipu hydroelectric plant, the world's largest power plant in operation, with a 1,350-square-kilometre reservoir.

Part of a large complex, the Parque da Gleba E, designed in 1986 and built from 1990, is probably the work where his *ecogenesis* principles are most evident. Ecogenesis, 'a form of re-creation of landscapes, creating an anthropic ecosystem based on the natural ecosystem (...) more conciliatory and efficient than a simple work of aesthetic reclamation' in his words, impregnated, he states, the work of Burle Marx (Chacel, 2000:5). Chacel has recently published his first book on the theme.

Gleba E, in Barra da Tijuca, Rio de Janeiro is the case through which he can best illustrate the space for landscape architects in environmental problem-solving. The project is being developed by Fernando Chacel and his partner, the architect Sidney Schwindt Linhares, and involves numerous studies for the reclamation of the *restinga* and mangrove vegetations.

Chacel has declared that the gesture of landscape design has to be 'impregnated with ecological intentions' (2000:3) as compensation needed for the impact caused by any construction work.

Rodolfo Geiser

Born in 1940, Rodolfo started work at the age of 17, as an auxiliary gardener for Casa Flora, gardening business owned and run by Germano Zimber, who had studied for a gardening degree in Germany. Shortly afterwards, he started his agronomy studies in Piracicaba, state of São Paulo, at ESALQ¹⁴, a unit of USP. There he supported his studies by planting and designing gardens in the town. In 1961, his third year in



Figure 0.28: Rodolfo Geiser (Foto: GEAPSP)

university, he met Roberto Coelho Cardozo, who offered him the opportunity to frequent his office as an apprentice during school holidays (Geiser, 1998). Geiser would later attribute great importance to this apprenticeship, in addition to his contact with the artist Archimedes Dutra in Piracicaba.

Upon his graduation in 1963, Rodolfo Geiser (1998) had not decided what direction his career should take, and recognised that his degree had added little to his increasing knowledge of botany and garden design. He felt the need to develop in arts and architecture. At that point, his cousin Emilio Reichert, an engineer and builder in São Paulo, commissioned him to design and build a series of works.

¹⁴ *Escola Superior de Agricultura Luís de Queirós*: Luís de Queirós Higher School of Agriculture

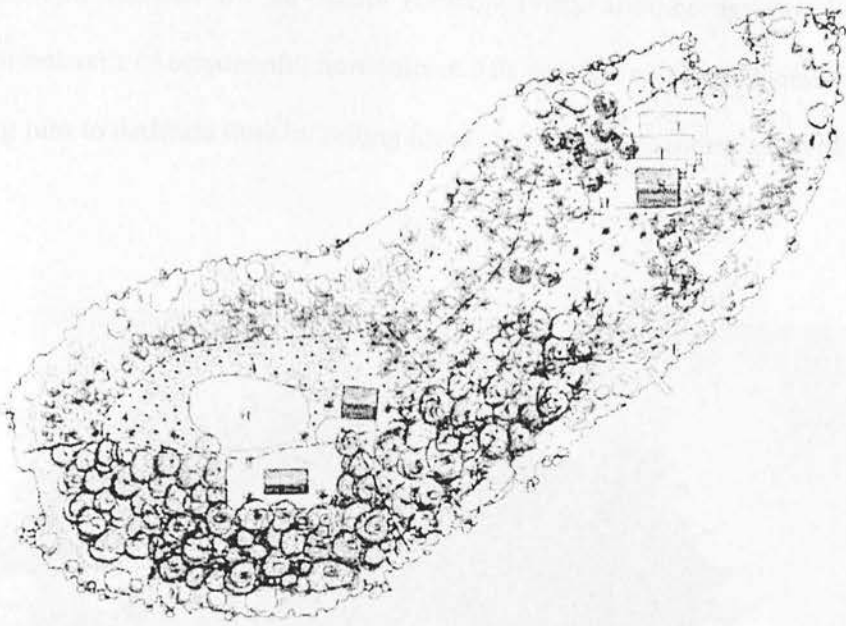


Figure 2.29: Ilhas das Cabras, by Rodolfo Geiser

Finding out in 1964 that, according to his professional council –CREA, he was not allowed to practice *paisagismo*, but only ‘parks and gardens’ was an ‘unpleasant surprise’ that marked him for many years (Geiser, 1998:22). This could be the cause of his belligerent discourse in an address to his colleague agronomists this research has analysed (Geiser, 1998), riddled with inflammatory words in the vein of ‘our fight’, ‘our battle’, ‘our cause’ and mentions of a ‘lost opportunity’ for the category.

This finding also motivated Rodolfo to network with other professionals in the field, particularly agronomists, whom he encouraged to gather and have their say at conferences and meetings where landscape architecture was part of the agenda. A seminar at the Brazilian institute of architects, in São Paulo, 1964, unveiled to him possibilities of interdisciplinary work and the various scales his work could reach. In that same year, he started an eight-year-long commitment to write articles on landscape design for the agricultural supplement of a major newspaper in the state,

side by side with Hermes M. de Souza (Geiser, 1998), another agronomist and published connoisseur of ornamental horticulture. His practice expanded notably after that, allowing him to dedicate time to 'selling ideas', rather than planting gardens.

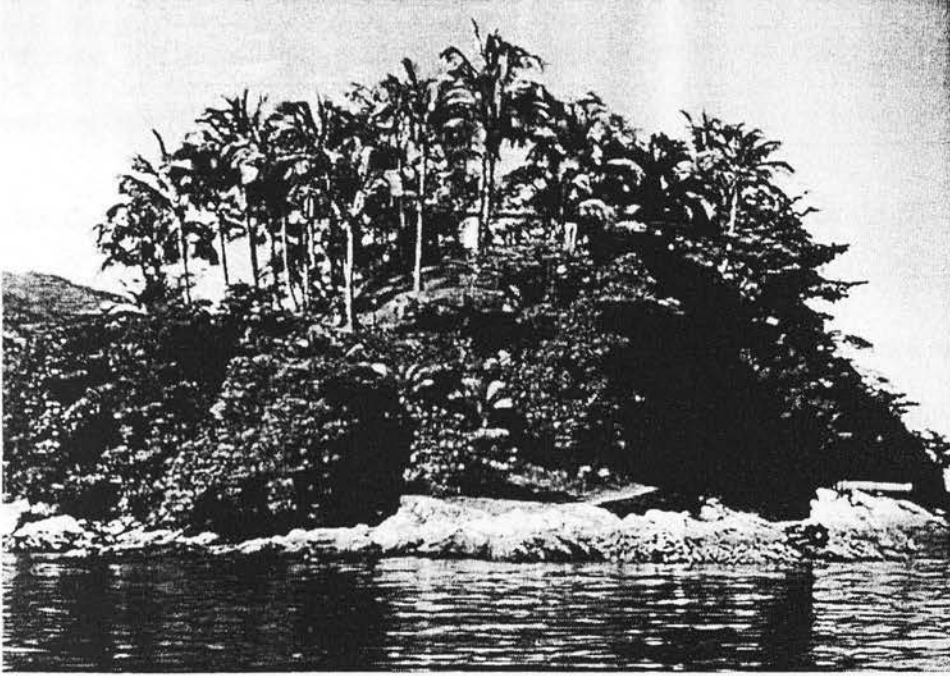


Figure 2.30: Ilha das Cabras, by Rodolfo Geiser (Photo: Rodolfo Geiser)

The reclamation and design project of *Ilha das Cabras* – or Goats' Island – depicted above shows his environmental concern, in a time when little was said about ecology, allied to his strong agricultural background, expressed in his soil and plant orientated description of the work (Geiser, 1997).

Despite his expressed criticism on the domination of architects in landscape design practice, his cooperation with them is constant, as emphasised in his –almost surprisingly – multidisciplinary understanding and practice of landscape architecture, illustrated by his partnership with the architect Christiane R. Santos in business and in marriage (Geiser, 2002, July 15). When asked about expressive non-architect landscape

designers, Rosa Kliass (2000, June 21) cited Rodolfo Geiser as the greatest representative among the agronomists, highlighting his frequent collaboration with architects. She mentions architects '...who are not *arquitetos paisagistas*, (...) [and] think they design the project and Rodolfo plants it.' (Kliass, 2000, June 21).

The *Associação Brasileira de Paisagismo*¹⁵, ABP, has Geiser as one of its founders. Elusive in literature, the association was born more out of ecological concerns than of professional ones (Geiser, 1998).

Rodolfo Geiser's involvement with education nowadays is indirect. In the past, Rodolfo taught several classes on landscape design to various audiences. He taught at the faculty of architecture of Brás Cubas University, Mogí das Cruzes, state of São Paulo, from 1973 to 1976. Rodolfo was also at the interior design school ESPADE¹⁶ from 1972 to 1976, where he, besides teaching, coordinated the Gardening and *Paisagismo* course. However, his influence in agronomy schools happens through his emphatic participation in professional colloquies, his speeches, and his militancy along professional councils for better qualification and recognition of agronomists as *paisagistas*, all supported by his successful career, with, among many other items, 241 landscape works in his résumé, most of which are built projects in all scales (Geiser, July 15).

¹⁵ ABP: Brazilian Landscape Association

¹⁶ ESPADE: *Escola Paulista de Decoração* – School of Interior Design of São Paulo.

Multiplication

The four designers presented above were multipliers of landscape thinking and of the profession in many different ways. Transforming the mindset of the population, public sectors, and entrepreneurs in relation to the significance of landscape architecture, these and other landscape designers practicing in the 1960s, 1970s paved the way for a rapid and kaleidoscopic multiplication.

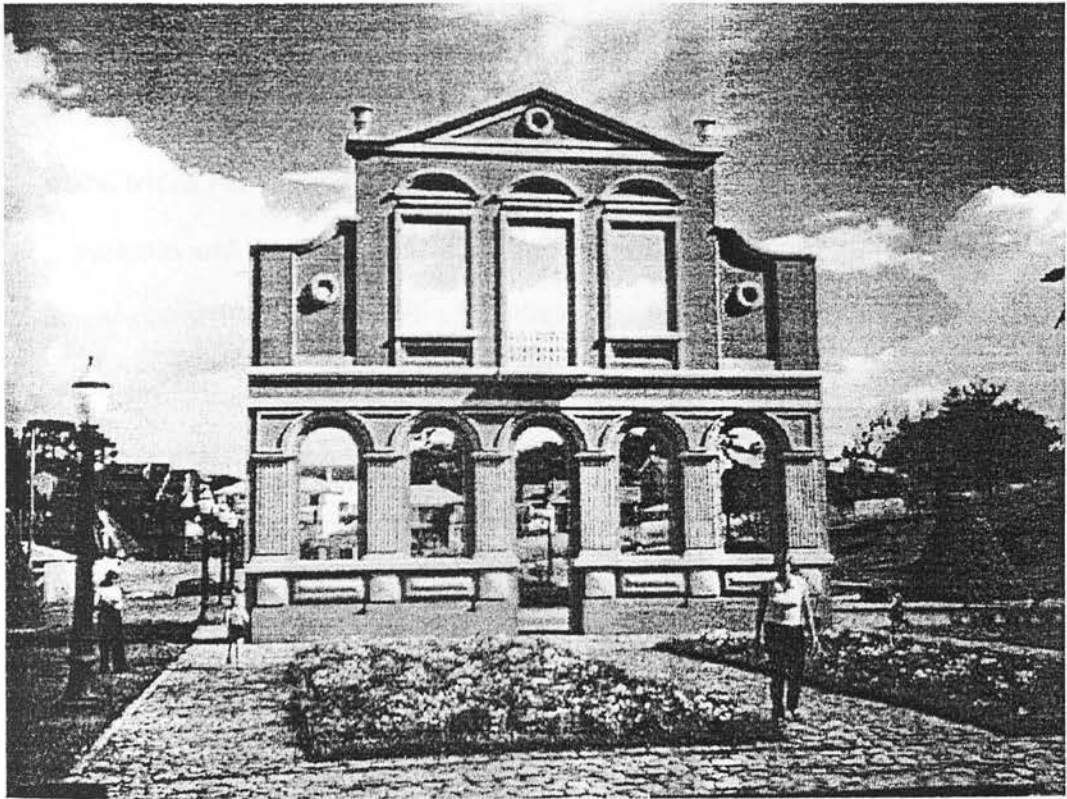
The 1970 decade witnessed the foundation of the first higher degree in landscape design, at the Fine Arts School of the Federal University of Rio de Janeiro – EBAUFRJ¹⁷, offering 20 places yearly (Universidade Federal do Rio de Janeiro, 2002a). In parallel with this first initiative, some practitioners started offering short courses in which they taught the principles of their practice. The courses became increasingly popular, and in the late 1980s turned into a major source of income to some professionals.

These decades saw, with the upraise of a military dictatorship that lasted from 1964 to 1984, a proliferation of opportunities for designers in the many public projects and works started. As the construction of squares and plantation of street trees became gradually more recognised as part of their duty, many city councils created departments of 'parks and gardens'. Specialised teams in those departments in São Paulo and Rio de Janeiro, and department of planning in Curitiba, treated and created hundreds of public sites. These new designs, where the canons of modernism were discernible, served as models and as stimuli for the conception and realisation of a vast number of other designs (Macedo, 1999).

The 1990 years were another time of rupture. In a decade that brought new winds of economic prosperity under consolidated democracy, Burle Marx and some of his

¹⁷ Escola de Belas Artes da Universidade Federal do Rio de Janeiro

contemporaries were still designing, along with younger generations of professionals. Adding many other influences to their conceptions, landscape designers of the 1990s started to show post-modern characteristics in their work, revisiting old principles and even forms as those of Eclecticism that the modern movement had rejected (Macedo & Ceniuel, 1992; Macedo, 1999). They associate their views in designs now filtered by a strengthened ecological conscience not only among professionals, but also growingly of the public, after 'Rio 92' – the United Nations Conference on Development and the



Environment.

Figure 2.31: Bosque Alemão, Curitiba, as an example of Post-Modern landscape design in Brazil (Source: Macedo, 1999)

With more access to foreign travel, published material, and the WWW, Brazilians could keep up more easily with the international trends in landscape architecture, clearly focusing on North American production (Macedo, 1999). At the same time, landscape

conferences and publications strengthened the production and propagation of academic research.

The last decade was also prodigal in the offer of flower shows and exhibitions of architecture and interior design, which boosted the popularity of *paisagistas*, creating work opportunities with the new upper-middle class, and gave the profession the status of a desirable and prosperous career. As a result, courses of *paisagismo* and gardening – habitually associated – burgeoned, becoming a lucrative industry.

With the rise of the Internet, a large number of web references to *paisagismo* appeared, in sync with other areas of knowledge and business. Courses, services, technical information, gardening tips, plants, and other products populate the Brazilian web space, which has become a further way of making the profession known. The variety of approaches and the abundance of material suggested to this research that they could be diagnostic of the present state of landscape architecture in the public domain. This called for systematic investigation, which this research took on board as a means of raising further information for building a profile of landscape practice and practitioners in Brazil, at the dawn of the millennium.

2. Working with landscape architecture in Brazil

The introduction of this thesis pointed out that initial literature examination and personal contacts strongly suggest the existence of a conflict of interests among professional categories involved. This section seeks confirmation to that, exploring some of the ways this state of uneasiness comes into sight, and examining the legal aspects of the landscape design practice, still a matter of difficult understanding.

The predicament of 'who should be doing what' is frequently discussed whenever landscape professionals gather, as seen in conference proceedings and minutes of meetings. Periodicals, newsletters, and magazines often bring some form of reflection on the theme.

In an interview to the newsletter of one of the professional societies, ANP¹⁸, the architect Sidney Linhares – Fernando Chacel's work partner, called for an end to 'the discussion that has been dragging along about who can and who cannot practice *paisagismo*' (Associação Nacional de Paisagismo, 2000a:1).

Addressing his colleague agronomists at the opening session of a meeting of the category, Rodolfo Geiser, as mentioned, made vehement protests against the loss of professional terrain to architects (Geiser, 1998).

As different backgrounds exist among practitioners, this research found it useful to group them for better understanding, as follows.

Agronomy, architecture, and forestry are the courses expected to include formally some degree of landscape instruction as part of their academic curricula. Provided graduates from these courses have passed those courses, their professional council –

¹⁸ Associação Nacional de Paisagismo: National Association of *Paisagismo*

the same for the three— permits practice to some extent. These would compose the first group of landscape practitioners: those legally entitled to practice.

As a second group, there are those who practice without legal backing but received some sort of instruction that supports their practice. They come from other disciplines where landscape design is not directly mentioned in the curricula, but have a point of touch with the field through ecology, construction, aesthetics, design, or the study of space and landscape as physical entities. This group, hence, includes biology, geography, fine arts, and engineering in many of its forms, as civil, agricultural, and land surveying. Holders of tertiary qualifications in disciplines correlated or not to landscape design, recurrently form, beside others with no higher degrees, the clientele of the abundant courses of variable length that do not award degrees and receive no accreditation. These courses, taught by experienced designers and novices with some theoretical knowledge alike, cover a multiplicity of aspects related to *paisagismo* in different levels. The courses are the ingress of many into practice or into the commerce of related good and services. As will be detailed later, courses in other levels and with better structure and programmes have appeared and are starting to release their students into practice —and that will cause further upheaval. This group is also accompanied by those who undergo specific landscape architectural education abroad and graduates from the landscape composition —*composição paisagística*— program offered at the School of Fine Arts, Federal University of Rio de Janeiro, unique in its class.

The third and last group considered here contains practitioners formed entirely in practice, not receiving any form of landscape instruction by means of courses of whatever level or nature. Though an inconspicuous group, it has practitioners who come from gardening practice to the composition of green spaces up to a medium scale, but whose work most observers regard as *paisagismo*.

As this last group suggests, the general understanding of the profession is still very much entangled with gardening. As an example, the municipal secretary for the environment of São Paulo shows this, when she suggests in an interview that a way for *paisagistas* to contribute to the solution of environmental problems in the city would be to teach 'open gardening classes' in public parks (Associação Nacional de Paisagismo, 2001:1). This is also apparent in the title of short courses offered by institutions and individuals, which often associate *paisagismo* with *jardinagem*¹⁹ thus perpetuating the notion that the words are synonymous, instead of the second as a possible ramification of the first.

This review found no references to numbers of landscape designers in any of the above categories. In their discussion about the *paisagismo* work market in Brazil, Pettan & Gonçalves (1998) brought up the inexistence of a database of professionals, and called attention to the difficulty of collecting information about and from practitioners. They recommended, therefore, that the association of agronomists of the state of São Paulo should invest in collecting data on its member professionals concerning their number and qualifications (Pettan & Gonçalves, 1998).

Data collected at CREA-SP on the distribution of associates across professions in the State of São Paulo only, showed numerical superiority of architects over agronomists, allowing space to speculate that architects working as landscape designers would also be more numerous.

¹⁹ gardening

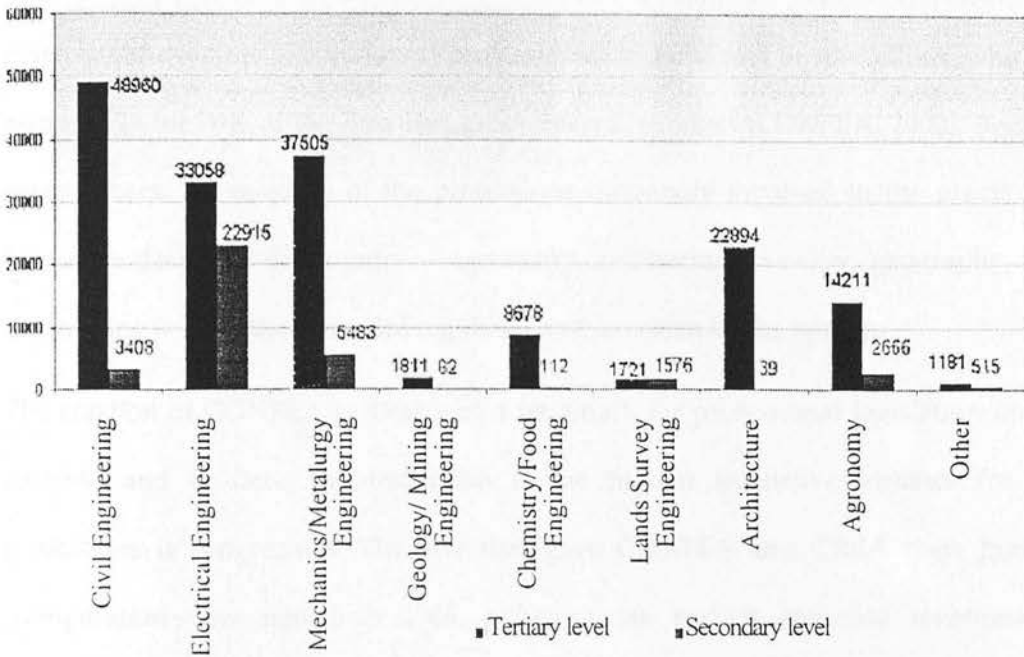


Figure 2.32 Distribution of professionals registered at CREASP per specialist chamber, from the register of active members in 2000 (CREA-SP, 2001).

The figure above shows that in the state of São Paulo alone, the number of professionals registered at the architecture technical chamber surpasses the number of those registered at the agronomy chamber by 6056. The discrepancy proves even greater when the composition of the agronomy chamber is detailed: it includes not only agronomists, but also agricultural engineers and forestry engineers (CREA-SP, 2001). Of those, part of the contingent of foresters –those who opted not to take landscape courses at university– and all agricultural engineers are legally excluded from the practice of ‘parks and gardens’.

However, this was all that could be found, pointing at a gap in the body of information on landscape architectural practice in Brazil that, if filled, should inform future discussions and policies.

Regulations, interpretations and misunderstandings

CONFEA²⁰ at the federal level and CREA²¹, at the regional, compose the regulatory system that oversees 850 thousand professionals in hundreds of specialities, who are responsible for 70% of the Brazilian gross internal product (CONFEA, 2002). Besides many others, the majority of the professions commonly involved in the practice of landscape design in the country – agronomy, architecture, forestry, geography, and engineering – have their practice regulated and overseen by the system.

The creation of CONFEA in 1933 was a landmark for professional legislation in the country, and to date, the institution is the highest legislative instance for the professions it congregates. The law that gave CONFEA and CREA their present configuration was signed in 1966, although the earliest recorded mentions to professional regulation date back to 1828 (Soares, 1996).

Each of the professions mentioned has other forms of associations to deal with matters of more exclusive interest to each category. Debates happen very often within these organisations, which endeavour to protect the rights of each profession, at times by reviewing and proposing updates to CONFEA's and CREA's regulations.

Albeit legislating organisms are well established, regulations for the practice of landscape design are complex. The terminology applied is, possibly, the reason for most of the convoluted.

For all its affiliated professions, CREA requires that projects and services be registered and peer approved at the appropriate technical chamber, ensuring clients receive

20 CONFEA: *Conselho Federal de Engenharia, Arquitetura e Agronomia* – Federal Council of Engineering, Architecture and Agronomy; it has national jurisdiction.

21 CREA: *Conselho Regional de Engenharia, Arquitetura e Agronomia* – Regional Council of Engineering, Architecture, and Agronomy; functions at state level, and to the acronym are added the two letters identifying the state on which it has jurisdiction, e.g. CREA-MG for Minas Gerais and CREA-SP for São Paulo. The plural 'CREAs' is used when referring to CREA of the various states and federal district.

quality service, and professionals have the recognition of their authorship and intellectual property rights. The procedure, named 'notation of technical responsibility' – ART²², is mandatory to any work in progress, apart from teaching, that involves CREA professionals. When construction or other form of intervention on the physical environment is involved, the registry and professional identification details must be on public display. This display should be in the form of a poster of no less than one square metre in surface, containing ART data, professional identification details of project authors and of those technically responsible for the work in progress (CREA-MG²³, 2002).

According to the Resolution N° 218, from 29 June 1973 (CONFEEA, 1973), there are 18 types of activities professionals in general can perform, as the table below shows. It is according to this division that professional activities are framed and ARTs issued.

²² ART: *Anotação de Responsabilidade Técnica*

²³ *Conselho Regional de Engenharia, Arquitetura e Agronomia do Estado de Minas Gerais*: Regional Council of Engineering, Architecture and Agronomy of the State of Minas Gerais

Activity	Activities of the different professional forms in Engineering, Architecture and Agronomy	Categories entitled to practice
01	Supervision, co-ordination and technical guidance;	F
02	Study, plan, project and specification;	F
03	Technical and economic viability study;	F
04	Technical guidance, assistantship, and consultancy;	F
05	Management of construction and technical service;	F
06	Inspection, forensics, evaluation, arbitration, and technical report;	F,T
07	Occupation of a technical position and function;	F,T,N
08	Teaching, research, analysis, test, and technical broadcast; extention;	F,T,N
09	Budgeting;	F,T,N
10	Standardisation, measurement, and quality control;	F,T,N
11	Execution of construction works and technical service;	F,T,N
12	Ficalisation of construction works;	F,T,N
13	Technical and specialised production;	F,T
14	Carrying out technical work;	F,T,N
15	Conduction of teams for instalation, assemblage, operation, repair or maintenance;	F,T,N
16	Instalation, assemblage, repair;	F,T,N
17	Operation and maintenance of instalation equipment;	F,T,N
18	Technical drawing.	F,T,N

F: holders of full undergraduate degree – Bachelors and similar or higher;
T: technologists – shorter higher professional degrees
N: technicians – secondary or medium level professional qualification

Table II: General activities of CONFEA/CREA professionals and categories entitled to practice, according to Resolution N. 218, of 29 June 1973

CREAs include ‘technicians’, professionals qualified through secondary education, receiving professional training without proceeding to higher or university degrees. Along with those, there are also the ‘technologists’ – those who conclude a shorter tertiary degree in a given subject, not leading, however, to titles of bachelor or equivalent. In legal terms, the difference between technologists, technicians, and those

who obtained full higher degrees is the number of the activities above they are authorized to perform, as exposed in Table II.

Professional Competencies
Art. 1 – Professional competencies of the architect or architectural engineer: I – activities 01 to 18 at the 1 st article of this Resolution, referring to , architectural settings and monuments, <i>arquitetura paisagística</i> and of interior architecture; physical planning, local, urban and regional; its co-related services.
Art. 2 – Professional competences of the agronomic engineer/agronomist: I – activities 01 to 18 at the 1 st article of this Resolution, referring to (...); natural renewable resources; ecology, (...) soil cultivation and use process; (...) parks and gardens; (...); its co-related services.
Art. 21 – Professional competences of the urban designer: I – activities 01 to 12 and 14 to 18 at the 1 st article of this Resolution, referring to urban and regional development, <i>paisagismo</i> and traffic; its co-related services.

Table III: Professional competencies according to Resolution N° 218, of 29 June 1973 (CONFEA, 1973)

Subsequent articles of the same resolution, as shown in table III below, govern the nature of the activities each professional qualification can practice.

Therefore, according to the resolution mentioned above, *paisagismo* and *arquitetura paisagística* are professional attributions of architects, since urban design is integral part of the architectural degree in Brazil, while ‘parks and gardens’²⁴ are attributed to agronomists (Soares, 1996). This is subject to various interpretations and misunderstandings.

In search for expert opinion on the interpretation of the laws in question, this researcher contacted CONFEA, which referred the consultation to CREA-MG, the state

²⁴ *parques e jardins*

CREA where this researcher is registered and was, as such, the appropriate first instance. The table below summarises the information raised.

Information provided by CREA-MG to clarify the legislation
<p>Regional variations in interpreting CONFEA's regulations:</p> <ul style="list-style-type: none"> • They exist and here exposed is the understanding for Minas Gerais.
<p>Definition of <i>paisagismo</i> and <i>parques e jardins</i>:</p> <ul style="list-style-type: none"> • CREA-MG recognises that, commercially, the terms are confounded and companies tend to treat <i>parques e jardins</i> as a sub-item under <i>paisagismo</i>, though CONFEA attributes them to different professionals.
<p>Interpretation of the legislation in Minas Gerais:</p> <ul style="list-style-type: none"> • A common understanding of architecture and agronomy chambers defines the activity according to services executed: <ul style="list-style-type: none"> ○ Whenever it involves the cultivation of soils and fertilisation, and plant health and management measures, even if under the denomination of <i>paisagismo</i>, it is under the responsibility of agronomy professionals; ○ Concerning projects, when they involve the design of space and forms, they are under the responsibility of architects and urban designers. ○ Architects can specify planting schemes as far as space occupation (e.g. medium height, shade plants, creepers, etc.) is concerned, but not the specification of fertilisers and pesticides.

Table IV: Interpretation CONFEA/CREA regulations by CREA-MG (Reis, 19 July 19 2002)

Reis (19 July 2002), representing CREA-MG, highlights that the same resolution that details professional attributions introduced a fundamental subject for professional ethics. Resolution N. 218, of 29 June 1973, in its Article 25 states that 'No professional can perform activities beyond those that compete to her/him, according to the characteristics of her/his school curriculum, considered, in each case, only the courses that contribute to professional training, except where other courses are added during postgraduate studies in the same field.'(CONFEA, 1973)

The article quoted above attributes a break point role to curricula. This raises a further issue, since variations through time rendered both agronomists and architects who

received exposures to landscape design content that differs amongst peers, from none to several courses. Landscape design has been in different times absent, mandatory, or optional to students of architecture, agronomy, and forestry. This receives further discussion in this text when dealing with curricula. The laws valid at the time professionals graduated are the ones that govern how far their practice domain goes, unless the more recent Resolution 218 is wider for the profession in question. Hence, there are agronomists, who graduated before 1973, who have the right to practice *paisagismo*, while others do not qualify.

Interpretation of regulations constitutes a difficulty that could account for the low popularity of the practice of registering landscape projects at CREA among member professionals. Other reasons given for that omission are the bureaucracy and high price paid for each ART.

Because of the regulations exposed above, no one, apart from graduates, technologists, and technicians in architecture or agronomy, is legally allowed to practice *paisagismo* or design 'parks and gardens' professionally in Brazil – not even graduates from the only existing degree in landscape design, at EBA-UFRJ. According to the recommended procedures and precedents examined in other areas, whoever performs professional activities corresponding to competencies of a CREA profession other than one's own is liable to being denounced to CREA fiscalisation authorities and prosecuted for illegal professional practice. Denounces are simple procedures and can be filed over the telephone or by email (CREA-MG²⁵, 2002a). The results from such legal actions can vary from formal warnings to fines and, in the case of businesses, closure. However, an exam of the available records only found one case of legal action against a person unduly responsible for a project of *paisagismo*, who was condemned to pay fines after a

²⁵ Conselho Regional de Engenharia, Arquitetura e Agronomia do Estado de Minas Gerais: Regional Council of Engineering, Architecture and Agronomy of the State of Minas Gerais

first formal advertence (CONFEA, 2001). The other legal ruling found on the issue was against a firm, run by a civil engineer, which proposed to offer *paisagismo* services (CONFEA, 1983).

Under this framework, neither Waldemar Cordeiro, nor Roberto Cardozo, nor even Burle Marx would have been legal in their practice, unless their projects were in partnership with authorised professionals.

After thorough investigation of legal records available from CONFEA and CREA and contacts with both organisations, no information was found about whether denounces happen or about the extent to which legal measures are taken in practice.

The situation with those who study for their undergraduate degrees abroad is not any simpler. To have their degrees recognised in Brazil it would require a long and bureaucratic process with uncertain results, and still CREA/CONFEA would grant no entitlement to practice.

As an example, the respected landscape architect Luis Goes Vieira Filho, a 1980 graduate from the University of Georgia, decided to study architecture in Brazil in order to have the right to practice, graduating in 1989 (Kliass, 2000, June 21; Dourado, 1997). Luis Vieira is not an isolated case, neither are those Brazilians who study in North America and Europe and do not return to practice in their home country.

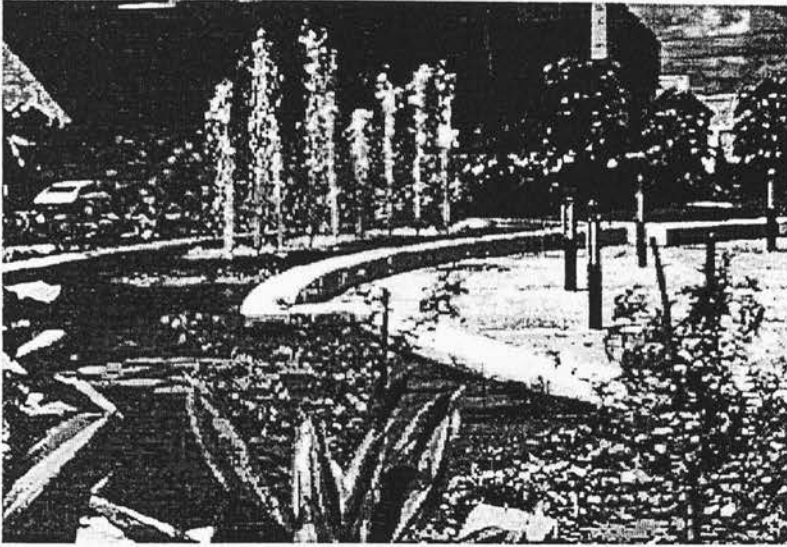


Figure 2.33: Imperial Hotel Square, by Luis Vieira Filho (Photo: Luis Vieira Filho)

This legal muddle is at the core of the debate between architects and agronomists. The latter continuously express their discontentment with the regulations that prevent them from labelling and selling their work as *paisagismo* even though the intermediate and final products can be identical as those offered by architects, the lawful holders of the label.

Further upheaval is expected for when graduates from the newly created one and two-year 'sequential courses' of landscape design start working in the field. Some of these will receive the degree of technologists in *paisagismo*, with the technicians originating from the few existing secondary landscape courses, and will increase the pressure for clearer legislation and definition of professional categories and their entitlement to practice.

Professional Associations

Another elucidative way to look at the Brazilian landscape controversy is through the existing professional organisations of *paisagistas*. Local associations congregating professionals of certain cities, regions, and states exist and some of them were examined, along with those associations set up to gather landscape designers nationwide.

Two associations polarise the field. ABAP and ANP, exposed later, differ mainly in the training route the professionals they assemble follow.

In 2000, ABAP and ANP jointly organised the III National Conference of *Paisagismo*. The 2000 conference had, in the manner of European garden festivals, a garden design competition, where each association received ten spaces of 25 square metres (Associação Nacional de Paisagismo, 2000).

However, in 2001, ABAP pulled away from the organisation of the conference and ANP was then in charge. The number of delegates was 310 in 2001, with representatives from 20 of the 27 Brazilian federative units and from several countries (Bergamasco, 2001). The fourth edition of the event offered national and international speakers and was held in parallel with FIAFLORA²⁶ 2001, with exhibition of products of interest to the landscape and garden industry, and the 13th Brazilian Conference of the Brazilian Society of Floriculture and Ornamental Plants.

Of more local interest, *Sociedade Brasília de Paisagismo*—SBP²⁷, gained legal status in 2000, gathering 54 members, open to those who have had over 240 certified hours of

²⁶ FIAFLORA: *Feira Internacional de Floricultura, Paisagismo e Jardinagem*: International Fair of Floriculture, Landscape Design and Gardening.

²⁷ Brasilia Landscape Association

landscape instruction or those approved by an internal committee that examines candidates' work in the field (Batista, 24 October 2001).

ABP – *Associação Brasileira de Paisagismo*²⁸ is a fourth association this research found. As one of its founders, Rodolfo Geiser mentions, ABP was not created with professional purposes, rather, as a group for ecological militancy in the 1970s (Geiser, 1998). Therefore, it is excluded from this study.

ABAP

The creation of ABAP was a single-handed work by Rosa Kliass. The task came to her from the delegates at the 1975 IFLA technical conference, emphasised by Edgard Fontes, Portuguese, then the secretary of the organisation. (Kliass, 2000).

Upon her return, she invited for a meeting other architects known to work with landscape design, with the purpose of starting some form of association. Over a dozen architects were present and decided for the creation of ABAP, officially launched in May 1975 (int.: Kliass, 21 June 2000). The next IFLA Grand Council Meeting, in Istanbul, 1976, approved ABAP as a member and, two years later, Salvador, the largest capital of the Brazilian North-East, was the site of the IFLA World Conference (Kliass, 2000).

As a first act, ABAP nominated Roberto Burle Marx, Luiz Emygdio de Melo Filho, Hermes Moreira de Souza, Mário Ferri, and Mauro Victor its first honorary members (Kliass, 2000). The measure had clear political reasons: keeping peace with the long established practitioners who were not architects. Otherwise, the credibility of the fledgling society would be shaken in its very start by excluding those names. Through

²⁸ ABP: Brazilian Landscape Association

the years and the mandate several presidents, it grew to reach, in 2001, 75 associate and five affiliate members.

The association, although active in promoting short courses for continued professional training of its affiliates – in the manner of associations in other countries, does not have an official role in landscape education as an accrediting or supervising organism.

ANP

The creation of the *Associação Nacional de Paisagismo*²⁹, ANP, was a consequence of a series of meetings of practicing landscape and garden designers organised by the central association³⁰ of nurseries and floriculturists of São Paulo, early in 1995, with the intention of discussing the commerce of ornamental plants. The meetings motivated participants to form ANP in June that same year, with around 200 associates (*Associação Nacional de Paisagismo*, 13 November 2001). Since then, the association has had ca. 350 members, not all remaining to present.

In personal communication with this researcher, the association expressed their concern with the lack of definition of the scope of the profession and roles of the different types of professionals (ANP, 13 November 2001). They stated that in spite of that professionals and organisations from different parts of the country often contact them for information, joint work, or policymaking.

The concerns of the association with training and the academic domination of architecture surface in the following declaration by its 2001 president:

²⁹ National Association of Landscape Design

³⁰ *Associação Central de Produtores de Flores e Plantas Ornamentais*

...we are finalising studies for the representation of ANP with university councils, where higher education policies are established, extending the concept of the paisagista beyond the present boundaries of architecture. (Cavallari, 2001:1)

Nonetheless, among the guest speakers in its last conference, ANP brought four architects, two of which are lecturers of landscape design in architecture schools and members of ABAP. Along with them lectured a truly multidisciplinary team, including professionals from agronomy, biology, ecology, geography –in many of their specialities (Bergamasco, 2001).

Table 5 below presents a comparison between the two associations. The main difference is the exclusive nature of ABAP in that full membership is open only to architects or landscape architects graduated in countries where landscape architecture programmes exist.

	ABAP	ANP
Foundation	1976	1995
Present number of members	80	120
Membership requirements	Presentation of portfolio with at least three landscape design works or certificate of professional activity	<i>Curriculum vitae</i> confirming the candidate works in landscape or garden design or maintenance
Members' profile	Architects, architecture students and other	Varied training and lines of work
Recommended professional training	Architecture or landscape architecture abroad	One of the courses on offer (not necessarily a degree)
What it offers	Publications, exhibitions, study trips, workshops and lectures, member directory, website and newsletter.	Conferences, exhibitions, workshops, lectures, discounts with suppliers, study trips, website with newsletter.
Member categories	Associate: architects (75) Affiliate: other professions (5) Students	Associate: professionals and firms providing services (80) Advertising sponsors

Table V: Comparative table: ABAP and ANP. ABAP (2000,); Kliass, (2000, June 21); ANP (1995, 2002)

Brazil at IFLA

Fernando Chacel, Luiz Emygdio de Melo Filho, and Rosa Grena Kliass were members of IFLA in 1975 (ABAP, 2000), probably its first Brazilian members. It was Kliass, however, who started the international connections of Brazilian landscape designers as a category, through the door of architecture (int.: Kliass, 21 June 2000). As mentioned, ABAP became officially a member national association in 1976 (Kliass, 2000).

Questioning the validity of the Brazilian representation by ABAP at IFLA, Geiser (1998) raised that all others practicing categories are now prevented from joint affiliation, since only one association per country is accepted, which leaves to non-architects the possibility of individual membership.

3. Learning landscape architecture in Brazil

"Enough of auto-didacticism and the anguish of the search for [landscape architectural] knowledge through arduous and tortuous ways." (Kliass, 1996:48)

When writing about Burle Marx, Adams (1991) brings up that, at the time of his studies at the school of fine arts in Rio, no courses in landscape design existed. The school, founded in 1820, followed the philosophy of the French Academy in uniting painting, sculpture, and architecture. The creation of its first landscape programme only happened in 1971 (Adams, 1991).

In the absence of landscape schools for a long time and even after the creation of the first, which had little impact, several strands of landscape education in Brazil developed, which the following pages examine. As mentioned, the fragmented network in the field of *paisagismo* is a problem. It became evident when this research started its search for information on landscape educational practices. Information is scattered and insufficient, public sources are incomplete, and few historic accounts exist.

Setting further hurdles to the investigation, some of the course providers were uncooperative when consulted. This researcher understands that an over-protective attitude when making information available could be a result of the competition existing among course providers.

Because of these obstacles, few instances and references appear here, and part of the information raised is based on advertisements and personal accounts, sometimes anecdotal. Nevertheless, what was raised has proved sufficient for the purposes of this section, which, far from offering exhaustive diagnosis, seeks to establish a general picture, identifying needs and opportunities.

Recent conferences and publications show that intellectual production in landscape architecture is progressively de-centralising from the axis Rio de Janeiro-São Paulo. The concentration of most research work in FAUUSP and FAUFRJ³¹, however, still exists, and these two schools represent the forefront of Brazilian landscape architectural research, attracting undergraduate and postgraduate students from the whole country. FAUUSP first and secondly FAUFRJ concentrate most of the academic production, and graduate the majority of masters and doctors, who then set out to educate a large share of the next academic generation of landscape designers and scientists (int.: Macedo, 21 June 2000).

Meetings and conferences often explore the topic of landscape education. That is the case of ENEPEA and meetings promoted by GEAPSP. The events, gathering a representative number of professionals among Agronomists, Architects, and others, provide an indication of the importance the theme receives. In the course of presentations and panels, as this researcher has witnessed, the disagreement between

³¹ FAUFRJ: Faculdade de Arquitetura e Urbanismo da Universidade Federal do Rio de Janeiro –Faculty of Architecture and Urban Design of the Federal University of Rio de Janeiro.

professionals from the different disciplines has been, at times, vociferous. That is so despite delegates acknowledge the value of inter-disciplinary co-operation, limitations, and assets of each profession involved in the same meetings.

Controversy is fuelled by affirmations such as Kliass's that Burle Marx always employed architects in his office because he considered them more apt to develop his projects (Moura, Serapião and Melendez, 2002). Almost ten years after his death, it is unlikely that there will ever be either confirmation or dismissal of this statement.

At the five editions of ENEPEA, since 1994 participants have discussed the theme of teaching landscape architecture to architects. Initially introduced as a central topic, the issue lost its urgency in those meetings once national guidelines for architecture courses included landscape design as a mandatory subject area. It lost its precedence to other research and practice matters. The first ENEPEA included the presentation of 26 papers on landscape education out of 35 in total (ENEPEA 1, 1994), while the second had 9 out of 22 (ENEPEA 2, 1996). The IV ENEPEA, in 1998, had four papers presented on themes directly related to education from a total of 79 posters and presentations (ENEPEA 4, 1998). Finally, the 2000 and fifth edition offered 109 opportunities, including presentations, panels, posters and workshops, of which eight were centred in landscape education – seven of those presented during the last section of the sixth and last day of the conference (ENEPEA 5, 2000). That suggests, at least, a shift in priority.



Figure 2.34: Architects Lucia Costa, Silvio Macedo, Alina Santiago, and Vera Tangari, organisers of ENEPEA 1, 2, 4, and 5 respectively (Photo: A. Zuin)

Undergraduate teaching

This text has already mentioned the array of academic disciplines involved in landscape design practice in Brazil. Among them, architecture and agronomy were selected for a closer examination in this section, because of their prominence in the professional debate, their official qualification for the practice, and the availability of information –albeit partial. Brief mention is also made to the first landscape degree on offer.

Architecture Schools

Academically, the discipline expanded significantly when *arquitetura paisagística* became a mandatory field of study in architecture schools in 1994, on a par with architecture and urban design projects:

The project of architecture, urban design, and landscape architecture constitutes the creative activity, referring to the architecture of dwellings and buildings in general, besides the project of objects, landscapes, cities and regions. The themes will approach

problems of greater social interest, through attending to social needs. (Ministério da Educação, 1994: Art. 4º line 3)

Deriving from the decree above, the present curriculum guidelines for architecture schools detail the conditions for the offer of architecture courses down to study themes, as history, theory, aesthetics, and to school facilities and equipment, i.e. laboratories, studios, classrooms, and the like. The way each school addresses these guidelines varies, and this thesis looks at two examples only, perhaps extreme ones, as illustrations.

The history of landscape design in schools of architecture dates back to Roberto Coelho Cardozo in 1952 and has all its first chapters at FAUUSP. Consolidation, however, only started with Miranda Magnoli 21 years later. From the moment she took over the leading role in the landscape sector of that school, Magnoli worked on three main aspects: the conceptual and methodological framework of the discipline, re-evaluation and update of teaching practices, and the formation of a team with strong interest in *paisagismo* research and teaching (Macedo & Magnoli, 2000). Since the 1970s, many of FAUUSP graduates have established their practices or assumed teaching positions at schools of architecture in different parts of the country, adapting and mixing conceptions that evolved from Cardozo's postures to different contexts (Macedo & Ceniuel, 1992).

Another shift Miranda Magnoli found necessary in the early days of *paisagismo* at FAUUSP was the enhancement of research, counteracting the stagnation architects had undergone by becoming 'drawing board professionals' (Magnoli 1986; Macedo & Magnoli, 2000). Imposing the research bond as a condition for staff admission was a costly solution, as it dissuaded practitioners who wanted to keep the income their offices provided, which university salaries could not match (Magnoli, 1986). In 1976, FAUUSP admitted five new lecturers and, in the following year, they would start their

postgraduate studies in parallel with their teaching, integrating undergraduate students in their research despite the chronic lack of resources (Macedo & Magnoli, 2000).

A member of this new team was Silvio Soares Macedo, born in 1949 and graduated as an architect in 1974. His profound roots at FAUUSP, where he studied for his undergraduate, masters and doctoral degrees under the supervision of Miranda Magnoli, and where he teaches since 1976, do not hinder his national mobility. Silvio has helped set up landscape design courses in architecture schools throughout the country (int.: Macedo, 21 June 2000), directly *in situ* or indirectly through his abundant publications and large number of supervised postgraduates.

Macedo & Magnoli (2000: 15) mention research on 'Educational Methods' as one of the interests at FAUUSP. Works such as those by Macedo & Silva (1994) are pioneer endeavours in providing students and tutors with specific tools for landscape education. In a time when computers were just beginning to be more available to schools and students, they developed software that allowed experimentation with vegetation and scale in organising outdoor spaces (Macedo & Silva, 1994).

When asked about other initiatives in landscape education in architecture schools, Macedo (June 21, 2000) divided schools into two groups. A first group consists of those schools that develop their teaching practice starting from FAUUSP's proposals, and the second is composed by schools adopting a 'traditional' view of landscape, with a general reading of the landscape concluded with the design of spaces, generally on a small scale, as squares and gardens.

The view developed at FAUUSP considers that students should have the opportunity to develop landscape theory allied to design and an understanding of vegetation as a major structuring element of the landscape, which, though desirable in Brazilian

interventions, is not essential (int.: Macedo, June 21, 2000). This posture is a reaction to schemes traditionally proposed by architects in which the use of vegetation is primary, despite good general layout.

In an endeavour to free *paisagismo* from its stigma of working with residual spaces, the curricula invests in the development of the ability to design external space integrated with built space, which should cease to be the immutable constraints to which landscape architecture is reduced (int.: Macedo, 21 June 2000). Therefore, FAUUSP offers two mandatory courses on landscape design, one in the second and one in the third semesters of the architecture undergraduate programme. These courses start from conceiving urban open space, develop on how to work with resources and the dynamics of the place, and culminate in the design of urban spaces, as illustrated in the table below.

Course: AUP650 – Architecture of the Landscape

1. Landscape – definitions and reading methods;
2. Elements of urban landscape;
3. Architecture of the landscape – definitions and project methods;
4. Scale and dimension;
5. Project procedures – functions;
6. Briefing and uses;
7. Aesthetic standards;
8. Open urban spaces – form, dimension, morphology, appropriation types, and environmental quality;
9. Design/structural project of streets, plazas, patios, and squares;
10. Urban system of open spaces – conceptual and project fundamentals.

Course: AUP652 – Landscape planning

1. Landscape planning – concepts, methods and techniques;
2. Landscape ecology – fundamentals;
3. Ecological corridors and green corridors;
4. Landscape morphology and elements – patterns of human configuration;
5. Introduction to environmental issues and their relationship with the urban environment
6. System of open spaces – distribution criteria, dimensions and form; its relationship with the urbanisation process and environmental constraints;
7. The role of infra-structure in urban landscape configuration;
8. Landscape project fundamentals;
9. Private vs. public open spaces – introduction to project.

Table VI: Programme of the two mandatory courses for architecture at FAUUSP (FAUUSP, 1998:1, 2000:1)

Complementing the two mandatory courses, two other optional ones are available, one on plants and planting design and the other on the design of urban parks.

Atelier or studio work is part of the pedagogy at FAUUSP to a reasonable extent, as it is a common practice in many architecture schools in the country with varying proportions of time dedicated to it. Landscape projects are part of the 'atelier courses' at FAUUSP.

The profile of the landscape group at FAUUSP is far from typical. With the longest history among its Brazilian peers – 40 years – the planned growth of the school paved the way for the constitution of a full-time staff of nine lecturers with doctoral qualifications, which is unlikely to be surpassed or even equalled elsewhere in Brazil.

Approaching the other end of the scale, the programme of architecture at the Federal University of Viçosa – UFV, Minas Gerais, is still striving to integrate *paisagismo* into the architecture curriculum. The course is new, created in 1992 and inserted in a university with established tradition as an agricultural centre. Presented in its early days with the problem of having to offer landscape education without any staff trained in the subject, the Department of Architecture and Urban Design – DAUUFV, has had, since, the collaboration of a lecturer from the Forestry Department, Dr. Wantuelfer Gonçalves, a forestry engineer who had his doctoral studies at FAUUSP under the supervision of Sílvio Macedo.

DAUUFV and forestry students receive their landscape instruction side by side, in courses offered by the Forestry department, recommended for their eighth or ninth semesters (Universidade Federal de Viçosa, 2000). This creates the opportunity for students to develop their academic projects in mixed teams of architects and foresters – as an introduction to multidisciplinary work, resulting in works of better quality than those developed by single discipline groups (Gonçalves, 1998). Most of the

content is concentrated in one mandatory course, as described in table VII. A second mandatory course covers the design of parks and principles of planning. Studio courses are also present, but with little mention to landscape design work.

Course: ENF386 – Landscape Planning

1. Concepts and definitions
2. History and evolution of landscape design and *paisagismo* as a professional field;
3. Styles and schools of landscape thought;
4. Analysis and survey of the elements composing the urban and rural landscape;
5. Factors of natural and social influencing landscape projects;
6. Principles of aesthetics;
7. Project studies for the system of urban and rural green areas;
8. Identification and grouping of plants commonly used in landscape design.

Table VII: Programme of mandatory courses for architecture at DAUUFV (Universidade Federal de Viçosa, 2000:343)

Architecture schools in Brazil are still adapting to the introduction of landscape architecture as a major topic in courses, but their many and varied efforts produce noteworthy material, registered and presented at conferences. The evolution, therefore, is much more conspicuous than what happens in Agronomy schools.

Agronomy Schools

An expressive number of Agronomists practice in landscape design, but as raised by Geiser (1998), their dispersion through the vastness of rural Brazil makes them weak as a category and less evident than architects, who tend to gather in urban centres. As a result, communication is also weak and the interchange of information between the academy and practice, deficient.

Differently to schools of architecture, which in general document their educational experiences in internal and external publications, agronomy schools have few records in that respect. This author has found that publications by agronomy scholars in the

landscape field focus primarily on horticultural, botanic, and ecological aspects of the practice, leaving design in a secondary position, with virtually no mention to education.

A time-honoured voice in landscape design in agronomy schools is Maria Esmeralda Demattê. She graduated in agronomy in 1966 at the agricultural unit of USP – ESALQ³², where she also received her masters and doctoral degrees in plant science (Demattê, 1999), and *latu sensu* degree in *paisagismo* at FAUUSP, 1980. Maria Esmeralda affirms that that ‘the content of undergraduate agronomy courses in Brazil is one of the best in providing training for a landscape designer’ (Demattê, 1998: 98). She completes her statement by quoting the areas of study agronomy programmes offer, as required by the Federal Education Council under the norms published in 1984. These, however, do not include design theory and aesthetics, which appear in course materials but in levels no deeper than the introductory, and not always incorporate technical drawing instruction (Universidade Federal de Viçosa, 2000; ESALQ, 2002).

The academic training in agronomy includes courses on land use, rural planning, and environmental management of the land (Ministério da Educação, 1999). These should promote the understanding of planning processes and work in large scales (Mazzilli and Geiser, 1998). However, the practice of agronomists as landscape designers tends to focus on the horticultural correctness of compositions rather than on planning or aesthetic principles, as an examination of project descriptions offered by the agronomists Geiser (1997) and Brito (1997) illustrates. As an exception, Matthes (1997), also an agronomist, presented more details of use, space design, and aesthetic principles in his description of his project, featured in the same publication (Dourado,

³² *Escola Superior de Agricultura Luiz de Queiroz*: Luiz de Queiroz Higher Agricultural School

1997). The prominence of vegetation figures, declaredly, in Dematté's (1999) instruction.

The credits system adopted in most tertiary schools gives little opportunity for the integration of the different curricular courses. Dematté (1998) affirms that an axis connecting courses and giving meaning to the contents of the curriculum is missing, and proposes that the subject 'planning' could function as such axis.

Paisagismo presently figures in programmes as a component of optional courses on 'Floriculture, Gardening and *Paisagismo*' as in the Federal University of Viçosa (2000), or on '*Paisagismo*, Parks and Gardens', as in ESALQ (2002).

Course description: FIT 480 – Floriculture, Gardening and Landscape Design

1. Economic aspects and perspectives of the flower market;
2. Plant health aspects in floriculture;
3. Physiology and control of flowering;
4. Physiology and post-harvest management of cut flowers;
5. Planning of commercial production in floriculture;
6. *Paisagismo*: concepts and practice;
7. Characteristics and identification of ornamental plants;
8. Factors influencing the landscape and the design of gardens;
9. Planning, plantation and maintenance of gardens and parks – general aspects.

Table VIII: Course description: FIT 480 – Floriculture, Gardening and Landscape Design (UFV, 2000:375)

Courses on Landscape Design and Ornamental Plants, as above, became mandatory for Agronomy students in 1984 (Dematté, 1998). Syllabi resulting from that resolution often include both topics, meaning that time dedicated to the specific teaching of *paisagismo* is a variable share of the usual 60 class hours allocated. Dematté (1998) in consultation with six schools in the state of São Paulo raised that the actual number of hours dedicated to the specifics of *paisagismo* vary from three to thirty as part of mandatory courses, and sixty hours as optional courses in two schools, with a similar situation occurring with the ornamental plants contents. However, as the course

catalogues for UFV³³ (Universidade Federal de Viçosa 2000) and ESALQ (2002) show, courses on floriculture and landscape design are no longer mandatory.

Recognising the lack of material available in Portuguese, course books were produced internally in schools and made available to students, as was the experience of this researcher (Zuin, 1997). With that same proposal, Demattê (1999) published a booklet on the principles of landscape design specifically destined to agronomy students and based on her agronomical experience in practice and education.

In this booklet, she tries to cover in a very succinct way, most of the situations agronomists may face in the practice of landscape design, such as the design of squares, parks, farms, roads, street trees and, with more detail, home gardens (Demattê, 1999). Principles of design, professional practice, and plant lists with their recommended uses are some of the other topics covered, in a collection of the basic notions she worked to transmit during her teaching practice, as mentioned in her presentation page (Demattê, 1999).

H. W. Stuart Montenegro (1983) produced a similar booklet on garden design for agronomists in 1983. This, despite being an internal publication at ESALQ, circulated among many agronomy schools and influenced other course books as Demattê's.

Apart from this researcher's accounts and personal experience, no information was found on the pedagogy of *paisagismo* in agronomy schools. Past contacts with other agronomists, involved or not in teaching, lead this author to accept that there is little variation from the classroom based instruction model except for isolated and short-lived trials. Lectures with and without slides, nursery visits, and occasional visits to other sites of interest appear to be the usual teaching methods, while written exams,

³³ Federal University of Viçosa

essays, and/or simple garden projects are the means of assessment. Studio work appears to be totally absent from agronomy schools.

Landscape Design at EBAUFRJ

The creation of the course in the beginning of the 1970 decade was a pioneer endeavour. The programme has existed for over 30 years, although little was raised about its evolution. It has produced respected designers, but the programme has little national expression, as suggested by Macedo (int.: 21 June 2000).

Recognised by the ministry of education in 1979 (Universidade Federal do Rio de Janeiro, 2002a), the programme, however, is not accepted by CREA as sufficient training of professionals to practice landscape or garden design.

Twenty places are available yearly for the four-year degree. The two first years of study are entirely dedicated to the arts, with drawing, art history, and courses on theory of the arts, architecture and design (UFRJ, 2002). At the third and fourth years, the introduction of specific contents of landscape design happens, with two units on the history of gardens, four on garden design, and two on garden furniture. The majority of optional courses available cover different fields of visual arts.

Course	Description
Garden Design 1	<ol style="list-style-type: none"> 1. Organisation of spaces at residential gardens; 2. Landscape design as a technique; 3. Various types of landscape; 4. Graphic representation of landscape design elements.
Garden Design 2	<ol style="list-style-type: none"> 1. Organisation of urban landscapes; 2. Rural and urban landscape design; 3. Notions of ecology.
Garden Design 3	<ol style="list-style-type: none"> 1. Organization of macro-spaces; 2. Urban landscape design; 3. Leisure areas; 4. Squares and public gardens; 5. Circulation squares; 6. Pedestrianised streets.
Garden Design 4	<ol style="list-style-type: none"> 1. Planning and preservation of natural environments; 2. Protection of natural forests – conservation techniques; 3. Importance of ecology; 4. Landscape design for roads and motorways.

Table IX: Landscape design courses at EBAUFRJ (UFRJ, 2002)

Course titles and descriptions suggest emphasis on gardens, though descriptions include studies of designs for larger scales and environmental concerns. Macedo (int.: 21 June 2000) implies that detachment from the construction of space, dedicating efforts to the design of gardens for gaps in the built fabric, could be the reason for the discreet impact of the school.

Latu sensu post graduate studies — the 'Specialist' degree

FAUUSP offered in 1978 the first postgraduate *latu sensu* course, or 'specialist degree' in landscape architecture in the country (Macedo & Magnoli, 2000). Other schools followed suit, but the offer of such courses has never been constant in most places.

Lasting approximately one year and taught in approximately 400 hours, the main prerequisite for entrance is a completed university degree or, more recently, a completed sequential course (Ministério da Educação, 1999). Its equivalent in the British system would be the postgraduate diploma. There is usually no restriction to previous

qualification of candidates (Universidade Federal de Lavras, 2001; Universidade Estácio de Sá, 2002).

In 1998, FUNESO, Foundation for Higher Education in Olinda, in the north-eastern state of Pernambuco, offered the specialist degree course in *paisagismo* described in the next table. The nearby capital of the state, Recife, was where Burle Marx's career started to gain momentum, leaving a collection of works preserved in the city.

FUNESO course description																									
General objectives	To prepare professionals for the study and planning [of landscapes?], with a multidisciplinary aspect and with scientific basis, the organisation of the territory, ensuring biologic balance of the landscape, considering the social, economic, and cultural points of view.																								
Description	390 class hours, 10 courses, 273 hours of theoretical/methodological content and 117 hours of practical activities.																								
Assessment	Final dissertation and several projects and assignments during the course.																								
Places/year	45																								
Admission	Analysis of <i>curriculum vitae</i> and interview.																								
Requirements	75% frequency to activities, minimum score of 70% in all courses																								
Degree	Specialist in <i>Paisagismo</i>																								
Programme and hours per course,	<table border="1"> <tbody> <tr> <td>Didactics</td> <td>30</td> </tr> <tr> <td>Botany</td> <td>45</td> </tr> <tr> <td>Soils and fertility</td> <td>30</td> </tr> <tr> <td>Eco-paisagismo</td> <td>60</td> </tr> <tr> <td>Nurseries</td> <td>45</td> </tr> <tr> <td>Research methods and techniques</td> <td>30</td> </tr> <tr> <td>History of the art of gardens</td> <td>30</td> </tr> <tr> <td>Paisagismo</td> <td>30</td> </tr> <tr> <td>Urban green spaces</td> <td>45</td> </tr> <tr> <td>Landscape projects</td> <td>45</td> </tr> <tr> <td>Dissertation</td> <td>60</td> </tr> <tr> <td>Total</td> <td>450 hours</td> </tr> </tbody> </table>	Didactics	30	Botany	45	Soils and fertility	30	Eco-paisagismo	60	Nurseries	45	Research methods and techniques	30	History of the art of gardens	30	Paisagismo	30	Urban green spaces	45	Landscape projects	45	Dissertation	60	Total	450 hours
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Paisagismo	30																								
Urban green spaces	45																								
Landscape projects	45																								
Dissertation	60																								
Total	450 hours																								

Table X: Course structure at FUNESO (1998)

Despite the lack of a detailed description of contents, it remained obscure the reason for the presence of the topic 'Didactics' and 'research' in the programme, considering the short time available for the whole course, neither research nor teaching oriented

according to its official description (Fundação de Ensino Superior de Olinda, 1998). Another observation is the importance given to gardens, by the use of 'garden art'. The course was founded and is directed by an agronomist, area of knowledge predominant but not exclusive in teaching staff, most of which with postgraduate degrees.

A more recent option is the specialist degree offered as a distance learning programme by the Federal University of Lavras, UFLA, Minas Gerais state (Universidade Federal de Lavras, 2001). No detailed description of subjects was obtained but titles show prominence of horticultural subjects, as might be expected from the strong agronomic tradition of UFLA.

UFLA course programme	Class hours
1. Plant morphology and taxonomy	45
2. Physiology of ornamental plants	45
3. Propagation of ornamental plants	45
4. Ornamental plants: classification and usage in landscape design	45
5. Pests and diseases of ornamental plants	45
6. Technical drawing	45
7. <i>Paisagismo</i> 1: History, definitions and characterisation	45
8. <i>Paisagismo</i> 2: macro and micro <i>paisagismo</i>	45
9. Landscape projects	45
10. Construction and maintenance of gardens	45
11. Urban arborisation	45
Total	495

Table XI: *Latu sensu* course offered by the Federal University of Lavras (Universidade Federal de Lavras, 2001:13)

Other courses have different approaches. Views as those of FAUUSP are embedded in courses offered by its former and present postgraduate students (int.: Macedo, 21 June 2000). Silvio Macedo (int.:21 June 2000) and Rosa Kliass (int.: 21 June 2000) expressed, when interviewed, their support of *latu sensu* postgraduate courses as training for landscape designers in Brazil.

Strictu sensu postgraduate degrees: Masters (MSc) and Doctorates

There are no specific landscape architecture postgraduate programmes in Brazil. This is what a search for programmes or subject areas at the most comprehensive database of postgraduate programmes in Brazil would reveal at first sight (CAPES, 2002b, 2002c). However, a search for the keyword *paisagismo*, in a database of 125 thousand postgraduate thesis and dissertations published in the country between 1996 and 2001 retrieves 7 doctoral thesis and 29 MSc dissertations (CAPES, 2002). This number is much higher when including any of the co-related terms mentioned here, e.g. *arquitetura paisagística* and *parques e jardins*. Postgraduate research in *paisagismo* and 'parks and gardens' topics was found to be developed chiefly in departments of architecture, urban design, plant science, horticulture, geography, forestry, and biology, among others (CAPES, 2002).

Similarly to Miranda Magnoli's doctoral work (Macedo & Magnoli, 2000), the habitual practice for those desiring to follow *strictu sensu* postgraduate studies in landscape architecture in Brazil is to develop research in landscape related themes in correlated schools or departments, as architecture, urban design, horticulture, plant science, and forestry, illustrated in the next table.

School	Area	Concentration Area – Sub-area or research field
FAUUSP	Architecture and Urban Design	Urban Environmental Structures – Landscape and Environment
FAUFRJ	Architecture	Theory and Project – Design of the Landscape and of the Build Environment
FAUFRJ	Urban Design	Urban Project – Green Areas and Urban Landscape
UFV	Forestry	Forestry Sciences
UFLA	Agronomy/Plant Science	Plant Production – Floriculture and <i>Paisagismo</i>
UNESP	Agronomy	Plant Production – Floriculture and <i>Paisagismo</i>
ESALQ	Agronomy	Plant Science – <i>Paisagismo</i> and Science and Technology of Flower Production

Table XII: Postgraduate research programmes including landscape design research. Sources: CAPES (2002), Gonçalves (letter: 22 April 1999), Macedo & Magnoli (2000), UNESP (2002), ESALQ (2002a), UFLA (2002)

The first school to offer postgraduate course subjects in landscape architecture was FAUUSP, in 1978 under the direction of Miranda Magnolli (Macedo & Magnoli, 2000). In 2000, according to Macedo & Magnoli (2000), 29 theses and dissertations had been approved there and 29 others were in progress. Research groups in different universities in various states of Brazil are gradually growing, as staff return from postgraduate studies in the USA and Europe, adding diversity to the sector.

MSc doctoral programmes in Brazil follow the North American model of compulsory and optional taught courses, research, and dissertation/thesis, usually completed within two and four years respectively (CAPES, 2002a).

The institution responsible for the regulations and coordination of postgraduate studies in Brazil, CAPES³⁴ (1998, 2002a) approved the offer of professional masters in

³⁴ CAPES: *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* – Coordination for the Development of Higher Level Personnel

1998, which makes provision for the offer of courses in a format similar to American and British conversion MLAs. No landscape architecture programs were found implemented until this thesis was finished.

Sequential courses

Although the format is recent, sequential courses of landscape architecture are being organised and enrolling their first students.

A school found offering a ‘specific training’ course was the private Anhembi Morumbi University in São Paulo. Their two-year *Paisagismo e Jardinagem*³⁵ degree is divided into three blocks of courses, as displayed in table XIII below, and intends to offer ‘an ecological approach, through which the student will be able to plan, build, and keep a garden, respecting plants, the environment and the client’ (Universidade Anhembi Morumbi, 2001). The association of the course with gardening is evident from the title to course descriptions.

Course Description
<p>General basis:</p> <ul style="list-style-type: none"> • Courses that build social, philosophical, psychological, and methodological thinking and understanding of human communication;
<p>Architectural basis:</p> <ul style="list-style-type: none"> • Courses covering themes of art, aesthetics, architectural drawing, architectural resources and graphic representation. This block enables the student to plan and execute landscape projects.
<p>Specific training:</p> <ul style="list-style-type: none"> • This large block of courses puts the student in contact with gardening and the environment, involving knowledge from biology, agronomy and forestry.

Table XIII: Study Foci –Landscape Design and Gardening (Universidade Anhembi-Morumbi, 2001)

³⁵ Landscape Design and Gardening

No examples were found of 'complementation of studies' programmes on landscape architecture. As hypothetical instance, a complementation programme on 'landscape preservation' could be set up by grouping courses from the architecture, agronomy, geography, and history undergraduate programmes regularly administered in a given university.

Once these courses become established, further discussions with CREAs and CONFEA will be necessary, since graduates or not from other disciplines will have received officially certified instruction in the field that can equal or even overcome in class-hours that of agronomists and architects.

Medium level 'technical' courses

As a subsequent extension of secondary/medium level education, or integrated with it at school, courses known as 'technical' –MLTC here– prepare students for professional practice, generally at the auxiliary level. The CONFEA/CREA system recognises these degrees in the agronomic, architectural and other areas, as mentioned, allowing the practice within a more reduced scope of activities. Although authorised by the ministry of education (Ministério da Educação, 2002), landscape design MLTC graduates are not accepted at CREA yet, similarly to EBAUFRJ landscape graduates.

The two schools featured in the next tables started as non-degree awarding courses. The demand from students for further studies encouraged providers to organise the technical courses and seek accreditation (INAP, 31 October 2000; Batista, 1 October 2001).

Both courses are taught by multidisciplinary teams, as tables XIV and XV show, but the structure of the curricula reflect the predominance of a design orientated group at INAP and an environmental sciences orientated group at EPB.

A problem mentioned by INAP (31 October 2000) is frequent student dropout, which they attribute to the cost of fees and time commitment. This research found no public providers offering courses free of charge.

INAP course description		
Started	1997 (school founded in 1976)	
Students	100 until 2000	
Structure	900 class hours, 10 hours practicum, 20 courses, in 1.5 or 2.5 years	
Teaching staff background	Architecture, urban design, interior design, fine arts, civil engineering	
Assessment	Several projects, exams and assignments during the course.	
Places/year		
Admission	Ongoing or finished 3 rd year secondary education	
Requirements	75% frequency to classes per module, minimum score of 60% in all courses; conclusion of secondary education by the end of the course	
Degree	Technician in <i>Paisagismo</i>	
Programme and hours per course	Art History I & II	88
	Gardening Theory and Practice I, II & III (horticulture and botany)	176
	Ecology and Environment	22
	Presentation Drawing I & II	22
	Architectural Drawing I & II	88
	Perspective Drawing	88
	Computer graphics in landscape design	44
	Model making	66
	Materials and technology	44
	Theory of landscape architecture I & II	44
	Landscape projects I, II, III & IV	66
	Supervised practicum	242
	Total	990 hours

Table XIV: Course structure at INAP (31 October 2000)

Escola de Paisagismo de Brasília – EPB – course description		
Started	1997 (school founded in 1999)	
Students	150 until 2001	
Structure	800 class hours, 200hours practicum, 200 hours study trips, 27 courses, in 2 years	
Assessment	Final dissertation and several projects and assignments during the course.	
Teaching Staff background	Architecture, agronomy, forestry, biology	
Places/year	45	
Admission	Ongoing or finished 3 rd year secondary education	
Requirements	75% frequency to classes per module, minimum score of 70% in all courses; conclusion of secondary education by the end of the course	
Degree	Technician in <i>Paisagismo</i> (waiting for accreditation)	
Programme and hours per course,	Landscape History	30
	Technical Drawing I & II	100
	Surveying and Topography	20
	Plant Sciences	60
	Gardens: plantation and maintenance	60
	Climatology and Environmental Comfort	10
	Environmental Studies I & II	40
	Landscape business administration	60
	Lighting	50
	IT & Computing I, II & III	110
	Organisation and management of Nurseries	60
	Landscape projects I, II, III & IV	320
	Materials and Construction	264
	Total	800 hours

Table XV: Course structure at Escola de Paisagismo de Brasília (Batista, 1 October 2001)

Non Degree-awarding Courses

This research has found that a number of institutions and individuals offer courses in landscape design with variable duration and content, which do not award any official qualification or degree. Some courses are legally authorised to function as commercial establishments and are subject to general regulations as service providers. Regulations and guidelines, however, apply neither to contents, nor to pedagogy, nor the value of fees.

The scope of such courses is varied, as is duration. Offered by university lecturers or practitioners of diverse origin and levels of experience, courses may last from a few hours to several days, some times in a series of consecutive modules (Winters, 19 September 2001; IBRAP, 2000a).

Due to the short time most of these courses last, their character is above all informative. Gustaaf Winters has been offering courses at a regular basis since 1990, with seven different programmes at different levels (Winters, 19 September 2001). His 'Centro Paisagístico' has taught approximately 3,200 students the basics of landscape design in units of 30 to 37 hours, usually taught in a week (Winters, 19 September 2001).

Course Profile – Centro Paisagístico Gustaaf Winters	
Title	Advanced Landscape Design Course
Started	1990
Students to date	c.a. 3,200
Average/year	305
Public	Agronomists, architects, biologists, people in the nursery and landscaping business.
Levels	7 independent modules
Duration	30 to 37 class hours per module
Main programme topics	<ol style="list-style-type: none"> 1. History and evolution of gardens; 2. Art and science of landscape design; 3. Design in the scales macro – rural and urban– and micro – home gardens; 4. Plants and their use; 5. Project practice; 6. Presentation: by hand and computer-aided.
Teaching staff: number and training	1 – Agronomy, Brazil, landscape architecture, Holland
Legal recognition	None

Table XVI: Course Profile –Centro Paisagístico Gustaaf Winters (Winters, October 27, 2000; September 19, 2001)

When asked about his former students' practice, Winters (19 September, 2001) states that their most frequent activities are small scale garden design and planting, followed by plant commerce and nurseries, garden maintenance, and, occasionally, design of large and public areas.

Distance education is current practice among these courses. An example is the 'Professional *Paisagismo* Course CD-Rom' (Núcleo Profissional de Paisagismo, 2001). Advertised on the internet along with the offer of free consultancy and environmental management services, the course builds upon the experience the coordinator gathered after teaching c.a. 650 students over ten years (Teixeira, 22 September 2001). Stating that 'This CD-Rom course contains hundreds of photographs, examples, and practice drills for you to learn how to design the *paisagismo* of a garden, from blueprint to

budget' (Núcleo Profissional de Paisagismo, 2001), the provider offers online assistance and practice drills and a final certificate of achievement.

Some of the courses on offer have inviting titles, as 'computer graphics and photomontage' (IBRAP, 2000, 2000a), 'ecologic landscape design' (Jornal da Paisagem, 2002), and one on 'perception development in the design of gardens' that gives 60 hours of garden design teaching (Jornal da Paisagem, 2002).

This research detected a greater frequency and offer of courses in the cities of Rio de Janeiro and São Paulo. More widely, student unions in many universities set up yearly 'academic weeks', when they invite lecturers or practitioners from other institutions to teach short courses and workshops in areas of their interest, including those related to landscape design.

C. Chapter summary

People, places, and circumstances that influence, in various degrees, those who become landscape designers in Brazil were featured in this chapter.

There is much more happening in Brazilian landscape design than what isolated authors have recorded. Gathering initially some of these scattered accounts from literature and complementing them through interviews with influential *paisagistas* still professionally active has been a contribution of this chapter to the knowledge of landscape architecture in Brazil.

By bringing up various instances where friction occurs, this review gave grounds to accept the hypothesis that there is discord in the landscape architectural arena. If solutions for that are delayed, the pressure coming from a growing number of those

trained in the many ways described to practice may discredit the professional exercise of those legally accredited – by dilution in the best of scenarios.

An apparently poor numerical expression, their distance from the myriad of people and institutions offering landscape education, and their corporatism ascribes little relevance to professional associations. These institutions are alien to the offer of landscape education through the official channels.

Higher education programmes that include *paisagismo* are regulated directly by the Ministry of Education, which establishes policies and funds, totally or partially, the fulfilment of the requirements it imposes for accreditation. This divorce between practice and education is identified here as one of the causes of the conflict.

This examination identified several lacunae in the information available, with reference to practice and education. If any action towards the improvement of the Brazilian landscape context is desired, filling the existent gaps is a pressing need. Therefore, the review presented in this chapter raised a series of questions and suggested many others, all listed below. This research takes on board to seek answers for them, while pointing methodological directions for continuation of this task in other research opportunities. Quantitative answers, by helping to estimate proportions of such a variety of practitioner types and education possibilities, would substantiate further evolution of the field, allowing future adjustments in professional regulations and the offer of more appropriate educational opportunities.

Questions about Brazilian *paisagistas*

- a. What is their occupation?
- b. What is their background?

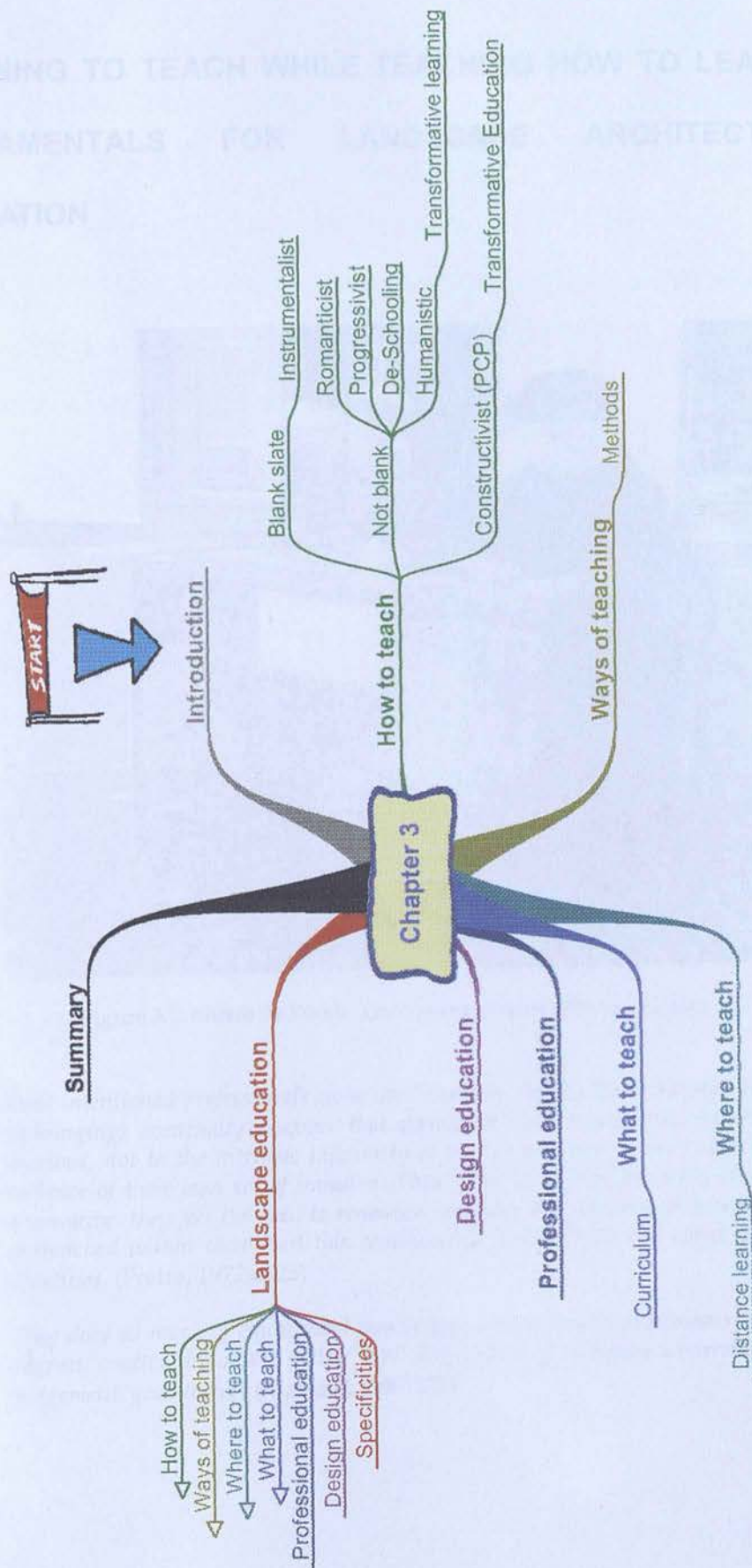
How and where did/do they learn *paisagismo*?

- c. How high is their education level?
- d. What is the most important component in their training, the auto-didactic or the academic?
- e. How much landscape design instruction have they received?
- f. Is practicum/apprenticeship an important means of instruction?
- g. How long have they been practising?
- h. What do they do in their practice?
- i. How effective is the network of professional associations?
- j. What is their demographic profile?

Table XVII: Questions for investigation on Brazilian *paisagistas*

Although professional legislation figures here as a source of problems and urgently needing revision, it is not an intention of this thesis to go further in that issue.

The Brazilian context was portrayed here as rich in opportunities and resources – human and natural – that make landscape education possible and potentially rich. In the face of the sector's expansion in Brazil, the next chapter will examine education as a possible solution chosen here for this quandary, looking for a paradigm applicable to the reality disclosed.



Mindmap: Chapter 3 -- LEARNING TO TEACH WHILE TEACHING HOW TO LEARN --
 FUNDAMENTALS FOR LANDSCAPE ARCHITECTURAL EDUCATION

CHAPTER 3

LEARNING TO TEACH WHILE TEACHING HOW TO LEARN — FUNDAMENTALS FOR LANDSCAPE ARCHITECTURAL EDUCATION



Figure 3.1: Musée de l'école, Carcassone, France (Photo: A.Zuin)

Well intentioned professionals (who use 'invasion' but as the expression of their own upbringing) eventually discover that certain of their educational failures must be ascribed, not to the intrinsic inferiority of the 'simple men of the people', but to the violence of their own act of invasion. Those who make this discovery face a difficult alternative: they feel the need to renounce invasion, but patterns of domination are so entrenched within them that this renunciation would become a threat to their own identities. (Freire, 1972a:125)

Why does so much of educational psychology concern itself with means (e.g., grades, degrees, credits, diplomas), rather than with ends (e.g., wisdom, understanding, good judgement, good taste)? (Maslow, 1987:172)

A. Introduction

The previous chapter gave basis to accept the hypothesis that discord exists in Brazilian landscape architecture and that a solution for it is necessary. Following with the hypotheses raised in the introductory chapter, the discussion moves on to examine education as an instrument of transformation and, as such, a possible solution for the prevalent discord in Brazilian landscape architecture. This chapter sets out to analyse these points through literature, identifying issues needing further investigation and forming a base for that.

The present chapter does not intend to be a thorough exploration of the infinite possibilities in educational theory and practice. Its objective is, as a framework, to support efforts towards a systematic approach to landscape education and the generation of feasible solutions for the Brazilian context, with, however, broader applicability.

Steinitz (1997) affirmed that there is a need for constant review of landscape architectural education. Later, Patrick Miller (*Landscape Architecture*, 1998:102) strengthened this position when judging that schools are not preparing students well for the two things they need to learn: 'how to save the world' and 'how to make money'. This chapter, hence, tries to offer elements for reviews that will help landscape schools to fulfil their mandate.

Although general in scope, the literature review was conducted with landscape architectural education in mind and the issues discussed for the general setting apply to the specific setting of landscape education. The concluding section of this chapter – H– raises some of the specificities concerned with landscape education, following, though not item by item, the sequence of the previous sections, underlining some of the ideas discussed in the initial sections.

B. How to teach — an overview of educational paradigms

So we usually do things the way we have done them before or the way others appear to do them. Moreover, novel ideas, when openly expressed, can be disruptive to ourselves and disturbing to others. We therefore often avoid them, disguise them, keep them bottled up inside in our minds where they cannot develop in the social context, or disavow them in what we believe to be loyalty to the common interest. (Kelly, 1970:3)

In 1964, the educator Paulo Freire was incarcerated in Brazil for his unconventional manner of teaching peasants of the country's poorest region how to read and write. Freire's imprisonment and later exile in Chile were the recognition that the libertarian education he proposed was a threat to the old order (Shaull, 1972). That prompted the recently started military dictatorship to remove him from the picture —thankfully preserving his life, unlike that of so many others.

Freire's 'pedagogy of the oppressed' (Freire, 1972a), besides proving effective during the literacy campaigns in the Northeast of Brazil forty years ago, became an internationally influential work in the education of adults (Denicolo & Pope, 2001; Taylor, 1998). His humanistic view of education as a horizontal relationship of shared power has echoed in the writings of numerous educationalists after him.

The 'culture of silence', which Freire (1972, 1972a) described as the one submerging the dispossessed and perpetuating their situation, is not restricted to the poor and illiterate. The concept, generated from the dichotomy 'dominating deaf metropolis-alienated silent colony', finds consonance, almost half a century later, in a youth that is drowning in information and succumbing silently to the domination of a globalising media.

The dichotomies metropolis-colony, oppressor-oppressed are, according to Freire (1972a) and accepted here, a figure —perhaps a subconscious image— of the traditional teacher-learner relationship.

Educational paradigms exist aplenty. They overlap in time, even though some may seem to be evolutions of others. Landscape schools, most of which are younger than

this debate, presently apply variations of the perspectives presented next. These are not in a chronological order. The classification adopted is essentially the one presented by Pope & Keen (1981) and updated by Denicolo & Pope (2001).

1. The slate is blank

The assumption of the *tabula rasa* for the novice student permeates much of the classical thinking on education, along with the Lockean tradition of a passive human mind.

Starting from the classical *cultural transmission* – whereby education is a process of accumulating bits of a universal truth, perspectives on education have evolved. Antiquated as it may seem, however, this first approach is, according to Denicolo & Pope (2001), present as the basis of much of modern educational technology and behavioural modification attitude to education and skills training. That is true when accepting that, by imitating expert behaviour, novices internalise knowledge, values, and skills located in the culture, previously acquired by the educator.

Also known as *instrumentalism*, the realist approach of cultural transmission measures the outcomes of education in terms of performance rather than attitude (Pope & Keen, 1981).

The 'banking' concept of education was Freire's (1972a) way of criticising instrumentalism. He compares the minds of students undergoing habitual education to banks where the teacher, by issuing communiqués instead of communicating, makes deposits. Students, empty receptacles, receive patiently, memorise, and regurgitate later. Knowledge is a gift bestowed by those considered knowledgeable upon those who know nothing. Freire (1972a) describes this as dehumanising, as it denies inquiry and praxis, instituting the structure of dominator-dominated. As part of the structure,

the coercion instrument exists in the form of the grades given by those in control, which figure as punishment or recompense.

As mentioned above, communication is an important aspect: it incorporates differences of power to the relations (Fairclough, 1989), and in the case of education, it establishes teachers in a hierarchically superior position. Fairclough (1989) attributes to the language the twofold character of being socially determined and having the power to determine society, as below:

...whenever people speak or listen or write or read, they do so in ways which are determined socially and have social effects. (Fairclough, 1989:23)

Social power structures are shown through and maintained by the use of language, but can be changed by it. Discourse affects society, contributing to social continuity or change.

Even though most other major schools of thought have counteracted instrumentalism, as suggested earlier, a resistance focus of it exists in competence-based courses —a response to the demands of international competition for an educated workforce (Denicolo & Pope, 2001). In some of those courses, particular behaviours are the sign of achievement that intellectually passive and very busy students give in assessments. This is so despite the progressive or humanistic student-centred discourse is the pretence empowering language of such courses (Armitage et al., 1999).

2. The slate is not blank

Further perspectives developed from the notion that the learner's mind is not a *tabula rasa*. As a result, it remains for educators to know that the pre-written lines affect their task from beginning to end. The next conceptions exposed show different ways of dealing with the contents of the 'slate' — or students' minds.

The slate is not blank —let it feel it itself

By turning the focus of education towards emotions, feelings and thoughts, and introducing the notion of 'inner good', the *romanticist* view, prevalent in the nineteenth century, rejected cultural transmission (Pope & Keen 1981). The 1970 decade saw followers of the movement bringing 'contract learning' to vogue (Denicolo & Pope, 2001), with introspective autobiographical material being used to inform decisions of those involved in the process.

Educators of adults in the 1970s proposed formal agreements about rules, expectations, and commitments as a means of increasing mutual respect and valuing between the parts involved.

The slate is not blank —let it push itself forward

Another perspective, *progressivism*, defended learning based on a motivation that comes from within the learner, rather than on externally imposed knowledge (Denicolo & Pope, 2001). In its own way, progressivism rejected cultural transmission by suggesting that the role of the teacher should be to facilitate students in the process of 'learning how to learn' (Pope & Keen, 1981). Experiential problem-solving situations became the centre, and the teacher, the facilitator of a continuous involvement with the

subject matter, i.e., someone who encourages critical thinking for the reconstruction of previous ideas.

Although with almost a century's delay, as Denicolo & Pope (2001) state, the commonplace concepts of lifelong learning, experiential learning, and continued professional development are echoes of progressivists' theories.

The slate is not blank —leave it alone

A development of the 1970s, *de-schooling*, with reminiscences of existentialism, argued for the end of the school as the world knows it, in favour of an environment where learners find their own truths for themselves and incorporate them to their view of the world.

In this school, Denicolo & Pope (2001) expose, teachers are people who assimilate the subject matter as a real issue for themselves, as part of their inner world of feeling, and create an atmosphere of mutual trust where they meet with students. Students then have the responsibility of accepting or rejecting teachers' interpretation of the subject matter. This principle is common to the next perspective, the humanist.

The slate is not blank —let it transform itself and change the world, with a little help

Humanistic education arose as an intrinsically life changing process that can transform not only the people involved but also their society. Self-actualisation (Maslow, 1987), co-intentional education, critical thinking (Freire, 1972a), reflection-in-action (Schön, 1987; 1991), emancipatory education, transformative learning (Mezirow, 1990), and more became part of the vocabulary of pedagogy.

Learner-based learning replaced the traditional approach of teacher-based learning. The former is self-initiated, requires personal involvement and is evaluated by students in terms of meeting their needs or not (Denicolo & Pope, 2001).

As an example of the resonance of humanistic education, reforms in higher education in the UK have shifted the approach from 'teaching and learning' to 'learning and teaching', whereby study programs are structured around learning outcomes rather than teaching objectives. Educators are then facilitators of student learning. (Maier and Warren, 2000)

The importance of the interpersonal encounter, emphasised by psychologists notably in the 1960 and 1970 decades, reached pedagogy and made its mark. The potential to transform deeply all parts involved approximated education and therapy to the extent of bringing the discussion to the verge of an ethical debate.

Maslow (1987) states that learning is interrelated to character formation; it is also experiential, i.e., closely dependant on significant personal experiences. He points out five main components of 'character learning' or 'intrinsic learning', exposed below.

Main components of character learning

- The educative effects of unique (nonrepetitive) and profound personal experiences,
- The affective changes produced by repetitive experiences,
- The conative changes produced by gratification-frustration experiences,
- The broad attitudinal, expectational, or even philosophical changes produced by certain types of early experiences,
- The determination by constitution of the variation in selective assimilation of any experience by the organism.

Table XVIII: Maslow (1987:35) on 'character learning'

Humanistic educators of the 1960s asserted that society should accept its members as autonomous and unique, opposing the conventional view of education as aimed at adjusting the individual to the society as it exists (Cox, 1987). At the same time, the

classroom became the starting place of a revolution with power to transform society into one that is more effective in encouraging human self-actualisation.

Transformative learning is a more recent pedagogical proposal, organised by Jack Mezirow, which embodies humanistic educational principles. Taylor, (1998:vii) explains transformative learning as 'the process of making meaning of one's experience'. It revolves around the reflective assessment of presuppositions and the changes they should suffer to better interpret reality. As it is a model of education for adults, drawing heavily on critical reflection, transformative learning is a valid paradigm for discussing higher education here.

A desirable outcome of the instructional process is making the learner a more autonomous thinker and someone who, rather than acting uncritically on values, meanings, and purposes of others, is able to negotiate their own, (Mezirow, 1997). This is a basic premise for curricula, emphasising content that goes beyond the boundaries of the subject matter.

For their text on the integration of technology into education, Maier and Warren (2000) accept transformative learning as their core approach to education, which they believe to comply with the present economic agenda in its demands for work-force qualification. They organised the tenets of transformative learning into a diagram, adapted and presented as Figure 3.2, on the next page, where they acknowledge the inter-dependence among learning environment, tutoring environment, the individual, and the group, also presenting their desirable characteristics (Maier and Warren, 2000).

Encourages intellectual risk-taking

Uses dissonance and conflict as a learning experience

Learning environment
Challenges current beliefs

Gives good feedback

Promotes critical reflection

Safe environment to explore ideas

Tutor does not dominate

The group

Individual and group responsibility for outcomes

Interpersonal maturity

Respecting other's views

Democratic

Compassionately critical

Tutor reflective

Tutoring environment

Tutor as facilitator

Tutor as learner

Supportive

Empowering

Critical reflection

Ability and willingness to change

Self-assessment

The individual

Independent thinker

Takes

responsibility of own learning

Good interpersonal skills

Almost 25 years since Mezirow published his first works systematising his approach, transformative learning as a research topic has expanded in the area of theoretical critique, but very little into its practice. In a review of recent works on the theme, Taylor (1998:1) summarises limitations of the process into several points, as below:

Transformative learning reveals a learning process that needs to recognize to a greater degree:

- The significant influence of context,
- Its relationship or lack thereof to social action and power
- The varying nature of the catalyst of the process [a disorienting dilemma],
- The interdependent relationship of critical reflection and affective learning,
- The role of other ways of knowing and relationships in learning, and
- An overall broadening of the definitional outcome of a perspective transformation.

Table XIX: Limitations of transformative learning (Taylor, 1998:1)

This research acknowledges that the context – place, time, and mindset – where the learning process happens conditions every part of it, therefore, it cannot remain out of the discussion. What happens around students and teachers affects the way they learn and teach. The local context where the teaching environment – classroom or other – is inserted matters as much as the planetary one. Identifying the influential facts of the context and using them to the advantage of the process are roles of the teacher.

Likewise, it is accepted here that social action is an outcome of education even when it is not a stated goal; that the whole of the human mind – rationality and emotions – is involved in the learning experience; that learning is relational and that the outcome of it is affective as much as it is rational.

The limitations of transformative *learning* exposed above motivated some more elaboration on the theme. Other authors, developing Mezirow's positions, proposed the term transformative *education* (Denicolo & Pope, 2001).

Transformative education, a flexible concept, incorporates here elements from some of the previously discussed educational approaches and the overlapping conceptions of

'active learning' (Denicolo, Entwistle and Hounsell, 1992), Cox's (1987) reading of Maslow's theories into 'transpersonal education', and Freire's (1972a) 'dialogical character of education as the practice of freedom'. The tables that follow summarise these views.

Active learning

- A search for meaning and understanding;
- Greater student responsibility for learning;
- A concern with skills as well as with knowledge;
- An approach to the curriculum which looks beyond graduation to wider career and social settings.

Table XX: Basis of active learning (Denicolo, Entwistle & Hounsell, 1992:3)

Transpersonal education

- Education of the whole person, exposing people to the mysterious in themselves;
- Emphasis on learning how to learn;
- Learning as a journey reflecting the discoveries of personal transformation.

Table XXI: Cox's reading of Maslow's educational theories (1987:255)

Dialogical character of education as the practice of freedom

Education based in dialogue, and that is

- The encounter in which the united reflection and action are addressed to the world which is to be transformed and humanized;
- The source of significance for humankind as those who name and transform the world;
- Not liable to being 'reduced to the act of one person's "depositing" ideas in another', nor to becoming 'a simple exchange of ideas to be "consumed" by the participants in the discussion';
- A horizontal, mutual trust relationship, founded upon:
 - profound love for the world and humankind,
 - humility,
 - faith in people's power to make and remake, to create and re-create, and in their vocation to be more fully human,
 - hope as the driving force of human self-actualisation,
 - critical thinking that discerns an indivisible solidarity between the world and human beings.

Table XXII: Dialogical education according to Freire (1972a)

This research found that the position of transformative education could still benefit from expanding the discussion about the interaction between educator and educated, which is considered in the next paragraphs.

3. Making sense of the writings on the slate

We start with a person. Organisms, lower animals, and societies can wait. (Kelly, 1970:9)

In one of the corollaries that develop *personal construct theory*, PCT, from its basic postulate, George Kelly (1970:22) states that 'to the extent that one person construes the construction processes of another, he may play a role in a social process involving the other person'. This 'sociality corollary' is central to the understanding of education this thesis takes on board.

Since 'a person's processes are psychologically channelised by the ways in which he anticipates events' (Kelly, 1970:9), educating this person under a transformative paradigm, as exposed above, requires from educators the willingness to understand, at least minimally, how their students anticipate events. This way of anticipating is, in fact, each person's own system of constructs in action, the eyes –or goggles– through which they see the world. Teachers have to learn to see the world through their student's eyes, knowing that both intellect and emotions are involved.

Kelly (1970) explained psychological processes with the metaphor 'man, the scientist'. As scientists, humans are constantly involved in a process of observation, interpretation, prediction, and control (Denicolo & Pope, 2001). People test their constructs all the time, assessing the accuracy with which they can predict the outcomes of situations. That way they keep their constructs as they are or modify them, in search of better ways of predicting in the future.

While not mentioning PCT as a direct source, Mezirow's (1996) following statement is congruent with it:

... learning is understood as the process of using a prior interpretation to construe a new or revised interpretation of the meaning of one's experience in order to guide future action. (Mezirow 1996:162).

A teacher interested in engaging in a dialogical interaction with a learner must consider that there are two diverse construct systems at play. The construct system of each participant conditions every transmission and every reception from each side. In other words, people cannot contact an interpretation-free reality directly (Banister & Fransella, 1986).

As such, the experience of education is a constant crossing of evolving construct systems, hence, an extremely complex interaction, as sketched in figure 3.1. This figure also acknowledges that the same construct systems mediate and condition the assessment of student feedback – process that should contribute to the evolution of students' constructs. The figure, however, does not emphasise that teachers' and students' constructs are being tested and modified all the time because of interactions inside and outside the educational environment. That makes the process even more dynamic.

This understanding can help relieve tensions in a time of uneasiness in schools. Bewildered teachers of all levels recognise that not everything is under control in the classroom. They look for ready solutions to improve their performance – so often measured by their popularity amongst students. A vast number of publications presenting solutions and teaching techniques populate teachers' shelves.

Some educators are aware, even if not formulating it in the same terms, that their problem relates to not complying with PCT's sociality corollary, i.e.: a clash between different ways of seeing the world may be the cause of failure. This may also appear as

a difference in the way both sides approach the educational environment: different desires, different perceptions of needs, different objectives.

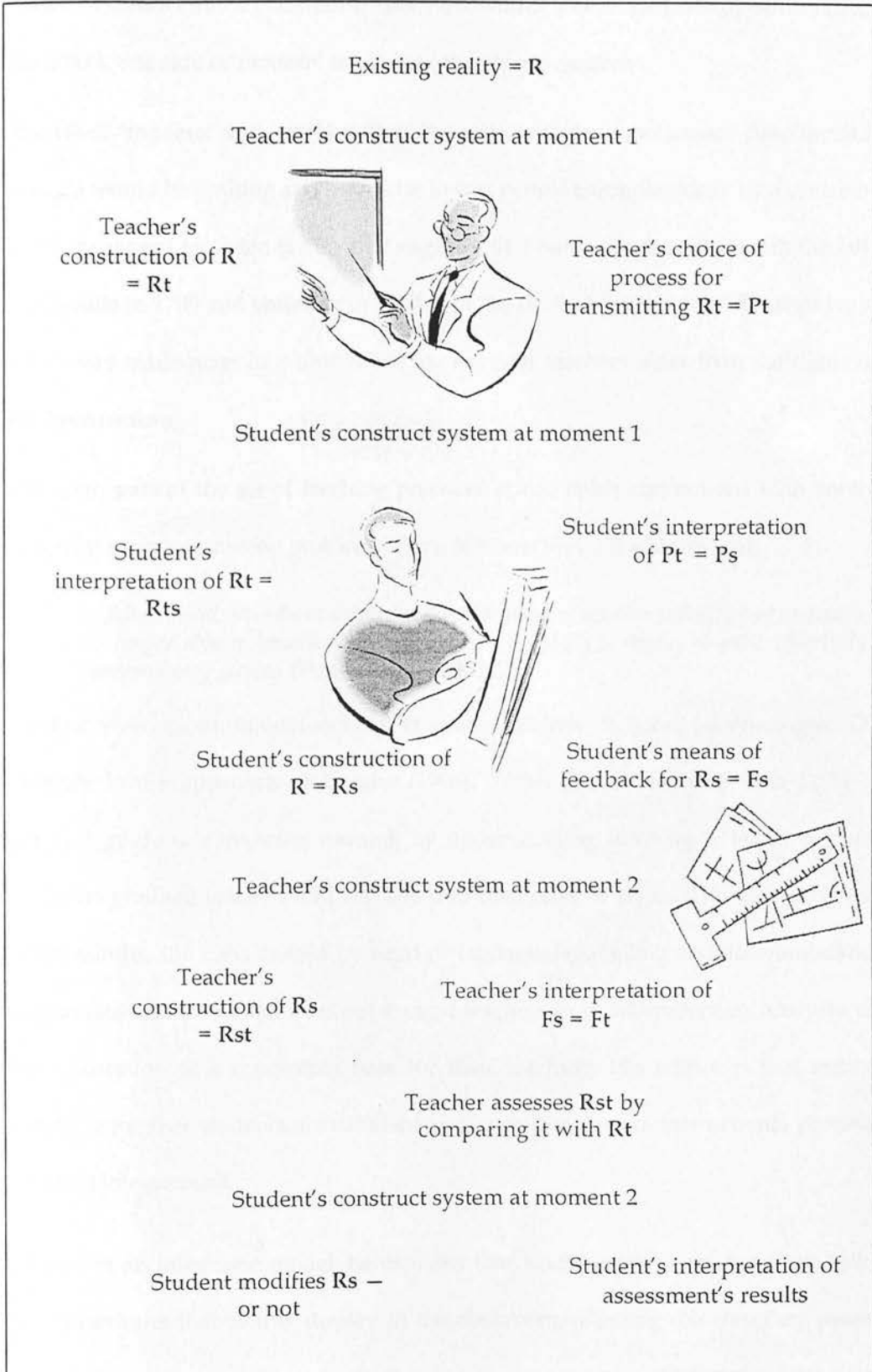


Figure 3.3: Personal construct model of education

The discrepancies can occur in different levels. One standpoint this thesis deems incomplete is that the onset of postmodernism as the dominant *weltanschauung* is a source of conflict in the classroom. This view would accept the presupposition that, in the 2000's, one side is 'modern' while the other, 'post-modern'.

The labels 'modern' and 'post-modern' are not at all clear, neither are time limits for them. It would be limiting and imprecise to sort people chronologically by a division as trimly proposed by Oden (1992), that suggests that modern age started with the fall of the Bastille in 1789 and ended with the fall of the Berlin Wall in 1989. The argument is even more inadequate in a time when the norm of teachers older than their students has been broken.

However, part of the set of teaching practices in use holds connections with another historical moment, causing problems. Pope & Keen (1981:32) address that:

...Educational procedures developed during an era of relative stability and certainty are no longer able to provide the student with the skills he needs to exist effectively in contemporary society. (Pope & Keen, 1981:32)

Another view, constitutional as what is advocated here, is based on typologies. One example is the approach of Grasha (1996), in his book 'Teaching with Style – a practical guide to enhancing learning by understanding teaching & learning styles', where he grouped teachers and learners into categories or styles. This carries, Grasha (1996) admits, the risks caused by rigid or inadequate labelling and accommodation, but stresses that his model does not exempt teachers from self-reflection, analysis, and the exploration of a conceptual base for their teaching. His advice is that teachers should remember students are different and, therefore, ensure instructional processes take that into account.

As part of an integrated model, he explains that teaching styles are based on beliefs and behaviours that faculty display in the classroom, affecting the way they present information, interact with students, manage classroom tasks, supervise course work,

introduce students to the field, and mentor them (Grasha, 1996). Learning styles are personal traits – motivational, perceptual, sensorial, cognitive, relational, and physical– that affect the way a person relates to teachers, peers, and the environment (Grasha, 1996).

After analysing the possible interactions between the categories from his typology, he offers an integrated approach for the educational process. Grasha (1996) suggests a list of 45 presently used pedagogical practices – from lecturing, through guided design, to practicum – and shows teaching and learning styles with which they are most closely associated and, when used, should bring best results. The tables presented next summarise his categories.

Teaching Style	Description
Expert	Possesses the knowledge students need and is concerned that students receive it and are well prepared. Maintains expert status among students by displaying detailed knowledge.
Formal authority	Has status because of knowledge and position. Concerned with providing positive and negative feedback, learning goals, rules of conduct for students, and correct, standard ways of doing things.
Personal model	Believes in teaching by personal example, oversees and guides, shows how to do things and encourage students to emulate.
Facilitator	Places emphasis on the personal teacher-student interactions. Guides by asking questions, exploring options, suggesting alternatives, and preparing them for informed choices. Has a goal of developing initiative, independent action, and responsibility in students, providing support and encouragement.
Delegator	Seeks to develop students' capacity to perform in an autonomous fashion. Students work on projects independently or in groups with autonomy and teacher is a resource person, available on request.

Table XXIII: Teaching styles (Grasha, 1996:154)

An educator's teaching style, Grasha (1996) points out, is a composition of different degrees of each of the five basic styles, within a hierarchy of primary and secondary

styles. Therefore, as an example, a teacher can be primarily an expert/formal authority and have personal model/facilitator/delegator as secondary traits.

Learner styles, on the other hand are:

Learning Style	Description
Competitive	Learn material to perform better than others, compete for the rewards; like to be the centre of attentions and to receive public recognition of their achievements.
Collaborative	Feel they can learn by sharing ideas and talents, are cooperative and like to work with others.
Avoidant	Not enthusiastic about learning the content and attending classes. Do not participate, are uninterested and overwhelmed by what happens in class.
Participant	Good citizens, enjoy classes and participating in course activities. Do as much as they can of required and optional.
Dependent	Little intellectual curiosity and learn only what is required. View teacher and peers as support, need authorities to tell them what to do.
Independent	Think for themselves, confident in their abilities. Prefer to learn what they find important and to work alone.

Table XXIV: Learner styles (Grasha, 1996:169)

Similarly to teaching styles, learning styles do not appear in pure form, but it can be expected that certain qualities will be more pronounced than others (Grasha, 1996).

This typology reduces the burden some teachers might feel on their shoulders of almost having to become psychologists to understand their students –the ethical debate of humanistic education mentioned earlier.

Though the role of the educator has been emphasised so far, the view of education this thesis supports is co-operational or, as Freire (1972a) advocates, co-intentional, demanding participation from students. As Grasha (1995) admits, the best teaching practice can still fail if students do not operate in the same wavelength as teachers.

Very few will reach tertiary education familiar with the positions advocated here. Students will be defensive and need help to build confidence to walk the two-way street. They may come unwilling to accept the relative uncertainty that learning based on their own expressed needs and desires may offer – and will need encouragement.

The addition of the personal approach to the concept of transformative education was found to comply with the set of criteria Maier & Warren (2000) use to assess education according to transformative learning. This is condensed into their 'learner model', expressed in four questions:

Learner model

Answers the questions

- *Who are the learners?*
- *What do they know?*
- *Do they have any critical misconceptions?*
- *Are their technical skills adequate?*

Table XXV: Learner model (Maier and Warren, 2000:78)

In table XXV above, Maier and Warren (2000) add that educators should know about the way their students do things, i.e., their technical skills. They also suggest that the teacher should assess students' conceptions in search of critically inadequate ones for the defined objective. This objective, around which their text revolves, is finding work in the turn of the millennium. It is necessary to add that the definition of 'critical misconceptions' will be the result of the teacher's personal construction of the job market and his/her construction of students' conceptions.

C. *Ways of teaching — education in practice*

Once formulated as the chosen paradigm, transformative education supported by the constructivist position has its reflexes on educational practice. Accordingly, the criticism against the traditional educational positions reaches the instruments of education with the same intensity.

Consonant with the dialogical position of Freire (1972), the constructivist position ratifies his criticism against verbalistic lessons, reading requirements, and knowledge evaluation methods of a 'ready-to-wear approach that serves to obviate thinking' (Freire, 1972a:50). These are practices as common today as they were in Freire's days.

Procedures for teaching and assessing learning are also aspects Maier & Warren (2000) included in their model, as below:

Pedagogical model (a)

Answers the questions

- *How can the learning outcomes be realised?*
- *How will they be assessed?*

Table XXVI: Pedagogical model (Maier and Warren, 2000:78)

Instructional methods have been used to define teaching styles, but Grasha (1996) rejects that for it, instead of helping educators to know themselves better and improve their practice, may generate stagnation.

Denicolo, Entwistle & Hounsel (1992), when discussing active learning, state the importance of educational methods for a genuine involvement of learners. While criticising the 'bland bread and water diet of lectures, tutorials and practicals, each taught in uniformly conventional and rather limited way' (Denicolo *et al.*, 1992:31-32) as an ineffective invitation for active learning, they defend that a blend of established and innovative practices is the way forward. Likewise, this research does not propose a

total abolition of established practices like lecturing and written exams. Rather, the enhanced knowledge of students and of themselves should enable educators to assess what practices work best in each case.

D. Where to teach — the environment

Maier & Warren (2000) bring up further questions, now exploring the environment where education happens, which this thesis considers in its physical and psychological-affective dimensions.

Implementation model

Answers the questions

- *What's the learning environment for the students?*
- *How will they access resources?*
- *How will they interact with each other and resources?*

Table XXVII: Implementation model (Maier and Warren, 2000:78)

Coherently with the transformative approach that embodies the importance of context, the immediate instruction environment — be it classroom, laboratory, studio, workplace or the open air — has to be appropriate and conducive to the interactions.

Research on the benefits of non-traditional learning spaces for learning outcomes is sparse, Nair (2002) affirms, but as progressive education is proven to work when properly implemented, he continues, school design should support new teaching and learning modalities. Although his work is mainly directed to the education of children, most of his projections for learner centred schools find resonance with the education approach this research has adopted. As he points out, these trends are already manifest in different degrees.

Learner centred schools

- Learning studios instead of traditional classrooms: multi-purpose spaces;
- Kivas and atriums instead of corridors: privilege to social interaction spaces;
- Project rooms instead of science labs or art rooms: non oriented space to foster integration of activities;
- Multi-age/stage groupings instead of segregation: real life heterogeneity of ages, education levels and experiences;
- Places to think –or not, instead of 100% activity charged environments: spaces of solitude for reflection and spiritual nourishment;
- Technology 'there and then' instead of dedicated labs: provision for connectivity intra, inter and extra-schools, extending education beyond school buildings, with online courses and the like.

Table XXVIII: Projection for learner centred schools, adapted from Nair (2002:7-8)

The provision of instruction via means other than lecturing, and even including it, calls for infrastructure beyond 'bricks and mortar'. The educational process interacts with, and is assisted by, the total infrastructure of: property –land and buildings, equipment –computers and machinery, and intangibles –computer software, patents and copyright (Crump, 2002). It is inside this structure of resources that the interactions between students that Mayer & Warren (2000) stress happen, as do the interactions between students and the resources available.

1. Teaching without being there

A point that needs to be raised is the issue of distance learning that, with the exponential expansion of the Internet in the 1990s, was fuelled by the 'virtual mobility' (Stiles, 2000) acquired by educators and learners.

A large field in itself, distance education is not a new concept. As Daniel (1996) shows, the early Christian church included distance learning in its many different approaches to education and training. The concepts of synchronous and asynchronous communication are illustrated, respectively, by Jesus' face-to-face teaching to small and large groups and by the Apostle Paul's epistolary instruction to the dispersed community of the newly founded churches –presupposing a time gap between the

two ends (Daniel, 1996). St. Paul's method was directed to groups, who gathered for worship and heard the reading of his letters by the local leader, who later conducted small-group discussions. As the letters to the Corinthians offer grounds to suppose, there was feed-back, with questions being asked to the Apostle about specific points and situations and his response helping solve the problems.

With the invention of printing and the establishment of universal postal services, distance education could reach people where they were, establishing asynchronous communication between learner and teacher. In the mid 1800s courses were on offer in England, Sweden, and the USA, and, before the end of that century, Australian and North American universities had correspondence courses alongside with their conventional ones (Daniel, 1996).

The development of telecommunications and, particularly, the Internet, has given distance education a boost, seen by some with optimism, by others with caution, and by others with gloom (Ryan, Scott, Freeman & Patel, 2000). The last decade generated a plethora of electronic means of manipulation, storage, and transmission of information and knowledge. Teleschools and virtual classrooms have become extensions of, or alternatives to conventional schools and classrooms (Tiffin & Rajasingham, 1995). Distance education is on the agenda of most governments and tertiary education providers.

Ryan *et al.* (2000:23) give a list of ways in which the Internet can support 'resource-based learning' – understood as a set of strategies to promote student-centred learning with the use of specially designed materials, interactive media and technologies:

Possibilities:

- Delivering courses;
- Identifying and using resources;
- Communicating and conferencing;
- Activities and assessment;
- Collaborative work;
- Student management and support.

Table XXIX: Ways the Internet can support resource based learning (Ryan et al. 2000:23)

This research believes, based on the reality of virtual relationships (Gonçalves, M. S., 2000), that the relationship-based transformative education defended here is as viable via the WWW as it was via the letters of St. Paul. Concepts as 'computer supported collaborative learning' are becoming current, and introduce new requirements with the nature of 'social skills in asynchronous computer supported communications' to both sides of the pedagogical equation (Holtham, D'Cruz, & Tiwari, 1998). As a geographical and emotional bridge, the Internet makes every step of the educational process possible, requiring different degrees of adaptation in regard to methods and leading to various degrees of satisfaction with the experiences. This thesis acknowledges that, nonetheless still expanding, access to the full technological package for all that could benefit from it is not available yet, and is unlikely to be in the future, as higher education itself.

E. What to teach — the curriculum

...the assumption is that whatever nature may be, or howsoever the quest for truth will turn out in the end, the events we face today are subject to as great a variety of constructions as our wits will enable us to contrive. (Kelly, 1970:1)

When explaining *constructive alternativism* as the philosophical assumption of his personal construct theory, George Kelly (1970) opposes it to *accumulative fragmentalism*, in which truth is collected piece by piece —an understanding akin to the cultural transmission educational paradigm.

Implicit in most of the discussion so far, is the understanding of knowledge as relative, subject to human reconstruction of reality —an active, creative, rational, emotional, and pragmatic affair (Bannister & Fransella, 1989; Denicolo & Pope, 2001).

Adopting this stance, it does not matter whether absolute truth exists or not, since it will be construed and personalised in any case. That way, knowledge can be dereified and, as Esland (1971: 96) defends, becomes ‘a much more negotiable commodity between teacher and pupil’. It follows that the limits of what is known as ‘subjects’ are but human constructs, liable to be broken. When questions arise in intense learning situations, these volatile boundaries give way to new configurations of knowledge, and, this thesis accepts, more is achieved that way.

The educational paradigm adopted affects the issue of the content of the process: curriculum, in its design and delivery. In their summary table of transformative learning, Maier & Warren (2000) present this as below:

Domain model

Answers the questions

- *What do the students need to know at this level?*
- *What is the curriculum?*

Table XXX: Domain model: the curriculum (Maier and Warren, 2000:78)

The traditional view of curriculum is knowledge based, and the student, a consumer of it that teachers help to acquire the information. When higher education becomes student centred, students should cease to be “‘recipients’ making a scheduled journey through a curriculum” (Silver, 1995:1). Replacing this mentality with a more learner-friendly delivery of the same static curriculum by introducing practices that ease students into it is still simplistic. More than geared towards satisfying the desires of customers who pay for the services without any participation in their provision, education has become a process where students are co-workers, joint makers in a two-way process (Silver, 1995).

The participation of the learner is vital for the process. The probability of success of any instruction whose content is not relevant to the learner is minimal, no matter how able the teacher in juggling with teaching methods, resources, and technology. De-schooling theorists had already stressed the need for learners to perceive personal relevance in the taught matter for significant learning to take place (Denicolo & Pope, 2001).

Freire (1972), still on his dialogical education, proposes that the design of curricula should be a participatory joint venture with students, beginning from thematic investigation. For him, the dialogical character of education as the practice of freedom does not begin when teachers-students meet students-teachers in a pedagogical situation, but rather when the former first ask themselves what this dialogue will be about. In a practical example from his experience in Chile, he shows a possible sequence of stages for curriculum design based on group discussions around some piece of coded reality, e.g. pictures and films. Next, multi-disciplinary teams analyse the recorded discussion material and then, based on this analysis, formulate the curriculum.

The main aspect of this practice of Freire's (1972) to mention here is the usage of 'hinged themes'. These give the class flexibility to include topics of relevance to them not raised in the initial discussions and, as a result, not included in the curriculum designed. These added themes serve frequently as connections to other portions of the programme.

Again, this approach can generate insecurity among those who educate future professionals. This time, apprehension will stem from the zeal in teaching students 'all they need to know' to practice competitively in the profession. Professional associations spell out what they require of graduates to allow them to practice, which then becomes the *raison d'être* of school accreditation boards. Abiding to their standards, schools write their course catalogues saying what students should know and be able to do.

These four last words above introduce a throbbing issue to the discussion: that education outcomes are changing focus from knowledge to skills, i.e., what students can do now matters as much or more than what they know (Denicolo et al. 1992; Silver, 1995; Maier & Warren, 2000).

Since information is now so easily available, it has become a priority that students develop skills use what they know (Denicolo et al., 1992) – or will, or should know. As it is desired that these skills transcend the limits of the social and cognitive contexts in which they develop, they are known as 'transferable skills', a term that has become commonplace in texts on higher, professional, and even secondary education.

This change reflects the transformation of the labour market. Based on OECD indicators, Maier & Warren (2000) talk about the 'knowledge economy', which hires workers because of their 'knowledge skill' rather than manual work, and prioritises more than the amount of information the person holds. The present labour market

prizes skills such as 'flexibility, initiative, creativity, problem solving, and openness to change' (Maier & Warren, 2000:4), and higher education is suffering the pressure to supply such workers in all disciplines.

With the introduction of this topic, the discussion now follows towards the ways professionals learn their office, subject of the next section. Summarising this point, a further part of Maier & Warren's (2000) model focuses on the content of the instructional process, as in table XXXI.

Pedagogical model (b)

Answers the questions

- *What are the values and philosophy of the course?*
- *What are the learning outcomes?*

Table XXXI: Assessing the contents of education (Maier & Warren, 2000:78)

F. Teaching (how to) work

Nicholls (2001:44) defines the prevailing model of professional education as technocratic, one that categorises development into three elements: 'development and transmission of a systematic body of knowledge; the interpretation and application of knowledge to practice; [and] supervised practice in selected placements'. This model alienates personal thinking from the process, and is perpetuated by members of teaching staff being untrained in teaching, often unable to see the need to consider the relationships involved and to review preconceived ideas and values they brought to their programmes.

Schön (1987, 1991), Denicolo et al (1992), Denicolo & Pope (2001), as Nicholls (2001) above, bring attention to the critical issue of the preparation of professional educators. According to them, it is assumed that professionals will develop teaching skills by

drawing on their own learning experience. This is largely responsible for the problems most educators face in their task of teaching their profession to others.

Professional education normally reflects the requirements of the labour market – an entity in constant change. In the last two decades, this mutability has become evident, to the point of leading authors to identify that a crisis has settled. One of the ways this crisis has been addressed is as the loss of confidence in professional knowledge, which Schön (1991) explained as the requirement that professionals perform tasks for which their education did not equip them. This shows a mismatch between education and practice. As a solution, an approach that prepares the professional to evolve his/her practice during practice itself through critical analysis of situations as they happen, was systematised by Schön (1987, 1991) as ‘reflective practice’. Reflection-in-action, the principle behind reflective practice, is the ‘conversation with the situation’ that integrates knowing and doing (Schön, 1987).

Reflective practice is coherent with Kelly’s (1970) view of rationality as science making through ‘hypothesis testing’, term that Schön (1987) also used. When surprised by a new situation, the practitioner tests it against a professional body of knowledge and repertoire of experiences and solutions. Finding there an adequate match, s/he can recycle a solution. While grappling with the situation, however, it may become evident that the existing problem-solving framework does not provide enough elements for completing the task, launching this practitioner into experimental mode. Once an adequate solution is found, the solution and the process of finding it are incorporated to the way s/he sees the world, expanding the existing repertoire or, to use constructivist terminology, evolving new constructions of her/his professional possibilities. This constructive evolution is what this research understands as ‘learning how to think like a _____’ professional (Schön, 1987).

The concept of artistry is recurrent in Schön's writings, and is useful for this text. Professional artistry, Schön (1987:22) says, refers to the kinds of abilities professionals sometimes demonstrate when presented with 'unique, uncertain and conflicted situations of practice'.

Schön (1987:15) suggests fundamental questions about professional education that educators should ask open-endedly in certain areas where education for artistry is necessary:

Questions to the professional school:

- What competences ought to be acquired?
- Through what methods?
- In what domains of practice are these competences situated?
- Is the professional school the best place to learn what needs most to be learned?

Table XXXII: Schön's (1987:15) questions to professional schools

The last question, as earlier pages of his book suggest, identifies a problem whose solution is mostly out of teachers' hands. Since expectations of professional educators and governments/professional institutions are situated in two opposite poles of the scale (Nicholls, 2001), reforms in the professional school starting from below often sound romantic or like utopia to those in power. Few educators in professional schools are willing –or have the time– to take the revolutionary stance.

Discussing the complicatedness of the transition from 'ivory tower to concrete jungle', Candy & Crebert (1991) introduce an extensive list of ways the professional school differs from the workplace as learning environments –extremes that would seldom appear in a pure form. They suggest that each contrast is a continuum along which situations occur. This list is in table XXXIII.

Higher education generally produces a student who is:	The workplace generally requires the graduate to be:
• curriculum-driven	• competent at problem-based learning
• literate in a particular study discipline, but with a broad understanding of a wide research area	• literate across a broad range of disciplines, but with appropriate specialised knowledge/skills
• used to solving problems in a theoretically coherent framework	• used to solving problems in a practical, cost- and time-efficient way
• used to a classroom setting in which instructors instruct and learners learn	• used to an office or field setting in which there is no clear demarcation between instructor/trainer and learner
• used to working towards pre-set educational objectives	• able to function with no pre-set educational objectives
• used to being assessed, rewarded, or penalised by external evaluation	• used to applying self-critical and self-evaluative processes as well as receiving external approbation or disapproval
• used to applying abstract intellectual processes to problem-solving	• able to apply lateral or critical thinking processes to problem solving
• used to manipulating symbols	• able to use the tools available to the industry
• used to expressing thoughts, ideas, opinions and solutions in written form	• used to expressing thoughts, ideas, opinions, and solutions orally
• used to being assessed on written assignments where process is often as important as content	• used to being assessed on oral effectiveness and persuasiveness
• used to writing essays, reports, and assignments, often over a relatively long period of time	• used to making oral submissions and written reports at short notice
• engaged in long-term research/study projects	• pursuing short-term profit-oriented goals
• conscious of self as a learner within a learning environment	• not conscious of self as learner within the organisation, but learning informally nonetheless
• competitive on his or her own behalf, pursuing personal goals such as awards, accreditation, and prizes	• competitive on behalf of the team or organisation, pursuing company/group goals
• introverted and isolated in study habits	• extrovert/gregarious
• jealous of personal research	• able to share the results of research with team members
• lacking in well-developed interpersonal skills	• possessing highly-developed interpersonal skills

Table XXXIII: The academy and the workplace as learning environments (Candy and Crebert, 1991:590)

The pragmatic requirements of the workplace are making the case for what Nicholls (2001) calls 'post-technocratic' professional education. It involves coaching by an experienced professional, happens in the workplace, and targets the acquisition of professional competencies. Reflection on and in action has a crucial role in the process.

Cheetam and Chivers (1996) shortlist the required competencies into four: knowledge or cognitive competence, functional competence, personal or behavioural competence, and values or ethical competence. As superordinate, the meta-competencies of communication, self-development, creativity, analysis, and problem solving complete a model based on reflection that considers the academic structure as a whole and the importance of a solid knowledge base (Cheetam and Chivers, 1996)..

G. Teaching (how to) design

Formal design education is a recent phenomenon in history. Lawson (1997) has condensed significant amount of thought on the matter, raising points of concern for education in all design professions. The majority of discussions on design instruction is based in architecture schools, whose history in the academy formally started in the nineteenth century Paris, with the Ecole des Beaux Arts (Salama, 1995; Doidge, Sara and Parnell, 2000). More recently, from the 1920s, the Bauhaus was another strong influence in present architectural education, pressing for the inclusion of a more defined theoretical framework into an environment dominated by the search for artisanship. From the 1960s, a series of academic events started a new trend, including a series of courses, topics, and specialisations, to which, however, the process of teaching architectural design has been slow to respond, keeping methods and techniques tied to the Beaux Arts and the Bauhaus, as Salama (1995) argues. He criticises the present state of architectural practice and education for failing to respond

to their social responsibility – as it is now viewed as art – and for lacking knowledge, hence failing to anticipate users' needs (Salama, 1995).

Even though design appears here as an overarching notion of practice, there are differences in the processes employed by designers in different fields. That justifies specialised education, rather than offering a common design base allowing for latter specialisation (Lawson, 1997).

Design involves a series of skills and has to be taught – or coached – as such. Learning from one's own mistakes is more effective than learning from others' successful experiences. Skills do not 'rub off', which points to the frailty of the pupillage system of design education as 'cult of the individual' (Lawson, 1997). The constructivist approach to education justifies that individual professional achievement does not make up for effective teaching (Denicolo & Pope, 2001).

The set of practices for long employed in design education is strongly linked with what became known as the 'studio culture', which indicates that the studio setting has become more than a place. To the physical space, a set of practices and attitudes have been aggregated and become more or less universal. In the entire world, design education – landscape design included – is strongly connected to the studio. As Schön suggests, it is a practicum, a virtual world where students learn, by doing, to make judgements (Schön, 1991; Eaton, 1997).

Despite its widespread use, studio instruction and its methods have been under attack by many critics who, among other flaws, point that design education can no longer be satisfied with training students to follow sets of procedures (Lawson 1997), in accordance with the criticism of the instrumentalist nature of competence based courses.

When considering the curriculum of design based professional education, an aspect that stands out is the contemporary relevance of its content, with particular attention to technology. The rate of change in the world and evolution of technology make obsolescence a rapid phenomenon, which education needs to learn how to counteract, preparing designers to take advantage of technologies, with artistry, as they arise. A decade ago, Denicolo et al. (1992) raised the concern that the 'half-life' of professional knowledge was decreasing, in different paces for each profession, but more rapidly for highly technical professions. Technological tools for the practice of the design professions follow that trend.

Another of Lawson's (1997) comments is that design education is increasingly cut off from the workplace. A confirmation for that are the palliative measures of the 'year out' and internship, which try to immerse students into practice before they conclude their courses. Understated in that practice is the view that the design studio is not as effective as it should be, while a virtual world of practice. Real-world problems call for real-world knowledge and experience. Design education, therefore, demands a balance between directing the student in the acquisition of knowledge and experience without mechanising thought processes, which would provide space for the emergence of originality (Lawson, 1997).

Returning to the issue of distance learning, the feasibility of administering design studio instruction in that mode draws attention. A question arising is whether physical space is still essential. Although a new phenomenon and yet to be more closely examined, Tai (2001) mentions 'virtual studios' as an academic reality, giving the example of the virtual studio conducted at Harvard University over the internet. Similarly, students, teachers, and researchers at the School of Architecture of the Massachusetts Institute of Technology have been conducting design projects with schools all over the world in virtual interdisciplinary studios (Novitsky, 1997). A group

of Japanese and American architecture students working in a joint project from their own locations reported frustration resulting from not sharing the same studio place. Time differences made video-conferencing less effective, which, however, seemed to work for the final design review with jurors simultaneously in Japan and the USA (Novitsky, 1997). That way, the 'virtual crit', as an integral part of the studio culture, became possible.

Stanford professor Renate Fruchter, from engineering, has developed software and design methods to further design co-operation over the WWW. Under her co-ordination, multidisciplinary teams of students from different schools worked in common projects where contributions were posted on a Website. A change notification system alerted participants whenever a design change by any of the contributors could have consequences on other members' work. A password and permissions system provided the necessary protection to the material. (Novitsky, 1997).

As higher bandwidth connections become more widely available and affordable, the drawbacks caused by the size of graphic rich files will be less noticeable. Faster file transfers will enhance the interactivity of virtual studios and tutorials. It will depend on participants' willingness and capacity to make the most of such exchanges.

H. *Teaching landscape architecture*

How can I teach if I don't know who I am and how my students learn? (Title of Plenary by Anthony F. Grasha, In CELA³⁶, 2001:5)

Considering that the talk whose title appears above was presented and well attended at a recent CELA conference, event congregating landscape educators from the whole USA and beyond, places the landscape school in the centre of the discussion.

The aspects discussed so far on education in its general, professional, and design forms, apply directly to landscape architectural education. This thesis considers the understanding of *transformative education*, as formulated earlier, the beginning of the answer to the question Grasha (CELA, 2001) directed to landscape educators in that plenary.

The extensive research work carried out by Eaton (1997) on philosophy and design in landscape architecture, with rich discussion of their reflexes in landscape education, was a starting point for this thesis. Her coverage of landscape philosophy freed this research to seek a more practical approach to the theme.

Since the discipline is young as an academic course of study, its pedagogy has not had long to evolve as happened in other disciplines. However, the growth of landscape architecture as a profession has forced a rapid expansion in numbers and scope of courses internationally.

Discussing the didactics of landscape architecture is urgent. This is so because the demands and pressures of a changing job market are on the landscape school, whose educators, like those who teach other professions, were not prepared for their task. They are expected to develop their pedagogy based solely on their own experience as

³⁶ CELA: Council of Educators in Landscape Architecture

students. Teachers of landscape architecture were not taught how to teach; neither were their teachers.

Adding to that, the organisation of landscape schools usually happens under the shadow of other established courses such as, most often, architecture and horticulture, and the origin of landscape educators is frequently in other fields, as the ones above. Consequently, educational procedures in landscape schools tend to be adapted or merely repeated. This thesis believes that the identity of landscape education – in its content, form, and means – deserves more attention.

1. 'The slate is blank' approach and the landscape school

In the landscape school, the instrumentalist approach is present in many instances. As part of it, the notion of power imbalance shows as the anti-democratic attitude of some tutors who disguise their personal design preference as a given with utterances like 'simple, clean lines produce a far more rational design', putting across their admiration for modernist canons, as an example (Eaton, 1997:18).

This is also the risk teachers of courses like History of Landscape Architecture face. A chronological exposition of styles, for example, can offer the impression of evolution and superiority of one school or style over the other. Questioning that historical succession means necessarily evolution for the better should be the concluding remarks of a thoughtful history teacher. Courses on precedent studies bring the same risk. Although landscape teachers will consciously try to avoid the 'this is good and that is bad' approach, this is still conveyed in very subtle ways, from body language to the sequence in which slides are shown.

Freire's (1972a) position, as exposed, stressed the role of communication – dialogue – as a way of changing the power structure and freeing the learner to self-actualisation.

How much of that happens in landscape schools varies. Still, it needs to be addressed in the face of the tendency to maintain the *status quo* present when students are educated to design and build 'the world as it is' by inbred tutors, who have come back to teach where they studied (Eaton, 1997). This further aggravates the tendency found in schools of encouraging students to emulate behaviours seen as the sign of professional success – a problem of competence based courses, as discussed.

2. 'The slate is not blank' approach and the landscape school

The current of *romanticism* did not take long to manifest in landscape education. Kenneth Helphand (1976) organised at that time, as a result of his teaching practice, the set of procedures he named 'environmental autobiography' – work through which his landscape students explored the places and experiences that influenced their perception of the environment. Other educators have developed it and they still use his technique.

More recent reflexes of the romanticist understanding appear in works as that of Austerlitz and Aravot (2000), about emotional phenomena involving the 'desk crit' and how students show how important they are in their learning experience.

The humanistic view of education is not alien to the landscape school either. With different strengths, its tenets are taken on board and, likewise, their results appear variably. Schön's (1987, 1991) 'reflective practice', for example, shows reflexes in the way studio instruction happens.

As students begin to reach schools of landscape architecture with a previous educational experience more closely related to the humanistic stance, pressure should mount to further evolution in that direction.

When discussing the limitations of *transformative* learning, this review raised the importance of context to education. Considering landscape education this becomes evident, as highlighted by Eaton (1997). She stated that works of landscape architecture are reflections of the values and beliefs of the society where they are inserted, and have important roles to play in favour of the earth and of societies.

3. 'Making sense of the writings on the slate' and the landscape school

The clash between teachers' and students' ways of seeing the world is also a reality in the landscape school, as is the anachronism of some of the educational methods used. These problems are directly or indirectly present with great frequency in encounters of landscape educators, as the conferences promoted by the American CELA and the European ECLAS. These conferences' proceedings are filled with discussions of educational practices used or proposed to add relevance to pedagogic form and content in the eyes of students –and often teachers themselves.

4. Ways of teaching — landscape education in practice

Steintiz's (1997) statement that the most important aspect of landscape education is its content is unsafe, since educators zealous in their task of putting their whole syllabi across risk abusing the form they use for it.

Landscape programmes in general tend to present a *mélange* of the traditional practices –lectures, seminars, and laboratories– to which Hargreaves attributes the role of fuel for studio work (Landscape Architecture, 1998). Crowley, in the same article, highlights the importance of the balance of class/studio and applied learning processes, adding that, from time to time, practices in the realm of 'service learning' are useful for immersing students in the real world.

Verbalistic classes and reading requirements, as criticised by Freire (1972a) are still present in landscape schools and are likely to remain there for some time, until educators brought up differently, under revised paradigms, start teaching. Alternatives to traditional methods of teaching, although available, are not easy to apply, since they require commitment of both sides to experimenting and to making things work.

5. Where to teach — the landscape school as an educational environment

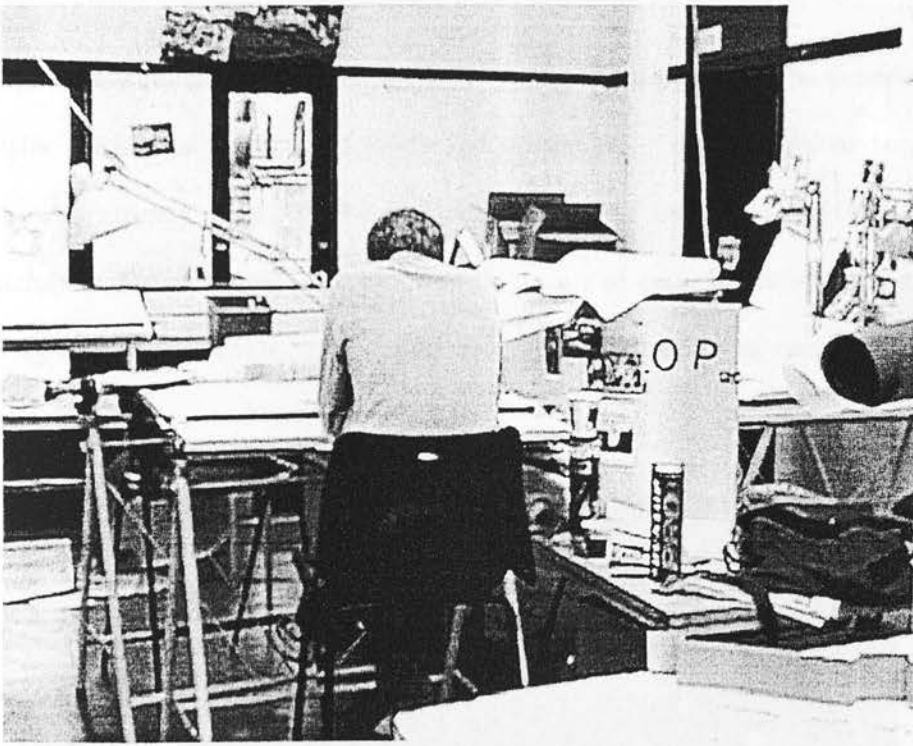


Figure 3.4: Student in the landscape studio, MA, Edinburgh College of Art (Photo: A. Zuin)

Landscape schools, as architecture ones, are often found to base their instructional activities in the environment of the studio or atelier. Though common, however, the studio and its associated pedagogical practices receive different emphases in different school contexts. While observed as the common practice in Great Britain, for example, studios as a dedicated space were not the norm in German landscape schools.

The discussion whether or not landscape architecture can be adequately offered through distance learning programmes has shifted to *how* to do it. Both sides of the Equator have seen initiatives of that nature, paving their way through trial and error. As an example, Patrick Miller mentioned that his course in Virginia Tech had a proposal for a graduate seminar in which the instructor would be in the Middle East and students in two different US locations (Landscape Architecture, 1998). Hanna (2001) sees the strict connection with the studio as an obstacle to that. Further discussion on this topic appears in the section on ‘Teaching (how to) design’.

Although it is arguable that technology will ever be able to emulate the experience of site visits –essential practice in landscape education–, many parts of landscape education is already viable in the distance mode. The use of virtual links in the production of design solutions considering the usage of existing knowledge, making the design solution visible, giving and receiving feedback, are contemplated by Kiracowiski (1998).

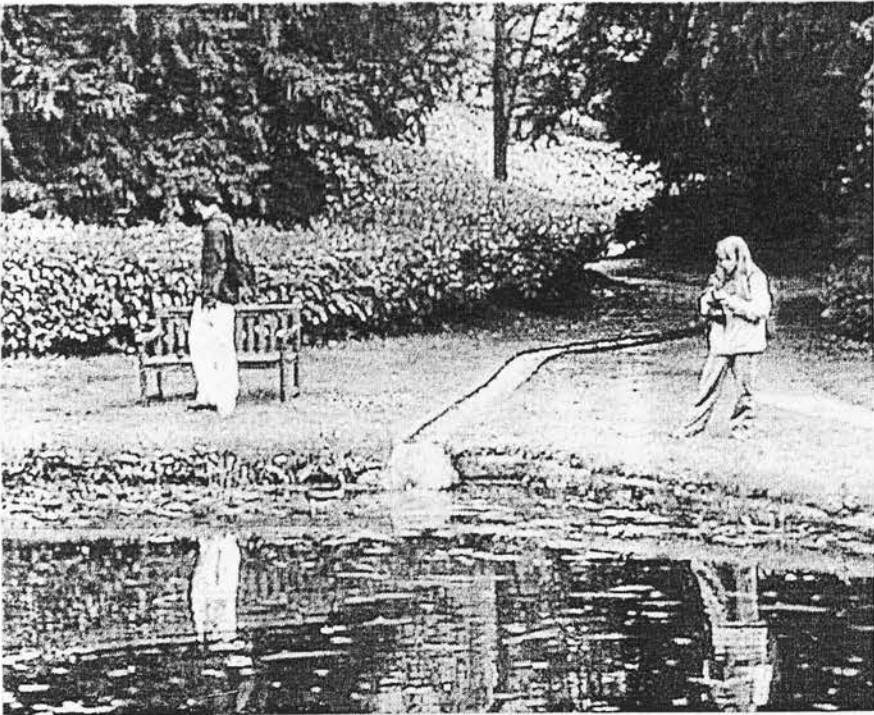


Figure 3.5: ECA students in study visit to Rousham Park (Photo: A. Zuin)

6. What to teach — the landscape curriculum

Steinitz (1990) states that the role of landscape educators is offering learning opportunities that should build competence to change or conserve the landscape, experience and confidence in doing so, and theoretical constructs that underline both. He stresses the importance of theory as a major influence on the act of designing, a theory, or theories, better said, that underlie every aspect of landscape practice: ecology, aesthetics, history, perception, ideology, design process, construction, plant selection, and professional practice in its legal aspects. Still, Steinitz (1990) purports that the way areas of theory are defined and presented is idiosyncratic, their integration to educational methods and curriculum is rare, and, most often, there is a competition for attention and allegiance. The debate on what should be taught at landscape schools is current, with disagreement whether the core is 'planting or planning' (Eaton, 1997:40).

The discussion about the shift towards an emphasis on skills for professional education has reached landscape schools. An article containing the opinions of eight heads of landscape schools in the USA shows a general concern for the difficulty in balancing the need to teach theory — knowledge, and the need to develop skills and competences that the labour market requires (Landscape Architecture, 1998).

Discussing the results of a survey with ASLA fellows conducted in 1996, Miller (1997) condenses their concerns about the future of the profession into six broad categories. Within them, the excessive breadth of the professional and, as consequences, the difficulty in defining a knowledge base and achieving a satisfactory public image for the profession were of particular interest to this research. John Motloch, from Ball State University, reveals that young people are not aware of how 'viable and exciting [a] career choice' landscape architecture is, and many of their students who entered

college with the intention of studying architecture shift to LA after the completion of the joint first year (Speckhardt, 2001:56-57).

As Eaton (1997) suggests, clarification on the possible contributions of landscape architecture to the sustainability of natural and built environments would be beneficial to landscape architects –practitioners, educators and students alike. This might counteract the trend observed by many to see the profession as decorative (Eaton, 1997), to which Macedo (interview, June 21 2000) reacts: ‘landscape architecture is not embroidery!’.

Figure 3.6: California Landscape Architects Technical Commission poster, campaigning for licensure and clearer image of the profession.



The definition of the knowledge base is important for the organisation of curricula. However, the vagueness of this all-encompassing knowledge base has caused in professionals a feeling that they never know enough (Miller, 1997) –and that includes educators, who, then, would be unsure of what to teach. Landscape architects are unsure about the nature of their contribution to society (Eaton, 1997).

As a part of landscape design curriculum, teaching on technology must be present. The degree to which computerisation has entered the profession was the theme of Tai's (2001) doctoral work. When examining the use of computational tool by students, she concluded that:

...the nature of the design process does not readily yield itself to complete computerization yet, with the current technology available to students. (Tai, 2001:117)

In the case study she conducted with Clemson University landscape architecture students, Tay (2001) investigated the use and integration of digital technology during different phases of the design process. She observed that the group that had been granted the possibility of using both hand drawing and computers throughout the process had a marked time economy over both the hand-only and computer-only groups. This 'both ways' group also showed a higher level of satisfaction.

Tay (2001) raised that educators in landscape architecture need to be aware of when and how to teach computers to students. She proposes that workstations should be integrated in the studio so that CAD skills can be developed in that environment, preferably to separate CAD courses taught in most American schools. This is a reality in many schools, exemplified by the Edinburgh College of Art, as in the figure below.

As a result of these considerations, and after examining curricula of different schools and countries, this thesis identified that the field would benefit from knowing preferences on 'what to teach' in landscape architecture courses and what should be emphasised, in a world scale. Measurement of attitudes towards the emphasis on skills versus the emphasis on knowledge, and within each, which abilities and curriculum topics should receive greater attention would aid emerging programmes to consider the alternatives available in a more informed way.



Figure 3.7: ECA landscape studio integrating the computer and the drawing board (Photo: A. Zuin)

7. Teaching (how to) work as a landscape architect

As Schön (1987) brought up about professions in general, the effectiveness of the professional school as the best place to learn a profession is an issue landscape architecture has to address. Robertson (1998) points at a paradox for landscape schools as to the kind of education they offer: 'higher education' will teach that the process is more important than the product, but 'hire education' will say that in the real world, the product is all, and the process does not really matter. He concludes that 'Professional programs have obligations to train students in the fundamental skills, methods and techniques necessary to gain entry to, and function in, the profession' (Robertson, 1998:102).

The admission of practitioners as part-time teaching assistants is, besides a solution to staff shortage, as Dan Donelin puts it (Speckhardt, 2001), may bring the benefit of adding a more pragmatic and market orientated slant to schools. This might respond to

Schön's (1987) criticism in the previous paragraph. However, these professionals could have even less motivation to invest in improving their teaching skills, since their permanence is usually not long in the academia. Steinitz (1997) estimates the turnover of practitioners as part-time teachers in five years.

When the discussion turns to the importance of the workplace as part of landscape architectural instruction, Bellafiore (Landscape Architecture 1998:130) acknowledges that 'there are parts of the profession that can be delivered by the employer only'. This is particularly true of the technical aspects, for which the academia provides but the conceptual framework, and can be the best way to keep education in sync with the changes referred above.

A further point to consider for the discipline is the requirement of adaptability to the fast changing work market. As to that, Ian Robertson (Landscape Architecture, 1998:128) poses a rhetorical question: 'how many of us would have placed computer skills at the top of the list of design skills three – or even two – decades ago?' It comes as acknowledgment of the obligation landscape educators have of preparing their students and themselves for changes.



Figure 3.8: ECA landscape architecture computer studio (Photo: A. Zuin)

8. Teaching landscape architectural design

As a design based profession, landscape architecture is often taught with the studio as a fundamental part of the instruction. As discussed in a broad sense in section G above, however, studio instruction is under scrutiny, and it has received plenty of criticism. As mentioned earlier, Eaton (1997) highlights potential hazards of the studio package.

If compared with architecture, landscape architecture is an academically young discipline. Programmes originated –and still do– within different institutional settings, i.e., agriculture, forestry, arts, and architecture, and, consequently, the input from staff that has not undergone studio based education varies, which also influences the extent to which it is used. As examples, Stiles (2000) refers to degrees in landscape architecture offered at Vienna’s Agricultural University and Budapest’s University of Horticulture and Food Sciences. Other examples of courses started in non design based

universities would include Purdue University, Estonian Agricultural University, University of Ljubljana, and schools in Chile, Argentina, and many more.

Eaton (1997) concludes her discussion on the landscape studio remarking that, although teachers preach students need to understand places before any interference on them, studio culture emphasises changing places much more than understanding them. She goes on to suggest that a 'philosophical review stage' with a rooted concern for aesthetics philosophy and meaning of the place, needs to be instigated before students are sent out to 'go away and get on with' their projects.

Another downside of landscape architectural studio based education is that it can be expensive to deliver. Studio education requires from students long and intense workdays at school and from educators a broad education in the discipline. Furthermore, to function adequately studio based landscape schools require plenty of physical space and a low student per staff ratio (Hanna, 2001). In a survey organised by Schach (2001), number of faculty and physical space were identified as the two most concerning limiting factors for growth.



Figure 3.9: MA landscape studio, ECA (Photo A. Zuin)

Hanna (2001) suggests that the studio model, universal as it is, is contrary to the present tendency towards an education that is dispersed and can be administered online. This brings to landscape architecture the discussion about the essentiality of physical place for studio based instruction to work, tying this back to the discussion on the viability of distance landscape education with the use of the 'virtual studio'.

As the prevalence of the studio varies, although apparently valued by most landscape architects, this research found that further investigation on the international preferences for landscape educational settings –environment and associated practices – would be beneficial to the discussion.

Landscape architecture also feels the effects of the process of distancing its education from the workplace, with consequences to the quality and relevance. The 'year out' is here also a common practice. Internships in the USA are referred by Schach (2001) as a promising measure taken by many landscape offices to guarantee the quality of their

future employees. Many landscape architecture offices give talks and recruit interns at schools, hence taking over part of the education of their potential future staff. However, this thesis found that the degree to which the liaison of the landscape school with the workplace is desirable is not known, and would be useful information for assessing present educational practice.

1. Chapter summary

Grasha (1998) summarises in a sentence the problem of current educational practice:

...faculty models of teaching and learning are moving east while those of their students are moving west. (Grasha, 1996:141).

This chapter has examined ways to substantiate initiatives to mitigate that problem, analysing the educational approaches of instrumentalism, progressivism, de-schooling and the humanist approach. With the support of a personal construct psychology framework, the educational paradigm of transformative education was structured and presented as the chosen view this research adopts.

The hypothesis raised that education can be an instrument of transformation can now be accepted, in the face of transformative education as developed here. The sub hypothesis that followed, that education can be effective in helping to solve the Brazilian landscape quandary is also accepted, with the stipulation that transformative education be the paradigm underlying pedagogic initiatives. Many of the tenets of this chosen educational view are not alien to Brazil, as the previous chapter suggested when briefly exposing the basis primary and secondary instruction.

The main concerns for education in general and for landscape education can be summarised in the table proposed by Maier and Warren (2000:78) as follows:

Learner model	Pedagogical model	Domain model	Implementation model	Evaluation model
Answers the questions <ul style="list-style-type: none"> • <i>Who are the learners?</i> • <i>What do they know?</i> • <i>Do they have any critical misconceptions?</i> • <i>Are their technical skills adequate?</i> 	Answers the questions <ul style="list-style-type: none"> • <i>What are the values and philosophy of the course?</i> • <i>What are the learning outcomes?</i> • <i>How can the learning outcomes be realised?</i> • <i>How will they be assessed?</i> 	Answers the questions <ul style="list-style-type: none"> • <i>What do the students need to know at this level?</i> • <i>What is the curriculum?</i> 	Answers the questions <ul style="list-style-type: none"> • <i>What's the learning environment for the students?</i> • <i>How will they access resources?</i> • <i>How will they interact with each other and resources?</i> 	Answers the question <ul style="list-style-type: none"> • <i>How well has this system worked in terms of pedagogy and efficiency?</i>

Table XXXIV: Educational models (Maier and Warren, 2000:78)

With an analysis of the issues of curriculum, professional education, and education for design, landscape architecture, as an academic discipline, was found to need periodic reviews.

Examining course syllabi, catalogues, and handbooks of various landscape programmes, documents of professional organisations, and the literature, this research found that there are several relevant areas of concern for the practice of landscape architectural education.

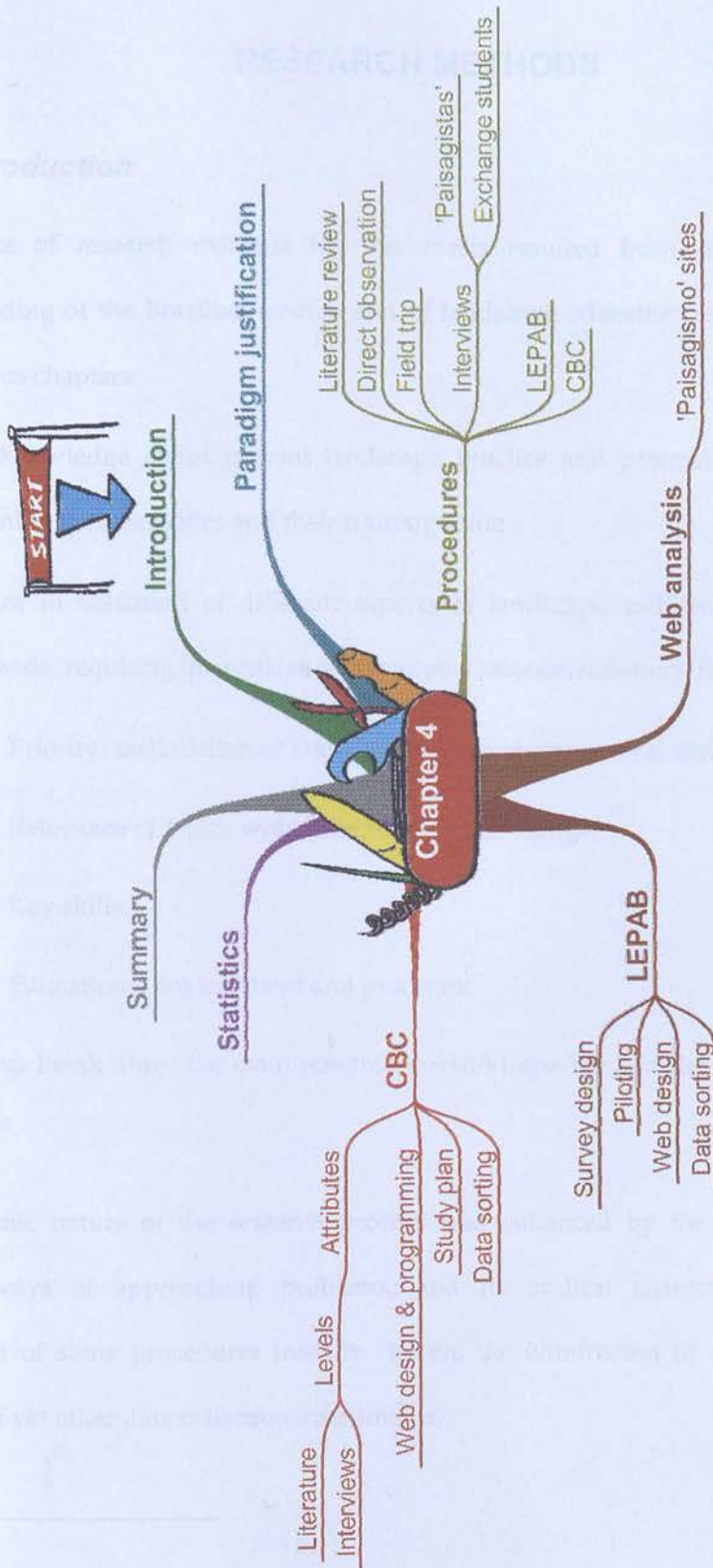
One of them is the apparent importance of the design studio and the practicum for landscape training. These are pedagogical practices/environments this research found to be common and to appear adequate for the development of transformative education. Their habitual format is a fertile ground for the necessary interactions to occur, potentially giving tutors and students the space where they can know each other and share their construct systems in search of deeper relevance of syllabi for both sides.

This chapter identified questions for which consultation with a larger pool of opinions could bring further understanding to the process of educating landscape architects. They would also substantiate initiatives of creation and revision of programmes.

- If any, which should be prioritised: the assimilation of knowledge or the development of skills?
- Within the body of knowledge, what issues are the most relevant for the moment?
- What are the key skills landscape schools should be trying to develop in students?
- Where/How: which combination of educational environment and pedagogic practices is the most suitable?

However, these aspects are not isolated attributes and, it is the contention of this thesis, a judicious examination of them cannot regard them in isolation, which, however, is what most attitude measurement instruments do. Therefore, the task of finding appropriate methods for this examination was undertaken during this research, as a means of pursuing its objective, stated in the introductory chapter, of contributing to the process of educating landscape architects, wherever they are, to become hypertext poets with the added qualification of employability.

With the support of this chapter, methods for answering the questions raised will be examined next.



Mindmap Chapter 4: Research Methods

RESEARCH METHODS

A. *Introduction*

The choice of research methods for this thesis resulted from the gaps in the understanding of the Brazilian context and of landscape education as pointed out in the previous chapters:

- Little knowledge about present landscape practice and professionals in Brazil, concerning their activities and their training route ;
- Variance in valuation of different aspects of landscape architectural education worldwide, requiring quantification to support recommendations for Brazil:
 - Priority: assimilation of knowledge or development of skills?
 - Relevance of topics within the body of knowledge;
 - Key skills;
 - Educational environment and practices.

These points break down the main research question specified, in the Introduction of this thesis³⁷.

The dynamic nature of the research process was enhanced by the multiplicity of possible ways of approaching problems, and its cyclical character caused the adjustment of some procedures initially chosen, the elimination of others, and the addition of yet other data collection instruments.

³⁷ 'Considering international preferences and the Brazilian context with its assets and needs, how should landscape architectural education in Brazil be to foster the ability of 'thinking like a landscape architect', and that way catalyse the evolution the profession needs?'

B. Justification for the paradigm and methodology

Advancing a set of assumptions about the world and providing a philosophical framework for the study of the world are roles of paradigms in research (Clarke, Dawson, 1999). They also direct the researcher towards the appropriate research methods according to the nature of the investigation.

This research accepts the already mentioned *constructive alternativism* as its epistemological philosophy (Kelly, 1970; Bannister and Fransella, 1989). It is acknowledged here that any knowledge, no matter how scientifically developed, is subject to human reconstruction (Denicolo & Pope, 2001). Accordingly, the variety of methods and procedures employed, rather than amassing information, provided material and stimuli for reconstructing the original conceptions this researcher initially held on the theme here studied. This reconstruction, just started, will continue beyond the last page of this text –a springboard for further and novel enquiry.

For each stage of this work, the different and growing levels of investigation required diversified methods, which grew in complexity, as the scope of enquiry narrowed. At every stage, the process of reconstruction happened upon the foundations laid by previous work, and the new methods introduced were the tools for elaborating a new layer of thought and theory building.

Historically, the demotion of positivist paradigms in research was liberating. A shift from the dominance of quantitative and experimental methods has marked research since the last decades of the XX century. The direction of this change was toward a model of choices emphasising multiple methods of both qualitative and quantitative nature. Evaluation methods are, thus, matched to specific evaluation situations as required (Patton, 1987). Qualitative and quantitative paradigms are no longer necessarily divergent (Clarke, Dawson, 1999). For this thesis, they are parallel methods of enquiry.

In consonance with Breakwell (1995), a broader range of data types, elicitation techniques with lower control, and a qualitative treatment of data had more intense use in the early inductive phase. As the work became more deductive, data types narrowed, data elicitation became more controlled, and quantitative treatment of data received focus.

The general narrative descriptions, as more usual among qualitative researchers (Mark, 1996), helped to categorise the nature of elements investigated. They also provided basis for quantitative procedures that followed.

C. Research Procedures

This research demanded data to be collected from existing records, practitioners, educators, and students in landscape architecture for the analysis proposed. As means of eliciting such information, several procedures were used, among many more considered.

- Literature review;
- Direct observation;
- Interviews in person and via email;
- Web based survey;
- Choice Based Conjoint Analysis.

1. Literature review

As a first method of investigation, a literature review established a basis from which the investigation could proceed. Presented in the second and third chapters, it offered better definition of the space for this research in the field, clarifying the possible contributions. Sources were books, periodicals, and electronic –CD-ROMs and websites.

As the development of the review on the Brazilian context required, interviews offered complementation. Information obtained via personal interviews, telephone calls and electronic mail integrated chapter 2 along with that found in published sources.

2. Direct Observation

Observation is a fundamental aspect of any science (Wilkinson, 1995). For this research, it was a starting point, instrumental in deciding which issues should be investigated in a deeper level and how this investigation should proceed.

In a categorisation of observational approaches commonly employed in the study of behaviour, Wilkinson (1995) describes systematic observation as a family of investigation procedures developed in experimental psychology. It became the mainstay of behavioural theory and research. Observation schedules are the basis of systematic observation methods. Schedules are set up by defining categories and units of the behaviour being observed and working out ways to measure them —timing, counting or rating. With that in hand, researchers then set out to analyse interactions in environments under different levels of control.

Ethnographic, or immersion research was initially seen a possibility. As a group of procedures including observation, ethnography has cultural description as its purpose (Uzzel, 1995). It was considered adequate to describe the landscape architecture

educational studio —conceivably a culture. By entering the landscape studio and becoming a familiar element there, the researcher could observe. Students and tutors would be answering the research questions by their habitual actions and behaviour. However, the 'observer effect', i.e., the change in behaviour caused by the presence of the observer, would exist and need to have its limitations weighted.

When observing in a manner similar to Schön (1983, 1987, 1991) when examining professional education, the observer effect should be expected. In the design studio this effect would be seen, from one side, in extra inhibitions by the student. From the other side, it might mean over-attention from tutors as a reaction to thinking their performance is being judged.

A possibility for screening the observer effect would be a complementary questionnaire assessing emotional responses during day-to-day and observed practice, eliciting from subjects differences in regular practice when compared to behaviour under observation. Another way of screening would be discourse analysis of the texts collected during observations and/or produced at interviews.

Denicolo & Pope (2001) discuss direct observation schedules in educational research, exposing some of the criticism these have received. Their contention is that interaction analysis fails to provide insight into meaningful underlying features and tends to focus on surface aspects.

Describing the studio culture, though a valid purpose, was not the aim of this research. A superficial analysis of landscape education was less than desirable here. For those reasons, observational and ethnographic procedures were not chosen as central investigation methods.

Direct observation, however, was employed during the early stages of this investigation. The objective of the observation instances was to gain insight into the

teaching practice at a landscape architecture school, namely the School of Landscape Architecture, Edinburgh College of Art, Heriot-Watt University. This was needed to compensate this researcher's lack of experience with the design studio.

Observation instances included attendance to lectures, trips and studio activities. Information collected during observation was recorded in writing only. This is a less obtrusive method than tape recording or video taping, as far as inhibitions are concerned. The information sought and gathered was low in detail, which also condoned the use of a less effective recording method.

The material collected during observation was not analysed formally, but was fundamental for the development of this researcher's construction of landscape architecture.

3. Field Trip

One field trip to Brazil was carried out in June 2000. The objectives of the field research were:

- To increase an understanding of the educational process shaping significant Brazilian landscape designers and educators and their attitude to the work market and legislation;
- To establish a communication channel with key informants;
- To find further relevant bibliographic references and documents concerning the history of landscape education in Brazil.

Participation at a national conference on landscape education in architecture schools – the 5th ENEPEA – was a starting point for that quest. Key informants were contacted

and the interview schedule used with them later was piloted with other conference attendants.

The objectives of the trip were fulfilled and the material collected – written and verbal – was used in the review on the Brazilian context.

4. Interviews

Interviews were favoured as a means of eliciting information because of its flexibility. A semi-structured form was employed due to its advantages for the processing of data collected. A paper schedule with questions and spaces for entry of answers was used loosely during interviews and served as transcription guides.

Interviewing Brazilian paisagistas

National representation on views about landscape education across Brazil was desired for this research. However, the operational aspect of personally interviewing subjects was challenged by costs and distances to be covered. For that reason, uniformity of interview methods was considered secondary to the reach achievable by applying different means. Some of the interviews were performed face-to-face, some over the telephone and others by email. Face-to-face interviews were video taped, telephone interviews were typed straight into a word processor and saved, as with emails, to computer folders.

Video taped interviews were not fully transcribed verbatim. The relevant information was typed according to the transcription guides, extracted most times in summarised format and sometimes verbatim.

Criteria such as relevance of the person to the national or local landscape architectural context and distribution within the range of professions involved were established

initially when selecting subjects to represent the Brazilian scenario. Ultimately, however, availability for contact within the time at hand was the limiting factor.

Interviews in person were done with three prominent professionals. Interviewees were contacted previously and visited in their own offices for the interviews. These three subjects were Fernando Magalhães Chacel – interviewed in Rio de Janeiro, on June 13, 2000; Rosa Grena Kliass and Silvio Soares Macedo were both interviewed in São Paulo, on June 21, 2000.

Gustaaf Winters was interviewed by email through the exchange of several messages, and Rodolpho Geiser was contacted by telephone in the 15 of July, 2002, complementing the interview by email on the same day.

Those five represented different aspects of the profession in Brazil: design practice, higher and post-graduate education, professional association, informal education and three different backgrounds – architecture, agronomy and biology. These interviews provided material for the design of the survey questions developed in the following stage.

Interviewing exchange students

Foreign exchange landscape architecture students at the Edinburgh College of Art were interviewed in search of parameters for comparisons between the different systems. Interviews were video taped and transcribed using the same procedure as above. Although no direct mention to the material collected appears in this thesis, it served as substrate for the definition of attributes in Conjoint Analysis.

5. Paisagismo in Brazilian web-space

The Internet was a source of information on Landscape Architecture in Brazil. A first exam showed advertisements of short courses, plants, materials, and services. For better understanding of this virtual scenario, a search for the word 'paisagismo' by means of a Brazilian web-search engine³⁸ on July 20, 2001 generated 525 hits, after screening for evident repetitions. Pasted into a spreadsheet, the selections were numbered and obvious repetitions eliminated. The web references were then classified according to their content.

As a complete examination of all the references found would be impractical, a percentage of 40% of these were visited, amounting to 210. The ones to become the object of this investigation were selected randomly, by generating four random single-digit numbers in the spreadsheet for the first, second, and third sites and successively adding 10 units. Hence the numbers generated were 3, 4, 5, 8, 13, 14, 15, 18, 23, 24, 25, 28, and successively until 525. When visited, many links were outdated or pointed to the different areas of a same website, and were thus eliminated, leaving a total of 177 valid references.

The sites were visited only in their homepage in search for the answer of the following questions:

- What is the site about?
- What is their approach to paisagismo?

Categories that grouped the answers to these questions were then created as the examination proceeded, finding repetitions. As a result the following classes emerged:

³⁸ WebFind, at BRFree: <http://www.brfree.com.br>

Paisagismo in Brazilian web space

What is the approach to paisagismo?

- Architecture;
- Agronomy;
- Gardening;
- All of the above;
- Environmental issues;
- Other.

What is the site about?

- Education –landscape courses, schools and general information on the subject;
- Publications –advertisement and/or sale of books, magazines, electronic media;
- Plants and products –commerce and information;
- Services –design, maintenance, irrigation, or other, offered by firm or individual;
- Services plus plants and products;
- Web – web forums, lists of links;
- Landscape painters.

Table XXXV: Classes of Brazilian websites on *paisagismo*

6. LEPAB: Survey on the Teaching of Landscape Architecture in Brazil
(Levantamento sobre o Ensino de Paisagismo no Brasil)

The need for establishing a profile of Brazilian landscape professionals and students became evident early in this work. The educational background of Brazilian practitioners had to be studied. Biographic material about prominent practitioners was a starting point of this investigation. In a second stage, interviews with key practitioners provided insight into their educational history. Finally, a web based survey, fielded from July 30, 2001, to November 20, 2001, collected data from a sample of 151 Brazilians who classified themselves as *paisagistas*.

Survey design

Brazilian landscape literature presents the heterogeneous (Dourado, 1997) nature of this interest universe, which is also illustrated by the disparate attendants to conferences and symposia. Quantification, nevertheless, was not available. Not even the size of the population could be determined with any degree of precision.

Questions stemmed from the literature review on the Brazilian context:

Questions about Brazilian *paisagistas*

- k. What do they do?
- l. What is their background?
- m. How and where did/do they learn *paisagismo*?
- n. How high is their education level?
- o. What is the most important component in their training, the auto-didactic or the academic?
- p. How much landscape design instruction have they received?
- q. Is practicum/apprenticeship an important means of instruction?
- r. How long have they been practising?
- s. What do they do in their practice?
- t. How effective is the network of professional associations?
- u. What is their demographic profile?

Table XXXVI: Information gaps on Brazilian *paisagistas*

A survey was chosen as fact-finding instrument, to answer these and other questions of What? Where? When? and How? (Bell, 1993). The nature of the study and target population called for a descriptive, cross-sectional design —year 2001, with nonprobability sampling methods (Fink, 1995b). The fragmented network of Brazilian landscape designers —a population whose size is unknown— and their geographic dispersion were motivators for using convenience sampling, i.e., contacts available and readers of the electronic journal *Jornal da Paisagem*³⁹. Snowball sampling (Fink, 1995b) also happened, as respondents invited other respondents within their own contact lists. This was encouraged in the email invitation letter, at the journal website, and at the survey presentation page itself.

The nature of the population and sampling methods made it impossible to establish any expectancy of response rate. A target of 100 respondents and the limit date of 30 November 2001 were defined. By the final date, however, the number of valid responses reached 151, confirming the decision to terminate collection.

The type of questions — whether open or closed— derived from the research objectives. A mixture of both types became the best solution.

The variables in the study were only nominal and ordinal. No numerical variables were necessary.

Definition of scales was important for the posterior analysis and had to be meaningful to the study. Two questions were attitudinal, and their scaling required special attention. The types of scales selected were comparison and intensity scales (Fink, 1995a), respectively for questions 5 and 9 as below. Question 9 followed Fink's (1995 a) suggestion of placing the negative end of the scale first.

³⁹ Landscape Journal

5. How do you classify your landscape architectural training as to its autodidactic (self-taught) or academic (learned at school/university)?

- Totally or almost totally auto-didactic
- Predominantly autodidactic
- Equally autodidactic and academic
- Predominantly academic
- Totally or almost totally

Table XXXVII: Question 5 of LEPAB

9. What importance did apprenticeship with other landscape professionals have to your training as a landscape designer?

- None
- Little
- Medium
- Great
- Total

Table XXXVIII: Question 9 of LEPAB

Open and close-ended questions were developed, based on the material collected during the open-ended interviews, which also indicated that initial questions should be dismembered and new ones added. From the possible types of response, nominal and ordinal were employed.

Another source of parameters for survey questions was the survey conducted by Clark (1999) on the activities and knowledge areas of the landscape architect in the United Kingdom. Borrowing questions from other surveys is advised by Fink (1996a).

The number of questions was limited to 19. Although other questions appeared interesting, they were not included so that the response rate to the survey would not be jeopardised by questionnaire length.

The questionnaire contained two sections. The first section asked questions about the person's training as a landscape designer, while the second, focused on respondents' professional practice and demographic data. The kind of information requested conditioned the order of questions (Frey and Oishi, 1995), and they followed roughly from the simpler and less sensitive to the more complex or more sensitive, as age.

The status of the landscape field and vagueness of its terminology in Brazilian Portuguese, discussed in Chapter 1, stressed the concern with a number of terms that would be unavoidable in survey questions. Some clarification resulted from the preliminary interviews, but further exploration, testing, and clarification were necessary during the pilot phase.

After the questionnaire had been uploaded and respondents invited, a suggestion came from one of the respondents to include the item apprenticeship within the topics examined. The suggestion was accepted and generated questions 9 and 10 on the topic. This caused the loss of 30 responses to the question, from those who had already responded in the first days after fielding. However, the final count revealed 120 responses to these questions, considered sufficient for statistical analysis.

Piloting

Brazilian subjects, both familiar and unfamiliar with landscape architecture, tried the survey questionnaire, in person and via email by receiving the html file as a message attachment and emailing comments later. Piloting proved useful to shed light on potentially ambiguous or imprecise terms, replaced according to the suggestions made.

Web design

The means of administration chosen for the survey was the World Wide Web, for its ease of use, low cost, and potential access to respondents regardless of their geographical location. Albeit response rates achieved via the WWW can be high, the fact that respondents are Internet users exclusively constitutes a form of bias (Wherret, 1997).

An opening page (<http://www.eca.ac.uk/~azuin/>) offered contact details, spelt out the main objectives of the survey, named LEPAB⁴⁰, and invited the reader to follow the link provided and answer the questions, located in a following Webpage. This first page also served as a filter to ensure respondents were student or professional '*paisagistas*', reducing the chance of invalid responses.

Both the questionnaire and the opening page were designed with minimum graphics to minimise download time. The static portion of the pages, the html code, was written directly in text editors and with the aid of web design software. Data collection required that the site acquire a dynamic nature. Therefore, a CGI –Common Gateway Interface– script became necessary, as a piece of programming that adds interactivity to web documents (Boutell, 1996). Responses arrived as individual email messages once decoded by the CGI-script resident in the local server.

Data sorting

A Visual Basic for Applications (VBA) program designed specifically to automate the compilation of data minimised transcription mistakes when feeding the responses to the SPSS statistics software. Responses were grouped in a single text file using the

⁴⁰ LEPAB : Levantamento sobre o Ensino de Paisagismo no Brasil [Survey on the Teaching of Landscape Architecture in Brazil]

email software reader's own capabilities. The VBA program automatically read each line of this response file and wrote the relevant information into the appropriate cell in a spreadsheet, which was later pasted into the statistics programme.

Computer-aided interviewing software packages exist, which condense most of the above-mentioned operations (Sawtooth, 2002). However, such programs were not available for this research and their cost of acquisition was prohibitive.

7. Conjoint Analysis/Choice Based Conjoint

Being one of the most widely used quantitative marketing research tools (Orme, 2000a), conjoint analysis –CA– has its origin in mathematical psychology. It measures individual preferences to levels of various attributes and refers to a number of related multivariate techniques (San Miguel, Ryan, & McIntosh, 2000), working as a powerful predictive tool in various research settings. Applications of CA are currently found in numerous fields beyond marketing and product evaluation, where it is used for estimating market share potential, product image analysis, and segmentation analysis (Hair, Bush & Ortinal, 2003).

In medicine, treatment possibilities are explored in conjoint studies (San Miguel et al., 2000). Preferences of visitors for features in a nature preserve in Bahia, Brazil, were examined with conjoint techniques in a study that demonstrated the usefulness of CA techniques for valuing environmental commodities (Johnson, Desvousges, Wood and Fries, 1997). Moogan, Baron and Bainbridge (2001) assessed the importance of decision making attributes in prospective students' choice of higher education courses, in an educational marketing CA study. David, Preston and Wilson (1992) informed a

discussion on services of non-profit organisations using conjoint analysis to evaluate student's preferences regarding university accommodations.

In a seminal article on conjoint techniques, Johnson (1974) exposed CA as a means of inferring about subjects' value systems based upon behaviour, instead of upon self-reports, by providing stimuli for choice within a limited array of options. The 'conjoint' nature of the procedures translates into measuring relative values of attributes considered jointly – which could remain indeterminate if taken independently.

Conjoint studies consist in offering subjects a series of choices of product profiles computationally generated from a number of product attributes of interest to the study. Each attribute is presented in levels, which are the possible variations of that product characteristic. Performed using paper cards, on-site computing or via Internet, as in this research, the conjoint interview collects respondents' preferences to combinations of attribute levels, which are statistically analysed to provide individual or aggregate utilities for each attribute in question.

The classical example is the golf ball study. Average driving distance, average ball life, and price are the attributes of interest. Cards, either on paper or in computer screens, are presented to prospective buyers, who indicate their preference for hypothetical ball concepts containing combinations with one level of each of these attributes. From the trade-offs buyers do when choosing their favourite concept from presented sets, it is possible to estimate buyers' value systems and make choice predictions. These three steps –collecting trade-offs, estimating buyer value systems, and making choice predictions – form the basics of conjoint analysis (Curry, 1996).

More than 25 years of conjoint analysis use and research generated a variety of conjoint methods, each appropriate to distinct projects. As new applications of the method appeared, the need for increasing versatility and efficiency of CA computing packages

increased. The leading producer of conjoint software offers three different packages: Adaptive Conjoint Analysis (ACA), Conjoint Value Analysis (CVA), and Choice Based Conjoint (CBC), the latter with two extra modules for more advanced estimations (Orme, 2000a).

Conjoint techniques were found to address the issue raised in chapter 3 of considering educational variables of relevance to this study jointly, rather than in isolation as most procedures. Therefore a CA study was set up in search of the preferences of landscape architects worldwide as to how much value they place in certain aspects of landscape architectural education. Hypothetical landscape architecture programmes became the products to be tested.

From the onset of this study, attention was drawn to two specific methods, Adaptive Conjoint Analysis and Choice Based Conjoint, due to their capabilities and appropriateness to this research. The next step was to decide which one to use.

The number of relevant attributes and levels initially collected was too large for most usual CA procedures. However, one CA type started to show promising as a solution to that: Adaptive Conjoint Analysis (ACA), the most used method in Europe and the United States (Orme, 2000a).

The adaptive nature of ACA resides in that each interview is unique, adapted to each respondent. Instead of being presented with all the attributes at a time for each concept—a full profile— subjects are exposed to a limited number of attribute combinations, generated after the answers to the first questions are entered. Orme (2000a) considers ACA more user-friendly for both the respondent and the analyst. Respondents rank or rate attribute levels and assign a degree of importance to them.

ACA's main advantage is its ability to measure more attributes than is possible with traditional conjoint approaches (Orme, 2000a). The system does not overload respondents with information when evaluating attributes, since these are not all presented at the same time. A large number of attributes would also result in a long interview, which is undesirable, since it may lower response rates, diminishes respondents' interest and, therefore, might render results questionable (Sawtooth Software, 1993). ACA accepts up to 30 attributes, but typically, ACA projects study 8 to 15 of them, with results similar to full-profile's when using six or fewer. (Sawtooth Softwares, 1993)

One limitation of the adaptive conjoint procedure is that it does not include attribute interactions, meaning that utilities for attributes are measured in a *ceteris paribus* context (Orme, 2000a) of main effects only. Moreover, as the programme generates the interview automatically as it progresses, the flexibility as to means of administration is drastically reduced to one manufacturer's software, which was unavailable for this research.

Further study of a second, more recent and robust conjoint technique – Choice Based Conjoint –, suggested it was also an option for this study, requiring some adaptation. The method has several advantages over ACA and other procedures. Data are analysed at an aggregate level, rather than individually, making it possible to quantify interactions. Hence, analysis can be much simpler and plain choice frequency counts can generate much useful information (Sawtooth Software, 1995).

The CBC software allows the generation of 'paper and pencil' interviews (Sawtooth Software, 1995), which increases the feasibility of Internet-administered interviews without the added cost of web-specific conjoint software. For the exposed reasons, the CBC Version 2 by Sawtooth Software was used for this study.

A series of procedures exposed in the Choice Based Conjoint software package manual guided the following stage of this research, in phases as exposed in the following pages.

Definition of attributes and levels

A first step in any CA procedure is to define attributes of the product whose analysis is desired (San Miguel et al., 2000). Attributes of landscape architecture programmes were collected through literature survey, analysis of course catalogues and other course materials, professional association guidelines, interviews and direct consultation with designers, educators, and students.

The 'Notes for Accreditation of Landscape Architecture Programmes' by the British Landscape Institute (1999), provided an initial frame of attributes. Additions and alterations took place as the review of new sources progressed.

Secondly, levels had to be assigned to each attribute. Desirable levels for a CA study are realistic and capable of being traded (San Miguel et al., 2000). Definition of levels was in most cases simultaneous with the definition of attributes, leaving to this stage the fine-tuning of levels.

CBC, as a full-profile procedure, imposes on the researcher a restriction in the number of attributes for analysis: not more than ten (Orme, 2000). Therefore, the list of attributes and levels had to be compacted so that this study could meet the requirements of the software. At this point, a table of five attributes and 17 levels (Table XXXIX) appeared adequate. When fed to the program it generated a series of 20 conjoint choice tasks with levels distributed randomly but balanced in number of appearances throughout the interview.

Level/ duration	1. Short/free course	no degree awarded; no pre-requisites or background education required	Less than 1 year
	2. Postgraduate Diploma	after completing an undergraduate college/ university degree in any field	1 year
	3. Masters	after completing an undergraduate college/ university degree in any field	2 years
	4. Undergraduate degree	BA, BSc, MA	5 years
Overall Emphasis	1. Skills developed	subject-specific, transferable	
	2. Knowledge	subject-specific, general	
Skills focus	1. Business	negotiation, pricing, business plans, marketing , sales, IT tools	
	2. Design	Aesthetics: judgement and application of principles; Spatial composition; Implementation; Problem identification; Visual and spatial appraisal; Production and Placement of art objects	
	3. Communication/ presentation	Visual, verbal, and written; hand and computer-based model making and drawing	
	4. Thinking skills	Learning and study skills; creativity; decision making; analysis and synthesis; criticism	
Knowledge focus	1. History and Theory of landscape architecture	Form, function, landscape design appreciation, assessment, survey and analysis of landscapes. Design theories, options, methodologies, dynamics, contemporary thinking and movements. Architecture and Urban design fundamentals, planning. Humanities: fundamentals of sociology, psychology, philosophy, geography, fine arts.	
	2. Environmental sciences	physical environment and its processes, plant science, ecology, earth sciences – agriculture/horticulture, forestry, geology, geomorphology, water resources, meteorology, soil science)	
	3. Professional Practice of landscape architecture	ethics, values, laws, procedures, business, management	
	4. Technology	Construction, engineering and site surveying: principles, materials, tools, techniques, machinery, specification, implementation, quantities, statistics, GIS	
Pedagogy	1. Lecture based	Lectures, Seminars, Independent studies/work	
	2. Studio based	Projects, tutorials, individual and team work, critiques, Independent studies/work	
	3. External work based	Work placement, apprenticeship, internship; "Service learning" – work for/ with with real communities; independent real-life projects	

Table XXXIX: First version of Attributes and levels for Conjoint Analysis

Submitted to a pilot test, the version of the CBC study presented problems of clarity to some who tried it. These became evident in the understanding of the instructions and of attributes.

The choice scenario that initially invited the respondent to select the course profile s/he considered most adequate at each card was not engaging enough, being replaced by another where the person would be choosing a course as if going to start university. This change had better acceptance.

The attribute 'Level/duration' caused confusion. It was the result of a fusion of two separate attributes created earlier – degree level and course duration. These composed one double-barrelled attribute to avoid that unacceptable profiles resulted when the programme generated random combinations of levels. Otherwise, profiles suggesting a five-year long postgraduate diploma or masters' degree would appear and would have to be 'prohibited'. Prohibition of inadequate combinations is a measure the CBC suite accepts, but not without the warning about diminished efficiency and accuracy.

When presented with the options of a postgraduate diploma or masters' degree, some pilot respondents found it confusing that an undergraduate degree in another discipline was presupposed. Further consideration showed the issues of course level and duration were not essential to the study, prompting for the exclusion of the attribute.

The attribute 'Skills focus' suffered three adjustments. First, the level 'Business' was removed and included in the 'Professional practice' level of 'Knowledge focus'. Secondly, the level worded simply as 'Design', considered too attractive due to the broadness and familiarity of the term, turned into 'Problem solving through design'. Thirdly, the level 'Thinking skills' evolved into 'General thinking skills', clearer and

more distinct from the latter level. The result was a more compact table of 4 attributes and 12 levels, Table XL, and adopted as final.

Overall Emphasis	1. Skills for landscape architecture	
	2. Knowledge for landscape architecture	
Skills focus	1. Problem solving through design	Judgement and application of aesthetic principles; spatial composition; problem identification; visual and spatial appraisal
	2. Communication	Visual, verbal, and written; model making and drawing by hand and with computers
	3. General thinking skills	Learning and study skills; creativity; decision making; analysis and synthesis; criticism
Knowledge focus	1. History and Theory of landscape architecture	Form, function, landscape design appreciation, assessment, survey and analysis of landscapes; Design theories, options, methodologies, dynamics, contemporary thinking and movements; Architecture and Urban design fundamentals, planning; Humanities – fundamentals of sociology, psychology, philosophy, geography, fine arts
	2. Environmental sciences	Physical environment and its processes, plant science, ecology, earth sciences – agriculture/horticulture, forestry, geology, geomorphology, water resources, meteorology, soil science
	3. Professional Practice of landscape architecture	ethics, values, laws, procedures, business, management
	4. Technology	Construction, engineering and site surveying: principles, materials, tools, techniques, machinery, specification, implementation, quantities, statistics, GIS
Teaching Pedagogy)	1. Lecture based	Lectures, Seminars, Independent studies/work
	2. Studio based	Projects, tutorials, individual and team work, critiques, Independent studies/work
	3. External work based	Work placement, apprenticeship, internship; "Service learning" – work for/ with with real communities; independent real-life projects

Table XL: Final version of Attributes and levels for Conjoint Analysis

Although Johnson and Orme 1996) suggest 20 as an adequate number of choice questions for statistical purposes, pilot respondents considered an interview with 20

random choice tasks, each with three concepts and a 'none' option, too long. As 15 questions is still a valid number (Orme, 2000), the study was reduced to that, to which two holdout fixed tasks were added.

The programme does not generate holdout tasks randomly; it is the researcher defines them. They are instrumental in validating overall results, testing respondents' coherence, and evaluating product concepts existing prior to the conjoint study.

The two holdout tasks were formulated fixing the attributes 'skills focused' and 'knowledge focused' at the levels 'problem solving through design' and 'history and theory', respectively. These were chosen under the assumption they would be acceptable to most respondents, allowing the remaining attributes to vary as necessary.

The combinations that constituted the choices were tentatively predictive of choices by future respondents and aimed at testing overall preferences for general emphasis in skills or knowledge and teaching base in studio or classroom (Tables 4.7 and 4.8).

	A	B	C	D
General emphasis: landscape architecture....	* <u>skills</u>	* <u>knowledge</u>	* <u>skills</u>	None of these
Landscape architecture skills focused	* <u>Problem solving through design</u>	* <u>Problem solving through design</u>	* <u>Problem solving through design</u>	
Landscape architecture knowledge focused	* <u>History and Theory</u>	* <u>History and Theory</u>	* <u>History and Theory</u>	
Teaching	* <u>Studio</u>	* <u>Classroom</u>	* <u>Classroom</u>	

Table XLI: Holdout task number 1

	A	B	C	D
General emphasis: landscape architecture....	* <u>skills</u>	* <u>knowledge</u>	* <u>skills</u>	None of these
Landscape architecture skills focused	* <u>Problem solving through design</u>	* <u>Problem solving through design</u>	* <u>Problem solving through design</u>	
Landscape architecture knowledge focused	* <u>History and Theory</u>	* <u>History and Theory</u>	* <u>History and Theory</u>	
Teaching	* <u>Classroom</u>	* <u>Classroom</u>	* <u>Studio</u>	

Table XLII: Holdout task number 2

Once designed, the holdout tasks were inserted into the study as choice tasks numbers 15 and 8 respectively. These position numbers were generated randomly on spreadsheet software.

To increase statistical efficiency, allowing stable estimation of first-order interactions between attributes, four versions of the conjoint questionnaire were generated, as the software manual suggests (Orme, 2000). Each version contained the same number of tasks and kept holdout tasks in the same position and order, but showed a different set of concepts with the original attributes and levels. A similar number of respondents should respond to each version.

Study plan

This stage of the study comprised decisions about the questionnaire design and field strategy.

For similar reasons as the ones given for the first survey conducted in this research, the WWW was the means of administration. That was the only feasible way of reaching the target sample – landscape architects from the whole world– within the research budget.

The international nature of the prospective subjects demanded special attention to the language in all the material pertaining to the CBC study. Providing versions of the website and invitation letters in several languages was discarded mainly for the increased complexity this would bring to the programming of the site. Invitation letters and questionnaires were in English only, except invitations sent to Brazilians, who received an introductory summary in Portuguese with the invitation text. Style and vocabulary were kept simple and tested both with native and non-native English speakers of various origins, who helped clarify questions and instructions.

Prospective respondents received an invitation to participate in the study by email. The same message containing a link to the website was sent to electronic forums or lists, professional associations, individuals whose addresses were known to this researcher or available on websites, conference directories, and other sources. The messages contained a request for the reader to forward the invitation to other landscape architects, which accounted for the 'snowball' type of convenience sample.

The CBC software allows the inclusion of segmentation questions, i.e. questions that define different segments of respondents from the sample. It can use the information collected to sort results into the detected categories of subjects and examine variations of preferences within them.

A demographic six-question section was therefore included as part one of the conjoint study. Questions and response options were an adaptation from the set used at the LEPAB.

After designing and testing a PC-based version of the conjoint study, further questions were added to the demographic section of the website. Due to the facility of merging further segmentation questions and data to the study at the phase of data gathering, the added questions were not included in the generated CBC study. Inclusion would demand re-generation of all the material, changing the paper-and-pencil versions and all the choice tasks –already in web format. Therefore, they appeared on the website and were merged during the analysis.

The demographic questions collected information on the following topics:

Location:

1	Where do most of your activities in landscape architecture happen?
	<ul style="list-style-type: none"><input type="radio"/> World Region<input type="radio"/> Country (Included later)

Occupation:

2	What was your main occupation in landscape architecture during the year 2001?
	<ul style="list-style-type: none"><input type="radio"/> Educator (teacher, tutor etc, combining or not research and other practice)<input type="radio"/> Practitioner (any activity except education)<input type="radio"/> Student - postgraduate<input type="radio"/> Student - undergraduate<input type="radio"/> None of the above

Educational background:

	What did you study to become a landscape architect?
3	<ul style="list-style-type: none"><input type="radio"/> Landscape Architecture as a first qualification<input type="radio"/> Landscape Architecture as a second/third qualification<input type="radio"/> Agriculture/Agronomy/ Horticulture<input type="radio"/> Architecture<input type="radio"/> Biology<input type="radio"/> Engineering<input type="radio"/> Forestry<input type="radio"/> Other

Place of training:

	Where were you trained as a landscape architect?
3b	<ul style="list-style-type: none"><input type="radio"/> Region<input type="radio"/> Country (Included later)

Degree:

	What is the highest degree of studies you have completed?
4	<ul style="list-style-type: none"><input type="radio"/> Undergraduate (university degree: e.g. BA, BSc, MA, etc.)<input type="radio"/> Postgraduate Diploma<input type="radio"/> Masters (MLA, MSc, MPhil etc.)<input type="radio"/> Doctorate (PhD, Ddes, DSc etc.)<input type="radio"/> None of the above

Origin:

	Where are you from?
5	<ul style="list-style-type: none"><input type="radio"/> Region<input type="radio"/> Country (Included later)

Time in practice (Included later):

How long have you been working in landscape architecture?	
6	<ul style="list-style-type: none"><input type="radio"/> I haven't started yet<input type="radio"/> 0 to 5 years<input type="radio"/> to 10 years<input type="radio"/> 11 to 15 years<input type="radio"/> 16 to 20 years<input type="radio"/> 21 years or more

Gender:

Sex:	
7	<ul style="list-style-type: none"><input type="radio"/> Female<input type="radio"/> Male

Age (Included later):

Your age	
8	<ul style="list-style-type: none"><input type="radio"/> less than 20<input type="radio"/> 21 to 25<input type="radio"/> 26 to 30<input type="radio"/> 31 to 40<input type="radio"/> 41 to 50<input type="radio"/> 51 to 60<input type="radio"/> 61 or over

Once ready, the study site was piloted with landscape professionals of different countries. This allowed assessment not only of the content and function, but also of the language used and layout.

One of the testers' suggestions accepted was the simplification of the instructions to choice tasks into a bullet-point sequence of actions. A second suggestion was changing the question initially formulated as "where did you study landscape architecture?" to "where were you trained as a landscape architect" to accommodate those who, like the Brazilians, practice but did not have an academic training in the discipline.

	Number
Attributes	4
Total of levels	12
Random choice tasks	15
Fixed Holdout tasks	2
Total choice tasks	17
Profiles per choice task	3 plus "None" option
Segmentation questions in original study	6
Added segmentation questions	2
Total segmentation questions	8
Different versions fielded	4

Table XLIII: CBC study final structure

Website design and programming

The static portion of webpages were designed using hypertext markup language (html) in text editors and two web-design software packages – Aracnophilia® and Dreamweaver® versions 3 and 4.

One option for paper-and-pencil administration of CA has each concept within any given choice task contained in a paper card. Respondents then pick one card as their response for a task. However, the present CBC study used the term 'card' for each choice task on the website, as it is a visual word and gave the sense of independence to each task.

To keep resemblance with the PC-based CBC administration, each choice task – card – should appear independently on the screen. Selecting one of the concepts would automatically close the present screen and bring the next task, successively until the last one. This would be possible but, once uploaded to the web space, would pose increased risk of interruption of the study due to intense data traffic. Therefore, a single page contained all the cards, spaced sufficiently to avoid more than one appearing on screen at once. Each one of the four versions of the choice task questionnaires was placed in an independent page.

The choice task pages contained a box with instructions for the section and a link to the first card. Cards were linked successively by the click of the arrows 'next' and 'previous'.

To facilitate certain uniformity of interpretation, respondents could see an explanation for all levels in the cards. When pointing with the mouse to the level text, the bottom or status bar of the browser showed the description of the level. Alternatively, an alert box with the same description appeared when clicking the level text, which was necessary for the longer descriptions, shown at the last column of table XL.

The choice task pages had still an 18th card, not generated by the conjoint software. It gave respondents the opportunity to make up their own course profile, combining levels for every attribute by means of drop-down boxes. This would allow a further source of data for assessing the conjoint method against a usual survey technique.

As one page with all the cards meant a larger file for download, the layout had to be streamlined, with a minimum of graphics. A long download time would also be detrimental. This was taken into account for the design of all the pages.

A page named 'CBC Demographics' contained a brief introduction and all the nine segmentation questions with a link to the choice tasks page under a 'continue' button. Segmentation questions collected responses with single-selection radio buttons – when they had few options that should come into view all at once, or drop-down boxes – when the options were many and did not need to appear at first sight.

The site had three other linked pages. The link provided in the invitation email led to the introductory page, which, in its turn, had one link to the demographic data questionnaire and one to a page called 'Research Context'. The latter contained a link to the demographics page, information on this research, links to papers on conjoint

analysis, and Brazilian sites of landscape and general interest. A last page with thanks for the participation linked back to the research context page and offered email contact to this researcher.

Once concluded the design of static documents, the pages CBC Demographics and the choice tasks had to be associated dynamically. Dynamicity required simple scripts for alert boxes, written in Java, and more complex CGI scripting, written in the language PHP.

Access to the page with the demographic questionnaire added one unity to a hidden counter of accesses. An alert box with numbers to unanswered questions appeared when the respondent clicked the 'continue' button without answering all of them.

Since the four versions of the conjoint questionnaire needed a similar number of responses, a pseudo-random distribution of versions was programmed. Every access to the questionnaires called a page with one of the four different versions of the choice tasks, consecutively and cyclically.

The CGI script connected both sections of the study in a session, provided the rotation of versions, and produced an email message with respondent number – provided by the counter, version number, and all the answers, all in a pre-determined format. The programme then sent the message automatically to this researcher.

Due to compatibility with the programming language PHP, the site was uploaded to the server at the Federal University of Viçosa, to which this researcher is attached. Data collection started on April 15, 2002 and ended on June 6, 2002, with 95 valid responses.

Data sorting

As responses arrived, they were examined and those that showed irregularities –as the same letter selected for all the choice tasks– were eliminated. Once collection ceased, all response email messages were grouped into a single text file, using a common function of email programmes.

The way responses should be coded to feed the CBC software differed from what was used on the website and responses. Visual basic for application procedures were written to convert the answers into number codes. The CBC software could then read and store data from the text file generated, with all the comma separated recoded answers. The added segmentation questions were later merged into the study in a similar same way.

D. Statistical analysis

The analysis of data collected for this research was performed using three software packages: SPSS, Sawtooth CBC version 2, and Microsoft Excel.

E. Chapter Summary

This chapter examined the philosophical basis for this research in relation to data collection and the methods of investigation employed, according to George Kelly's Constructive Alternativism.

A first phase had a more qualitative nature, searching for bibliographic basis for this thesis, complementing that where necessary, and serving for substrate for the quantitative phase that followed. These methods were:

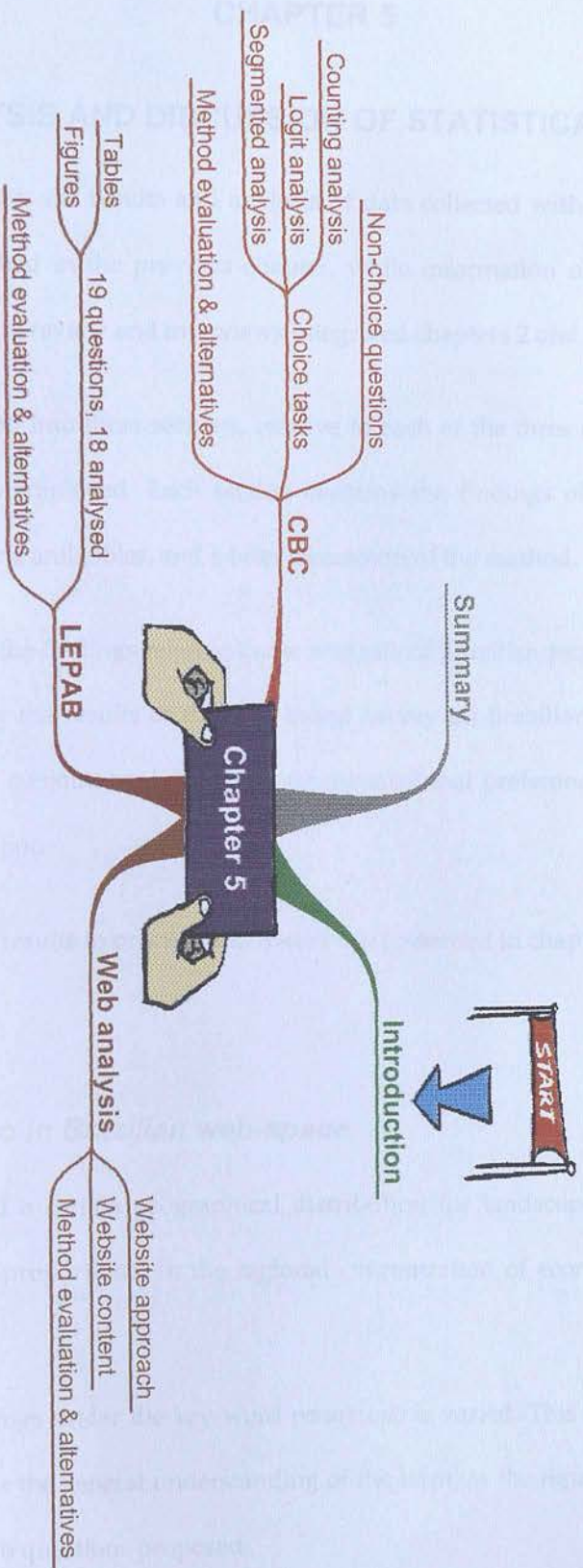
- Literature review;
- Direct observation at the School of Landscape Architecture, Edinburgh College of Art;
- Field trip to Brazil – Rio de Janeiro, São Paulo, Belo Horizonte, and Viçosa;
- Interviews with key Brazilian practitioners and landscape educators;

Three methods of a quantitative nature were used and described in detail in this chapter, and their results, suitability, and alternatives are analysed in the next chapter. The study of their applications in other fields showed potential for use in this research and other studies in landscape architecture, forming the basis of this thesis' contribution to method.

The methods exposed were:

- Examination of *paisagismo* websites from Brazil;
- LEPAB – web based survey on Brazilian *paisagistas*;
- CBC – web based Choice Based Conjoint analysis study with landscape architects and landscape students from around the world.

In possession of all the data, the next chapter proceeds with their analysis.



CHAPTER 5: ANALYSIS AND DISCUSSION OF STATISTICAL DATA

CHAPTER 5

ANALYSIS AND DISCUSSION OF STATISTICAL DATA

This chapter presents the results and analysis of data collected with the quantitative instruments described in the previous chapter, while information obtained with the methods of literature review and interviews integrated chapters 2 and 3.

Chapter 5 is divided into three sections, relative to each of the three quantitative data collection methods employed. Each section contains the findings of one procedure, corresponding charts and tables, and a brief discussion of the method.

Presented first are the findings relative to the analysis of Brazilian *paisagismo* websites. This is followed by the results of the web based survey on Brazilian *paisagistas* and, lastly, those of the conjoint analysis study on international preferences in landscape architectural education.

Implications of the results to practice and theory are presented in chapter 6.

A. *Paisagismo in Brazilian web-space*

The search showed a certain geographical distribution for landscape designers that was, at first sight, proportional to the regional concentration of economic activity in Brazil.

The nature of postings under the key-word *paisagismo* is varied. This search provided good illustration for the general understanding of the term, as the figures below show, according to the two questions proposed.

1. What is the website's approach to paisagismo?

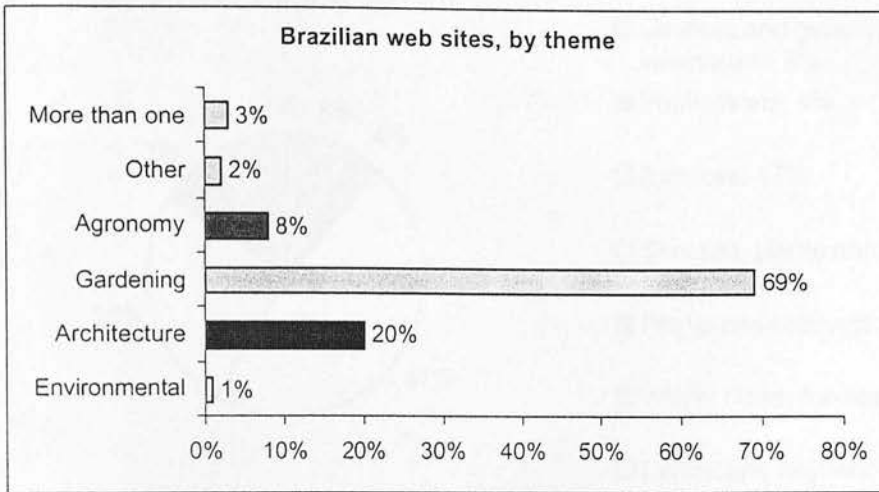


Figure 5.1: Brazilian postings on the Internet and their theme

The association with gardening is prevalent, appearing in 69% of the sites and confirming the trend identified in chapter 2, with a significant difference ($\chi^2 = 64.598$, $df=2$, $p<0.05$). The predominance of associations with architecture, in 20% of cases, over agronomy, with 8%, significant at the 0.05 level ($\chi^2 = 5.143$, $df=1$), is coherent with the probable national numerical superiority of architects, as shown in Figure.2.32 for the state of São Paulo.

2. What is the website about?

Figure 5.2 reveals that 72% of postings advertise some kind of service, be it design, maintenance or related to construction of landscapes. Book and magazine sales with or without the offer of online information with texts and pictures is the subject of 4% of sites.

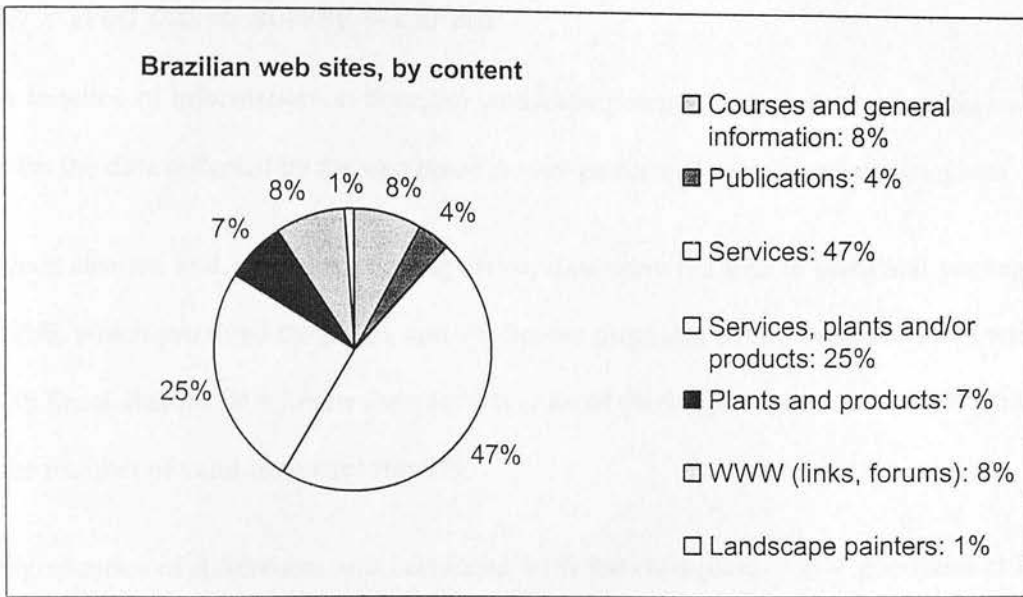


Figure 5.2: Contents of Brazilian *paisagismo* websites.

Among the sites collected, 8% offered courses on some aspect of landscape design or gardening. As most of them were of the NDAC type, this suggests the importance of these courses for the field.

3. Evaluation of the method and alternatives

Although a simple procedure, the analysis of web sites following a set of pre-established criteria was effective in pointing out relevant aspects of the general understanding of *paisagismo* and its common associations in Brazil.

Other aspects that lie out of the procedure's immediate purposes for this research can also be similarly investigated, such as type of design projects featured and more. The same approach is applicable to gain insight into landscape practice in other places, and a suggested further study is a comparison of results of that procedure performed with the equivalent terms in different languages.

B. Web based survey —LEPAB

A baseline of information on Brazilian landscape practice and education was formed with the data collected by the web based survey performed with Brazilian *paisagistas*.

Once cleaned and treated for coding errors, data were fed into to statistical package SPSS, which provided the tables, and the figures presented below were produces with MS Excel. Results here follow the question order of the original questionnaire, to which the number of valid responses was 151.

Significance of differences was calculated with the chi-square $-\chi^2-$ goodness of fit test, for the probability level of 0.05.

Results follow the order of questions in the original questionnaire. Tables not presented in this section are found at the Annex: Statistical Tables.

1. Question 1:Occupation in 2001

Considering the year 2001 you are/were:

Question 1 allowed multiple selections, as it was expected that there would be respondents involved in more than one of the activities during the period considered, which was confirmed, as shown by the numbers of 'professionals studying, and 'undergraduate and other courses'.

The survey showed that more than half of the sample is active in some form of landscape practice (56.3%) and an even larger slice is receiving some form of instruction (58.9%).

In 2001				
	Frequency	Percent	Valid Percent	Cumulative Percent
NDAC Student	11	7.3	7.3	7.3
MLTC Student	6	4.0	4.0	11.3
Undergraduate student	24	15.9	15.9	27.2
Undergraduate and other course	4	2.6	2.6	29.8
Post-graduate student	12	7.9	7.9	37.7
Professional	53	35.1	35.1	72.8
Professional studying	32	21.2	21.2	94.0
None	9	6.0	6.0	100.0
Total	151	100.0	100.0	

Table XLIV: Occupation of paisagistas in 2001

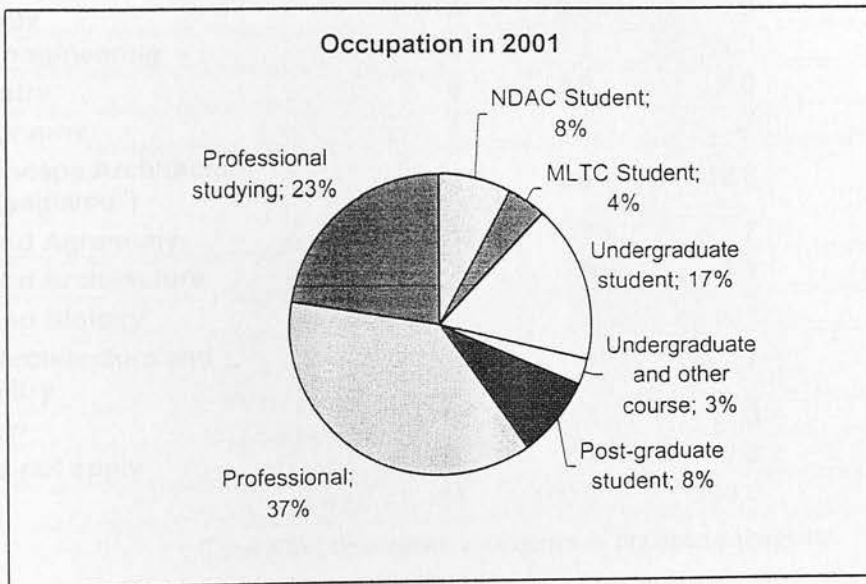


Figure 5.3: Distribution of occupation of respondents in 2001

The activity in the field is intense and, as numbers show, the vast majority is seeking to learn more about the profession, using all the study possibilities this survey covered.

2. Question 2: Undergraduate degree

In what subject is your undergraduate degree (completed or in progress)?

This question sought to determine the most frequent academic backgrounds Brazilian *paisagistas* hold.

Undergraduate Degree				
	Frequency	Percent	Valid Percent	Cumulative Percent
Agronomy	30	19.9	19.9	19.9
Agronomy and Forestry	1	.7	.7	64.9
Architecture	52	34.4	34.4	54.3
Biology	4	2.6	2.6	57.0
Civil engineering	2	1.3	1.3	58.3
Forestry	9	6.0	6.0	64.2
Geography	1	.7	.7	65.6
Landscape Architecture ("Paisagismo")	19	12.6	12.6	78.1
LA and Agronomy	1	.7	.7	78.8
LA and Architecture	2	1.3	1.3	80.1
LA and Biology	1	.7	.7	80.8
LA, Architecture and Forestry	1	.7	.7	92.7
Other	17	11.3	11.3	92.1
Does not apply	11	7.3	7.3	100.0
Total	151	100.0	100.0	

Table XLV: Undergraduate degrees of Brazilian paisagistas

In order to calculate significance of differences, categories were grouped as follows:

- *Paisagismo* : all those who had a degree in *Paisagismo* only with *Paisagismo* and another;
- Agronomy: all those who had a degree in Agronomy only with Agronomy and another;

- Biology with Civil Engineering, Forestry and Geography;
- Other: different from the options presented.

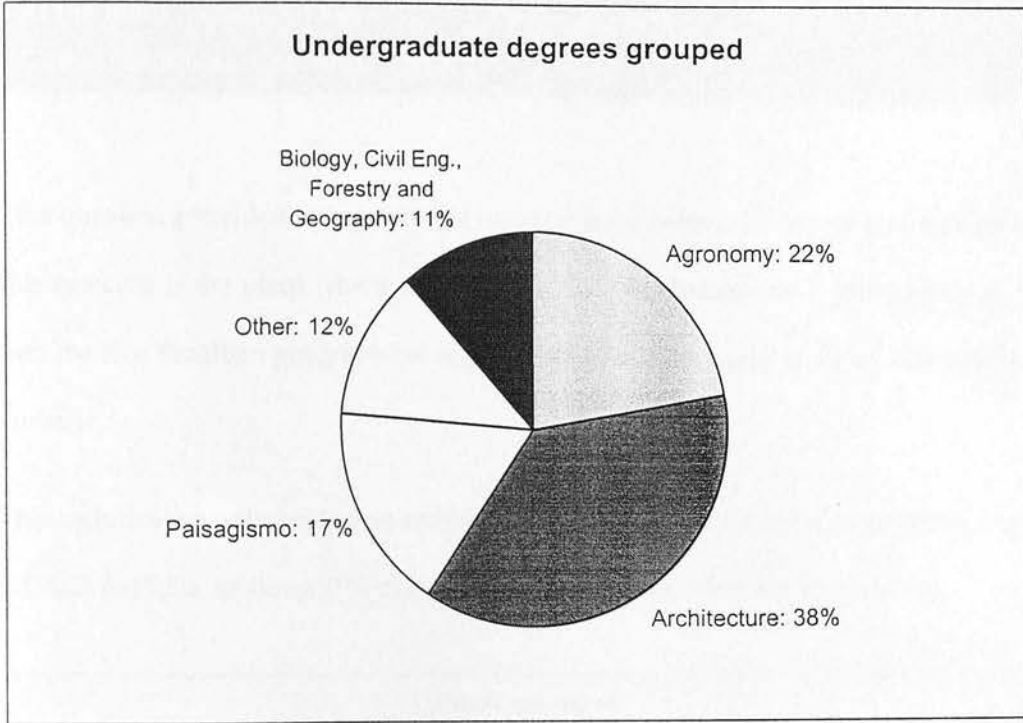


Figure 5.4: Undergraduate degrees of Brazilian *paisagistas*

The difference within the grouped categories as above was significant ($\chi^2=30.929$, $df=4$, $p<0.05$).

3. Question 3: Places and levels of study

Where do/did you study?

For Schools 1,2,3:

At the level...; School (name)...

City:...; State:...; Country:...

This question provided a large pool of detailed information. Of immediate interest to this research is the place where studies were realised. Results were grouped by state into the five Brazilian geographical regions and a sixth category of those who studied abroad.

This includes not only landscape architectural studies, but all courses in all levels, from NDACs to PhDs, totalling 255 courses, undertaken in 119 different institutions.

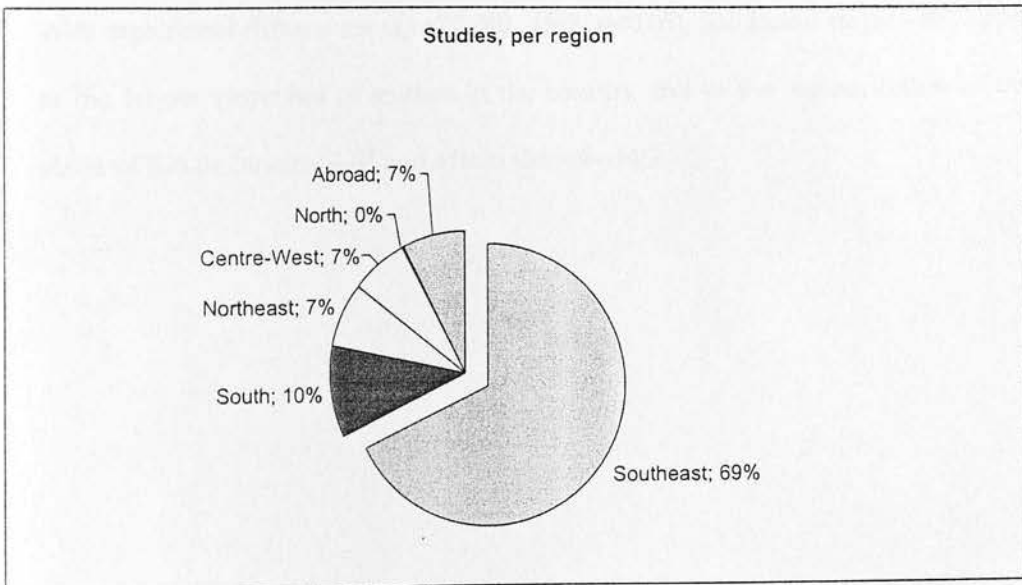


Figure 5.5: Concentration of studies by region

As expected, the majority of studies happened in the Southeast region. This was then broken down by state, in figure 5.6.

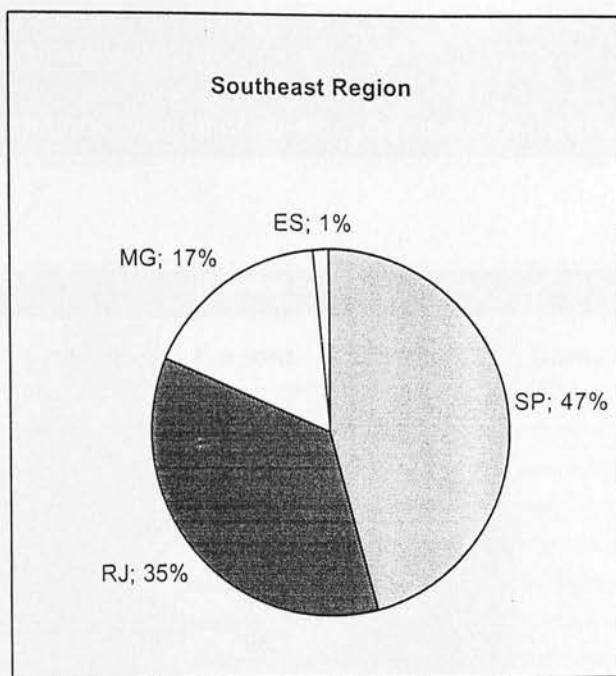


Figure 5.6: Division of studies in the Southeast region

With significant differences ($\chi^2 = 22.840$, $df=2$, $p < 0.05$), São Paulo state – SP, appeared as the largest provided of studies in the country and in the region, followed by the states of Rio de Janeiro – RJ and Minas Gerais – MG.

4. **Question 4: Highest degree**

What is your highest degree of studies (completed or in progress)?

Highest degree				
	Frequency	Percent	Valid Percent	Cumulative Percent
Secondary	3	2.0	2.0	2.0
Technician	5	3.3	3.4	5.4
Undergraduate	66	43.7	44.3	49.7
Diploma	26	17.2	17.4	67.1
Masters	31	20.5	20.8	87.9
PhD	18	11.9	12.1	100.0
Total	149	98.7	100.0	
Missing	2	1.3		
Total	151	100.0		

Table XLVI: Highest degrees of Brazilian paisagistas

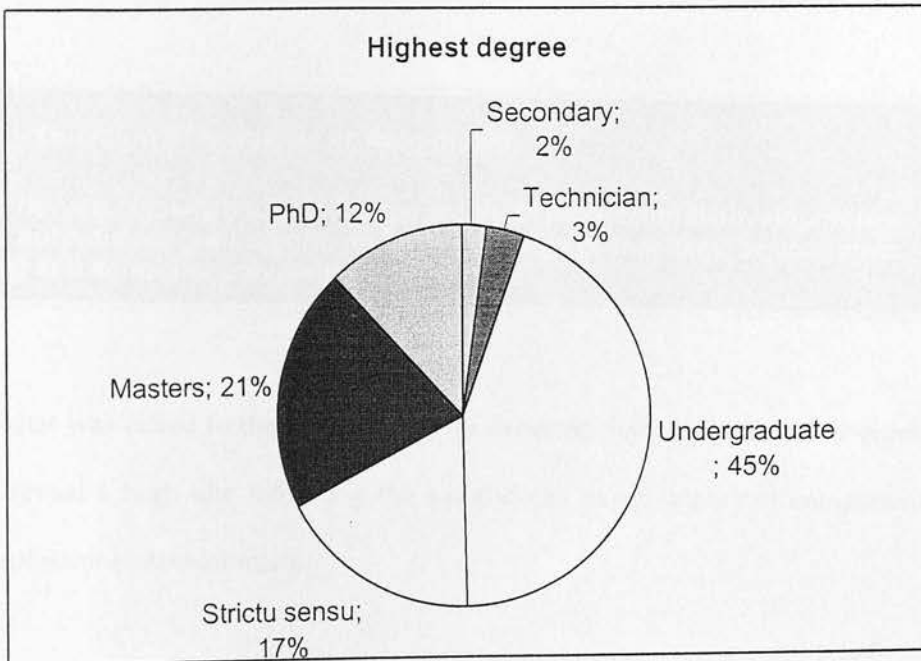


Figure 5.7: Highest degrees of Brazilian paisagistas

The data this question raised showed an atypically high level of education for respondents if compared to the average Brazilian population. Figures could have been different with a larger sample. However, considering that the sample had the restriction of being constituted by web users only, some of the unexpected results, such as the relatively high percentage of postgraduates, i.e. *strictu sensu*, masters, and doctors, can be explained by the tendency of such categories, also including those with undergraduate degrees –almost half of the sample– to be more web literate and frequent users, and, as such, more closely networked than the others. As the snowball sampling method was used, it is possible that members of each category invited others with a similar profile to participate.

However, figures show participation of all the levels surveyed.

5. Question 5: Academic or Auto-didact

How do you classify your landscape architect professional development as to its auto-didact (self-taught, no formal schools or teachers) or academic (learnt at a school or university) character?

From what was raised in the literature, it was expected that response to this question would reveal a high rate indicating the autodidactic as an important component of their professional development.

Academic or Autodidact?				
	Frequency	Percent	Valid Percent	Cumulative Percent
Totally Autodidact	8	5.3	5.4	5.4
Mostly Auto-didact	49	32.5	32.9	38.3
Equally Autodidact and Academic	60	39.7	40.3	78.5
Mostly Academic	22	14.6	14.8	93.3
Totally Academic	10	6.6	6.7	100.0
Total	149	98.7	100.0	
Missing	2	1.3		
Total	151	100.0		

Table XLVII: Brazilian paisagistas professional development: academic or autodidact

Grouping the results of the table above into three categories, by joining 'totally' and 'mostly' autodidact into one group and , by joining 'totally' and 'mostly' academic into another, it was possible to draw a clearer picture, as shown in Figure 5.8 below.

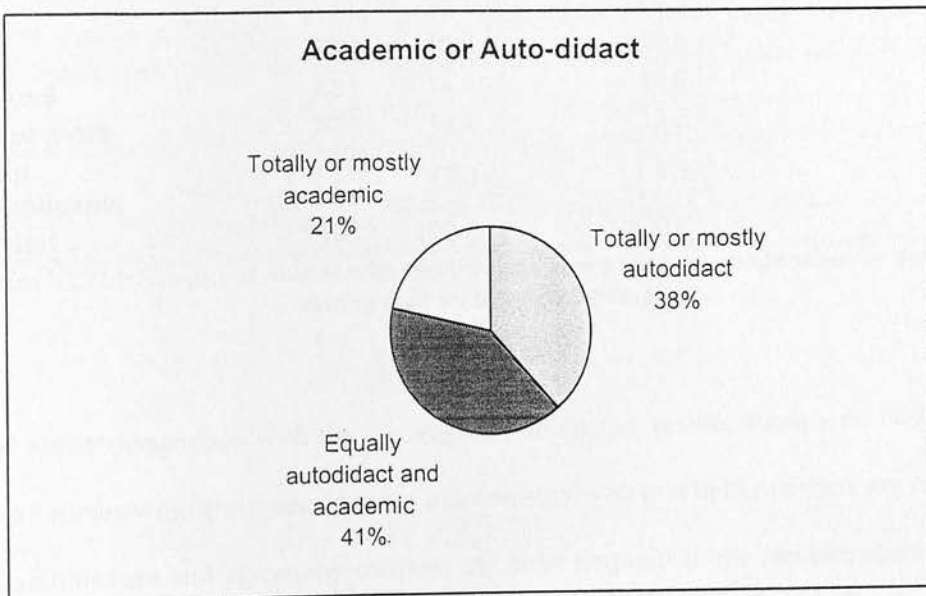


Figure 5.8: Brazilian paisagistas' opinion on the nature of their professional development

With a significant difference, ($\chi^2=9.517$, $df=2$, $p<0.05$), it was found that the balance between the autodidactic and the academic components rated as the most frequent

scenario, closely followed by those with a totally or mostly autodidact professional development.

6. Question 6: Courses studied in the undergraduate level

How many courses with specific *paisagismo* content did you study during your undergraduate programme?

When analysing this question it is necessary to consider that respondents who had not yet finished their undergraduate degrees at the time of the survey might not have taken all or any of their *paisagismo* courses yet.

Number of Undergraduate LA Courses				
	Frequency	Percent	Valid Percent	Cumulative Percent
None	26	17.2	17.2	17.2
1	44	29.1	29.1	46.4
2	28	18.5	18.5	64.9
3 to 5	22	14.6	14.6	79.5
6 or more	20	13.2	13.2	92.7
not applicable	11	7.3	7.3	100.0
Total	151	100.0	100.0	

Table XLVIII: Number of courses with specific content in *paisagismo* undertaken by Brazilians during their undergraduate studies

For easier comparison with the 'undergraduate degree' results, those who had one or two courses were grouped, since the literature showed that both numbers are common in architecture and agronomy courses, the most frequent in the sample, according to

Table XLVIII and Figure 5.4

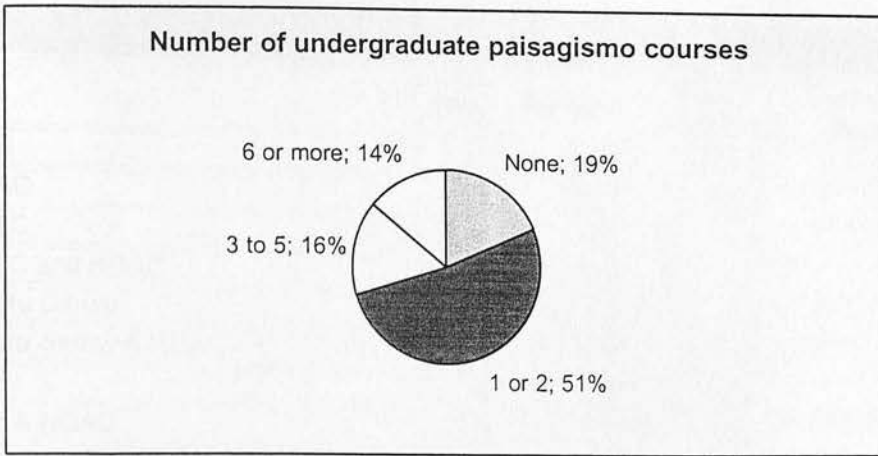


Figure 5.9: Number of paisagismo courses taken by Brazilian *paisagistas* during their undergraduate degrees.

7. Question 7: Further landscape studies

Apart from your undergraduate studies, do/did you study at any other programme with specific content on landscape architecture?

This question allowed respondents to select as many options as appropriate, and multiple selections happened in 22% of the cases.

Question 7 showed that 53.5% of respondents did one course in *paisagismo*, 22% did more than one, and the remaining 24,5% did none, as seen in table L.

Level of studies in <i>paisagismo</i>						
	None	NDAC	MLTC	<i>Strictu Sensu</i>	MSc	PhD
Valid	31	90	19	22	16	9
Percent	20.5	58.9	12.6	14.6	10.6	6.0

Table XLIX: Distribution of the total 187 selections for level of studies in *paisagismo*

Level of studies in <i>paisagismo</i>				
	Freq.	Percent	Valid Percent	Cumulative Percent
none	37	24.5	24.5	24.5
NDAC	59	39.1	39.1	63.6
MLTC	8	5.3	5.3	68.9
MLTC and NDAC	9	6.0	6.0	74.8
<i>Strictu Sensu</i>	8	5.3	5.3	80.1
<i>Strictu Sensu</i> & NDAC	10	6.6	6.6	86.8
MSc	4	2.6	2.6	89.4
MSc & NDAC	3	2.0	2.0	91.4
MSc, NDAC & <i>Strictu Sensu</i>	3	2.0	2.0	96.0
MSc, NDAC, MLTC & <i>Strictu Sensu</i> ,	1	.7	.7	96.7
PhD	2	1.3	1.3	92.7
PhD & NDAC	2	1.3	1.3	94.0
PhD & MSc	3	2.0	2.0	98.7
PhD, NDAC & Ms	1	.7	.7	99.3
PhD, NDAC, <i>Strictu Sensu</i> & MSc	1	.7	.7	100.0
Total	151	100.0	100.0	

Table L: Level of studies Brazilian *paisagistas* have taken specifically in *paisagismo*

The question does not cover the number of programmes in which each respondent took or was taking part, but accepting that the majority would have taken or be taking one programme in each level, a total of 156 would be at stake. These 156 are distributed according to figure 5.10 below. Statistical evaluation of this distribution revealed significance for differences ($\chi^2=141.5$, $df=4$, $p<0.05$).

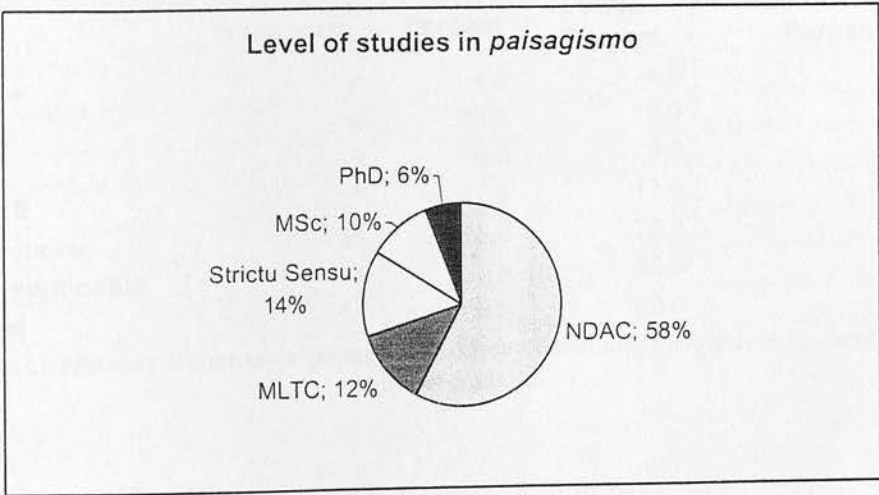


Figure 5.10: Percentages of the total number of course taken by Brazilian *paisagistas*, by levels.

This figure confirms the expressive and predominant participation of the non degree-awarding courses in the market of education for *paisagismo*.

8. Question 8: Courses studied in other levels

How many courses of specific *paisagismo* content did you study at this other level?

Question 8 offers a picture of *paisagismo* instruction in levels other than the undergraduate as to the number of courses taken by the present and former students.

The results present an unexpectedly high percentage of 'none' and 'not applicable' responses, 4.6% and 35.8% respectively, surpassing the 24.5% of respondents who reported not to have taken any course apart from their undergraduate. This may be because of courses still in progress or because of a structure of programmes that makes the separation into individual courses difficult to respondents. Another possibility is the difficulty of respondents in classifying the content of their courses as specific in *paisagismo* or not.

Number of courses at other levels on *paisagismo*

	Frequency	Percent	Valid Percent	Cumulative Percent
None	7	4.6	4.6	4.6
1	16	10.6	10.6	15.2
2	13	8.6	8.6	23.8
3 to 5	27	17.9	17.9	41.7
6 or more	34	22.5	22.5	64.2
not applicable	54	35.8	35.8	100.0
Total	151	100.0	100.0	

Table LI: Number of courses on *paisagismo* taken by Brazilian *paisagistas* in levels other than undergraduate.

However, when considering only positive responses as in Figure 5.11 below, it was found that 68% of programmes taken had 3 or more units of specific content in *paisagismo*.

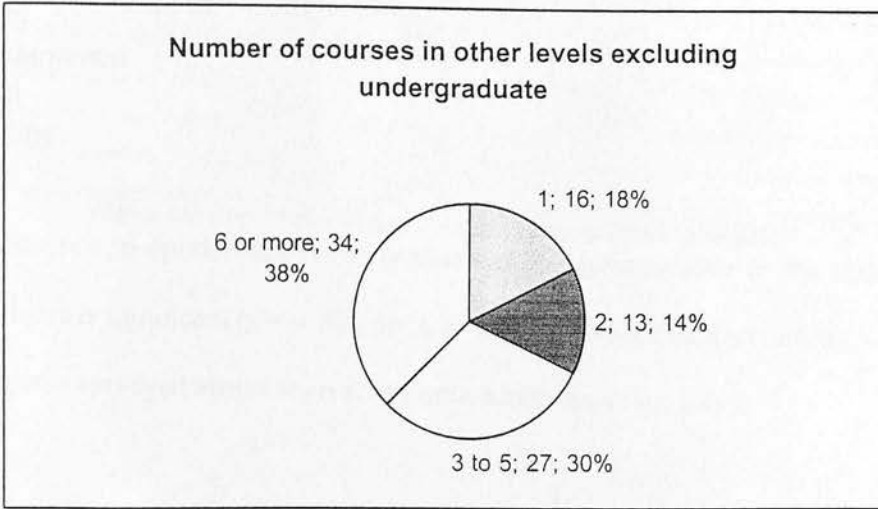


Figure 5.11: Distribution of number of courses on *paisagismo* taken by Brazilian *paisagistas* in levels other than undergraduate

9. Question 9: Importance of apprenticeship

How important was apprenticeship with other landscape professionals to you training as a landscape architect?

As exposed in the previous chapter, this question and the next were included after the questionnaire had already been uploaded, which caused part of the 30 missing cases, shown in table LII and disregarded when constructing figure 5.12, where categories were regrouped into three.

Apprenticeship Importance				
	Frequency	Percent	Valid Percent	Cumulative Percent
none	30	19.9	24.8	24.8
Little	13	8.6	10.7	35.5
Medium	14	9.3	11.6	47.1
Great	43	28.5	35.5	82.6
Fundamental	21	13.9	17.4	100.0
Total	121	80.1	100.0	
Missing	30	19.9		
Total	151	100.0		

Table LII: Importance of apprenticeship for Brazilian paisagistas

The difference in opinion about the importance of apprenticeship in the training of respondents is significant ($\chi^2=31.256$, $df=2$, $p<0.05$), showing that the majority – 52% – of paisagistas surveyed attribute great or fundamental importance to it.

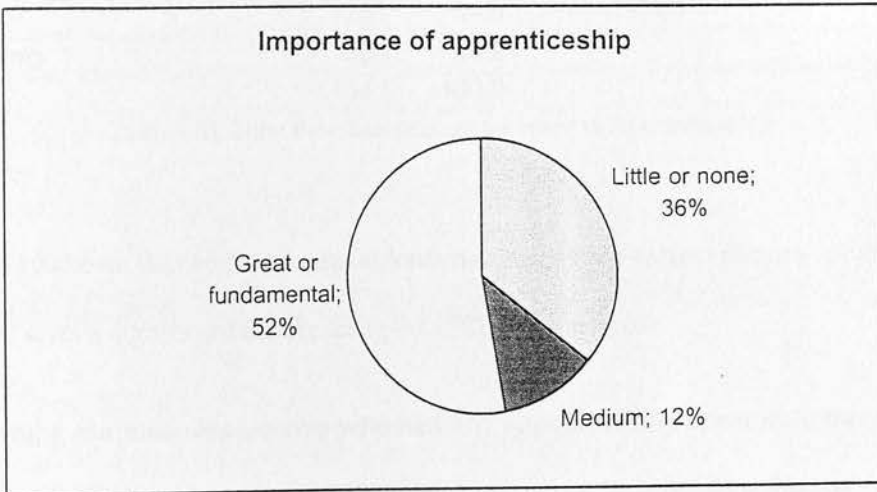


Figure 5.12: Importance of apprenticeship for Brazilian paisagistas

10. Question 10: Time in apprenticeship

How long were you in apprenticeship?

With the same observation as question 9, question 10 focuses on the time spent in apprenticeships.

Time spent in Apprenticeship				
	Frequency	Percent	Valid Percent	Cumulative Percent
none	43	28.5	33.6	33.6
Up to 6 months	22	14.6	17.2	50.8
From 7 months to almost 1 year	20	13.2	15.6	66.4
From 1 full year to almost 2 years	23	15.2	18.0	84.4
2 full years or more	20	13.2	15.6	100.0
Total	128	84.8	100.0	
Missing	23	15.2		
	151	100.0		

Table LIII: Time Brazilian paisagistas spent in Apprenticeship

Table 5.10 shows that 66.4% of respondents had some time as apprentices, while 33.4% did not, with a significant difference ($\chi^2=13.781$, $df=2$, $p<0.05$).

Concerning the time respondents who had any apprenticeship spent in it, the greatest part, almost half of respondents 49%, spent one year or less; nearly a quarter –24% – between one and two years, and the remaining 27% had two years or more. The differences were significant ($\chi^2=10.047$, $df=2$, $p<0.05$).

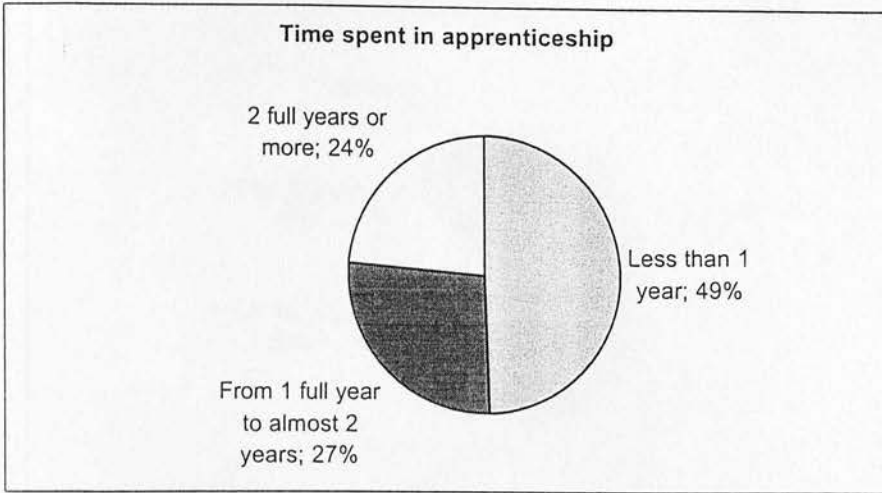


Figure 5.13: Time Brazilian *paisagistas* spent in apprenticeship

11. Question 11: Time in practice

How long have you been working in landscape architecture?

Question 11 presents that the majority of *paisagistas* surveyed—66%— have been practicing for ten years or less. Differences are significant ($\chi^2=40.455$, $df=4$, $p<0.05$).

Time practicing <i>paisagismo</i>				
	Frequency	Percent	Valid Percent	Cumulative Percent
Not yet	27	17.9	18.0	18.0
0 to 5 ears	49	32.5	32.7	50.7
6 to 10 years	32	21.2	21.3	72.0
11 to 15 years	12	7.9	8.0	80.0
16 to 20 years	14	9.3	9.3	89.3
21 years or more	16	10.6	10.7	100.0
Total	150	99.3	100.0	
Missing	1	.7		
Total	151	100.0		

Table LIV: Time Brazilian *paisagistas* have been in practice

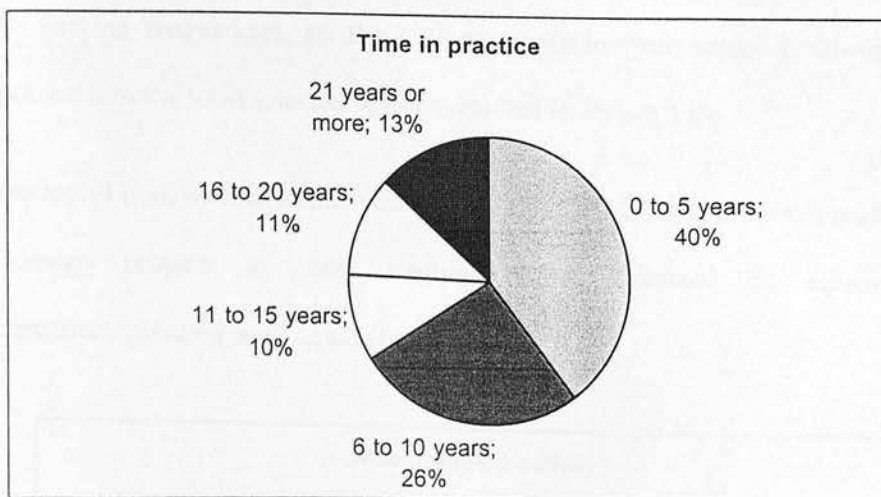


Figure 5.14: Time Brazilian *paisagistas* have been in practice

12. Question 12: Most frequent activity

In the first place, in what activity of *paisagismo* are you involved most often in?

This question and the next three asked for the activities in *paisagismo* in which respondents were most frequently involved.

Most frequent activity				
	Frequency	Percent	Valid Percent	Cumulative Percent
Consultancy	7	4.6	4.7	4.7
Education	27	17.9	18.1	22.8
Construction/Planting	27	17.9	18.1	40.9
Environmental Studies	3	2.0	2.0	43.0
Research	7	4.6	4.7	47.7
Design Projects	58	38.4	38.9	86.6
Maintenance and Restoration	2	1.3	1.3	87.9
Other	1	.7	.7	88.6
Not applicable	17	11.3	11.4	100.0
Total	149	98.7	100.0	
Missing	2	1.3		
Total	151	100.0		

Table LV: Most frequent professional activity

With varying frequencies, all the options available were selected. Grouping valid responses into the most selected options resulted in Figure 5.15.

It was found that, with significant differences ($\chi^2=93.273$, $df=5$, $p<0.05$) a predominance of design projects as most frequent exists, followed by education and construction/planting with equal shares.

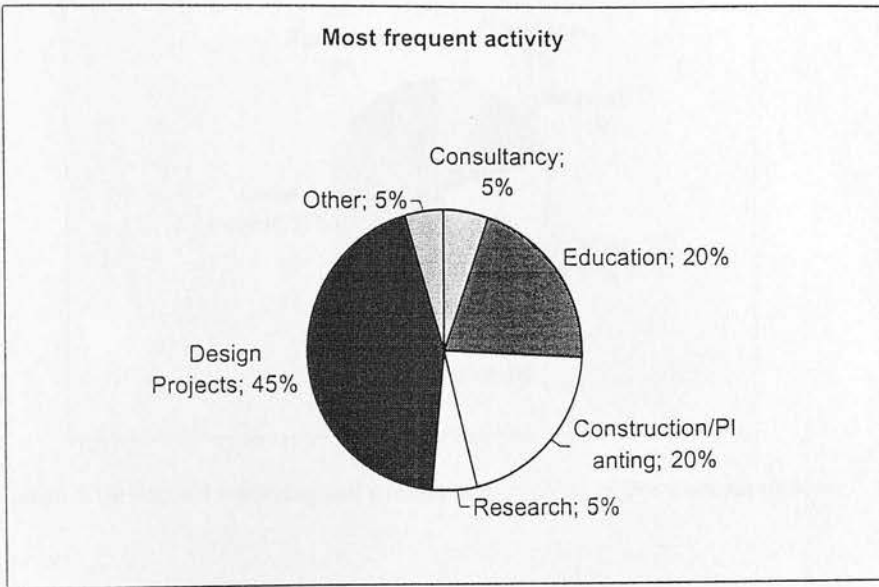


Figure 5.15: Most frequent activity of Brazilian *paisagistas*

13. **Question 13: Second frequent activity**

In the second place, in what activity of *paisagismo* are you involved most often?

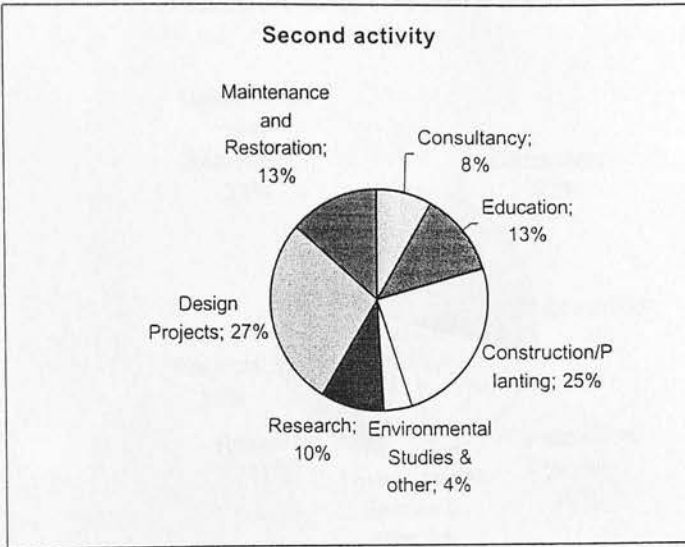


Figure 5.16: Second most frequent professional activity of Brazilian *paisagistas*

In relation to the previous question, activities reported as the second most frequent show a reduction in design projects and education, an increase in maintenance/restoration from less than 2% to 13% and a slight increase in all other activities, still with a significant difference ($\chi^2=37.857$, $df=6$, $p<0.05$)

14. **Question 14: Third frequent activity**

In the third place, in what activity of *paisagismo* are you involved most often?

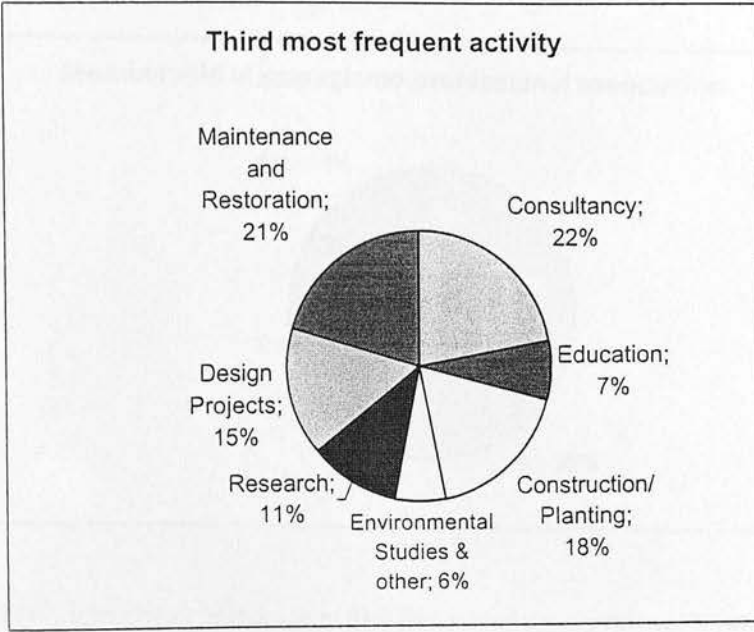


Figure 5.17: Third most frequent activity of Brazilian

As third activities in frequency, keeping a significant difference ($\chi^2=20.397$, $df=6$, $p<0.05$), there is an increase in consultancy, now the highest, with 22% and a further increase in maintenance/restoration, now second, with 21%. Reductions were observed for the involvement in design projects and construction/planting.

15. Question 15: Membership at professional associations

**Are you a member of any professional association of landscape architects?
Which one?**

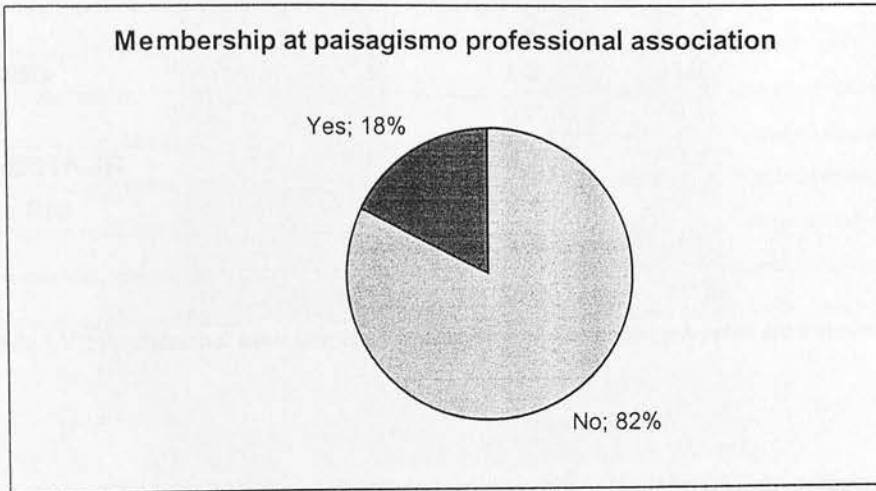


Figure 5.18: Membership proportion of Brazilian *paisagistas* in professional associations

Less than a fifth of respondents, 18%, are members of professional associations of *paisagismo*, difference significant ($\chi^2=62.270$, $df=2$, $p<0.05$).

When answering of which association they are members, more than half of those who answered 'yes' to the first part stated membership to ABAP. ANP and SBP, also mentioned in chapter 3, appear listed, as do four others about which this research did not succeed in finding further information. AEASP, also cited, is the Association of Agronomists of São Paulo, not a specific *paisagismo* association but one that congregates many landscape practitioners. As numbers were small, no significance of differences was calculated.

Member at which association				
	Frequency	Percent	Valid Percent	Cumulative Percent
None	126	83.4	83.4	83.4
ABAP	14	9.3	9.3	92.7
AEASP	1	0.7	0.7	93.4
ANP	3	2	2	95.4
ASPAMG	2	1.3	1.3	96.7
AFRS	1	0.7	0.7	97.4
FLORESTA JR	1	0.7	0.7	98
Planta Rio	1	0.7	0.7	98.7
SBP	2	1.3	1.3	100
Total	151	100	100	

Table LVI: Professional associations of paisagistas of which respondents are members

16. Question 16: Age

How old are you?

The distribution of ages of Brazilian *paisagistas* resulted from question 16. With very small numbers, the two extreme categories, 'less than 20' and '61 or over' were regrouped with the 21 to 25 and 51-60 groups respectively, appearing in figure 5.19 below.

Significance was found for the difference among ages ($\chi^2 = 28.081$, $df=4$, $p < 0.05$). The sample showed 60% situated between the ages of 31 and 50 years, but when regrouping the younger than 40 years of age together, a percentage of 62% is found.

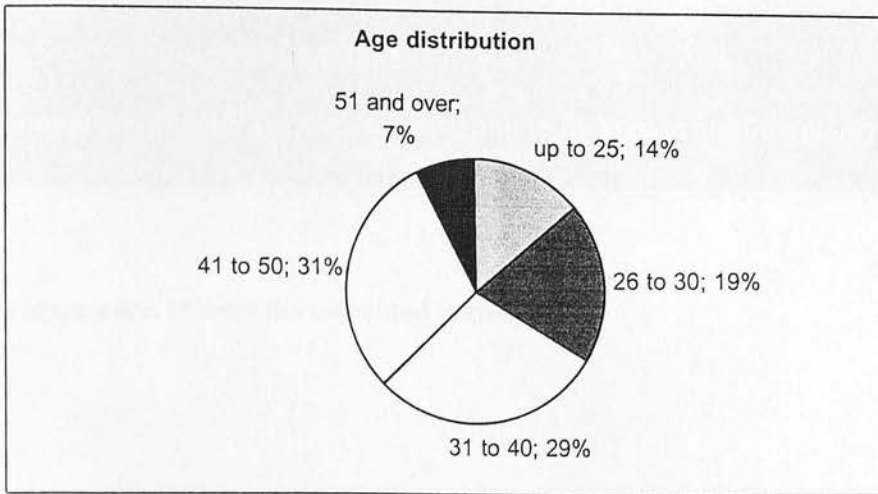


Figure 5.19: Age distribution of Brazilian *paisagistas*

17. Question 17: Gender:

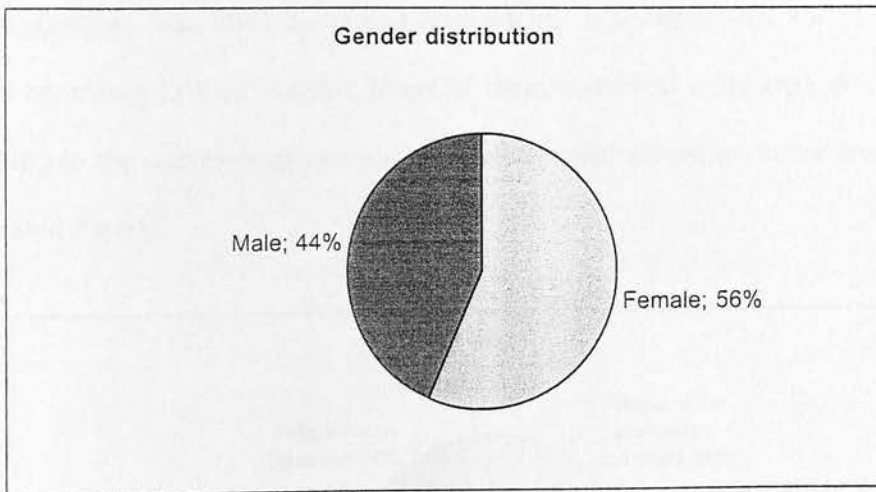


Figure 5.20: Gender distribution of Brazilian *paisagistas*

Although Figure 5.20 shows the number of female respondents as 12% higher than that of males, the difference found was not significant ($\chi^2=2.423$, $df=1$, $p<0.05$).

18. Question 18: Contact details

Your email address for contact (optional and to be kept in confidentiality) and your home-page:

Results of question 18 were not submitted to analysis.

19. Question 19: Comments

Your comments, suggestions or questions may be entered in the space below:

The last question of the form, an open space for respondents to register their comments and suggestions, was filled by 53% of respondents. Responses were sorted into six classes according to their content. Many of them contained more than one subject according to the classes proposed, and were categorised according to the theme that dominated the text.

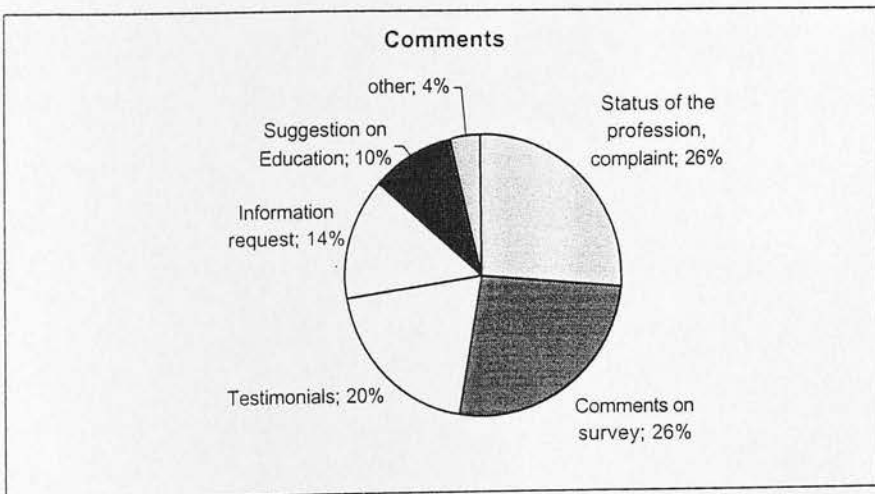


Figure 5.21: Comments written, by subject

The subject of most comments was either complaints about the status of the profession in Brazil or comments on the survey. When writing about the status of the profession, respondents raised problems like the lack of professional regulations or expressed their disagreement with the current state of affairs in the profession.

20. Evaluation of the method and alternatives

This web based survey confirmed the suitability of the method for this research, as for general use in other fields of investigation and other investigative scenarios, provided that the target population is significantly represented in the universe of web users.

This survey could have been administered via the other usual procedures for similar situations: postal survey and telephone interviewing. Each of these methods has cost as a common drawback and neither of them allows the snowball sampling procedure with the same ease as email invitation, which is possible with the click of a 'forward' button. This, in a field where knowledge of the size of the population is but speculative, is an important way of reaching a reasonably sized sample.

C. Conjoint analysis

The essence of conjoint techniques – their capability of measuring relative values of attributes when considered jointly – justified its usage in this research.

Similarly to the LEPAB, the use of snowball sampling and the distribution of the invitation to the study in electronic mailing lists made it impossible to establish the final number of prospective participants. For the effect of calculating a response rate, the total number of accesses to the questionnaire, available from an administration page not accessible to respondents, was stipulated as the total sample receiving the study. A number of accesses was discounted from this total, as test runs happened throughout the study period to verify functionality, resulting in a final estimate of 340 accesses. With a final number of valid responses of 95, a response rate of 28% was achieved – within the average of most surveys conducted via traditional methods (Fink, 1995b). This rate was accepted as highly satisfactory, since there were technical/functional restrictions that played a part in preventing a greater number of respondents from being successful in completing the study.

Conjoint tasks, requiring more than just recalling information, present a relatively higher complexity than most surveys. It may have been the reason why some respondents marked the same letter for all the conjoint task cards. Six responses were discarded for that reason.

With these opening remarks, this thesis proceeds to the analysis of the data obtained. The analysis of CBC results followed closely the sequence proposed at the software manual.

1. Non-choice questions

As part of the 'CBC Demographics' questionnaire, respondents provided a series of data, summarised in the figures below, in the order they appear in the questionnaire, followed on their left by the results of the chi-square test for significance of differences.

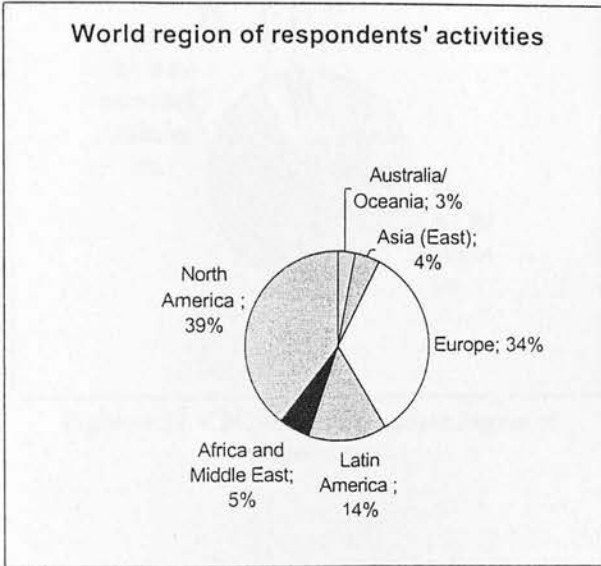


Figure 5.22: CBC – world region location of respondent activities

The majority of respondents answered that most of their activities in landscape architecture happen in North America and Europe, with 39% and 34% each, respectively, with a significant difference ($\chi^2 = 72.723$, $df=5$, $p<0.05$).

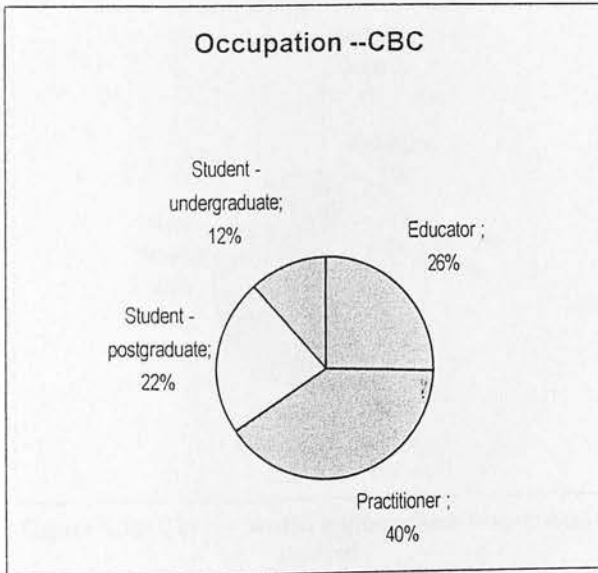


Figure 5.23: CBC – occupation of respondents in 2001

Regarding their occupation in 2001, respondents were mainly practitioners not involved in education, 40%, and educators involved or not in other forms of practice, 26%, with a significant difference ($\chi^2 = 24.540$, $df=3$, $p<0.05$). Students were also present, with postgraduates totalling 22% and undergraduates 12%.

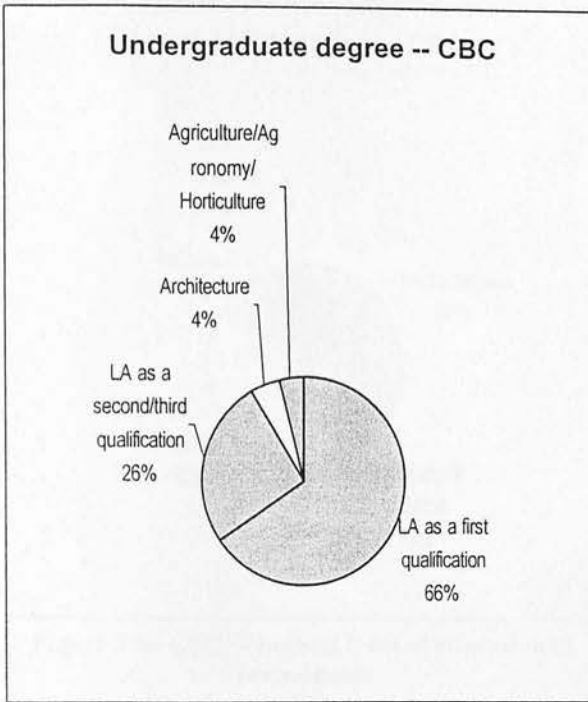


Figure 5.24: CBC – undergraduate degree of respondents

When asked about what they had as their undergraduate degree, the vast majority, i.e. 66% answered landscape architecture as a first qualification; LA as a second qualification was the case of 26% of respondents, while both architecture and Agronomy/Horticulture were the answers of 4% of participants. The differences were significant ($\chi^2 = 121.142$, $df=3$, $p<0.05$)

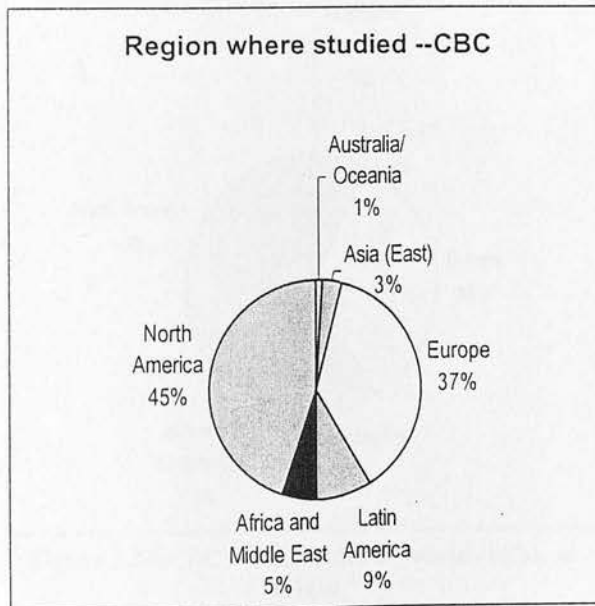


Figure 5.25: CBC – world region where respondents studied

Similarly to the question about their location, the one about the world region where they studied showed predominance of North America, 45%, and Europe, 37%, followed by Latin America with 9%, and the remaining with 8%, with a significant difference ($\chi^2 = 103.106$, $df=5$, $p<0.05$). This figure, if compared to 5.22 suggests that there is certain international mobility as to where people study and later practice.

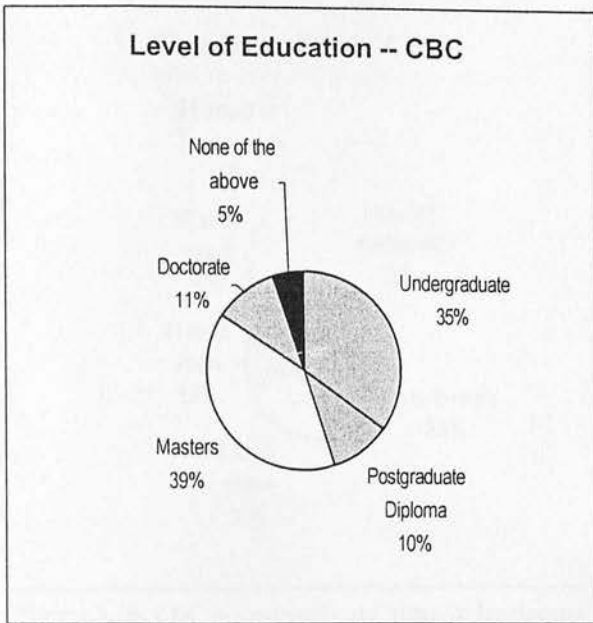


Figure 5.26: CBC – highest level of education of respondents

The level of education found for this sample was high, with 39% of respondents holding masters' degrees and 11% having a doctorate as their highest qualification. Another large portion, 35%, had their undergraduate degree as their highest, followed by 10% with a postgraduate diploma and 5% with none of them. The difference found is significant ($\chi^2 = 47.702$, $df=4$, $p<0.05$).

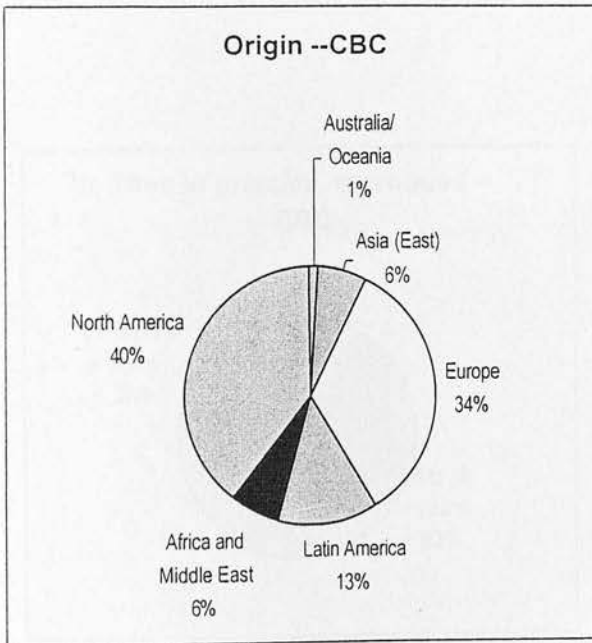


Figure 5.27: CBC – respondents' world region of origin

The mobility mentioned in figure 5.25 is similarly suggested here, as 40% of respondents were from North America, 34% from Europe, 13% from Latin America, 6% from Africa and the Middle East, 6% from Asia and 1% from Australia, difference significant ($\chi^2 = 72.596$, $df=5$, $p<0.05$), values that differ from those in figures 5.22 and 5.25 showing where their activities happen and where they studied.

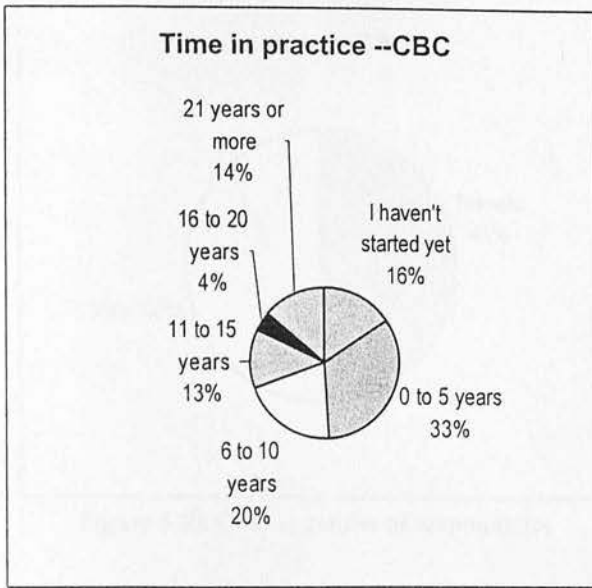


Figure 5.28: CBC – respondents' time in landscape architecture practice

Relative to their time in practice, figure 5.28 shows the sample was mainly young. Although all time brackets had a share of responses, with a significant difference ($\chi^2 = 25.745$, $df=5$, $p<0.05$), the majority of respondents had been in practice either for less than 5 years, 33%, or from 6 to 10 years; those with time from 11 to 15 years were 13%, 16 to 30 years 4% and 21 years or more were 14%. From the total, 16% had not yet started practicing, suggesting that a large part of the 34% of students shown in figure 5.23 were also professionally active.

When those who were in practice were regrouped into brackets of 10 years or less and 11 years or more, percentages were 36% and 37% respectively, with a significant difference ($\chi^2 = 5.582$, $df=1$, $p<0.05$).

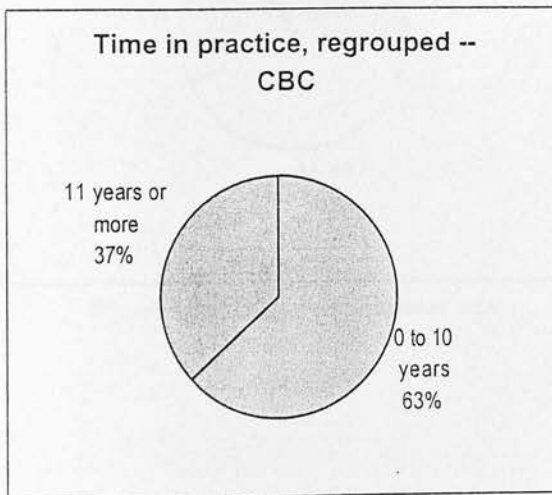


Figure 5.29: CBC – respondents' time in landscape architecture practice, regrouped

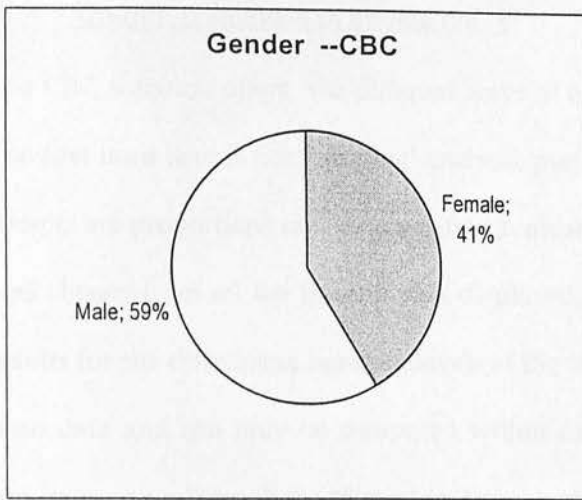


Figure 5.30: CBC – gender of respondents

Although the difference was not significant ($\chi^2 = 2.723$, $df=1$), the sample suggests a trend for a numerical predominance of male respondents, 59%, above female respondents, 41%.

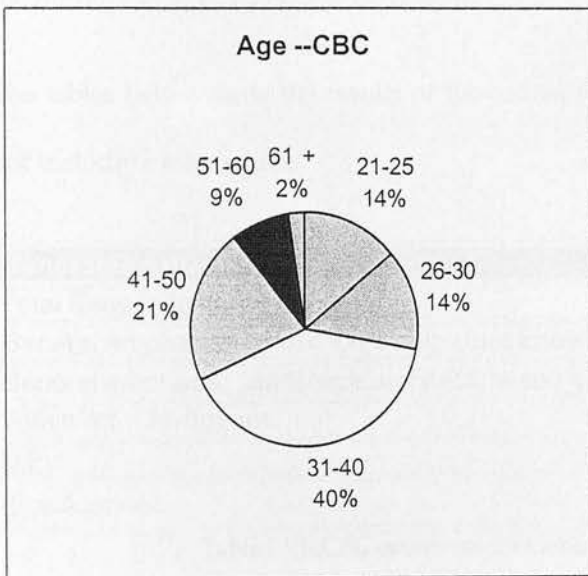


Figure 5.31: CBC – respondents' age

A significant difference ($\chi^2 = 49.617$, $df=5$, $p < 0.05$) was found for the age distribution of respondents, who were mainly young: 40% were between 31 and 40 years old, 14% between 26 and 30, and 14% between 21 and 25. This is coherent with what figure 5.28 shows that most had entered into practice recently. The remaining were from 41 to 50 years old – 21%, 51 to 60 – 9%, and over 61 with only 2%.

This collection of figures offers a demographic profile of respondents, used later for comparison with the results of the survey on Brazil. With the exception of gender, all the other differences calculated were significant.

2. Counting analysis of choice tasks

The CBC software offers two different ways of examining the results of choice tasks. The first used here is the 'counting' analysis, performed by CBC's Counts programme. Results are proportions ranging from 0 to 1, meaning the proportion of times the level was chosen from all the times it was displayed, accompanied by the chi-square test results for the differences between levels of the attribute in question. These values are ratio data and can only be compared within each attribute. By default, the Counts programme analyses all the 15 random tasks, excluding the two holdout cards – which would introduce bias, since they were not randomly generated, causing imbalance in the number of appearances of each level.

The tables below show the results of the counts for one-way or main effects only, i.e., not including interactions.

General Emphasis	Total
Total Respondents	95
General emphasis: landscape architecture knowledge	0.32
General emphasis: landscape architecture and general skills	0.30
Within Att. Chi-Square	1.23
D.F.	1
Significance	not sig

Table LVII: CBC counts for the General Emphasis attribute

Table 40 shows that when a concept containing the level **knowledge** was displayed, it was chosen 32% of the times, while those with **skills** were chosen 30% of the times. Although there appears to be a slight preference for **knowledge**, the difference was not significant.

Skills Focus	Total
Total Respondents	95
Skills focus: Communication	0.24
Skills focus: General thinking skills	0.27
Skills focus: Problem solving through design	0.42
Within Att. Chi-Square	81.62
D.F.	2
Significance	p < .01

Table LVIII: CBC counts for the Skills Focus attribute

Table 41 shows significant preference for the level **Problem solving through design** skills from the Skills Focus attribute, followed by **General thinking skills** and closely by **Communication skills**.

Knowledge focus	Total
Total Respondents	95
Knowledge focus: Environmental Sciences	0.38
Knowledge focus: History and Theory of LA	0.30
Knowledge focus: Professional practice	0.28
Knowledge focus: Technology	0.27
Within Att. Chi-Square	27.05
D.F.	3
Significance	p < .01

Table LIX: CBC counts for the Knowledge Focus attribute

Environmental Sciences was the preferred level from the attribute Knowledge Focus, with a significant difference, as seen in Table LX, followed by the other three, separated by a small margin of preference.

Teaching	Total
Total Respondents	95
Teaching: Classroom based	0.17
Teaching: External work based	0.33
Teaching: Studio based	0.42
Within Att. Chi-Square	142.08
D.F.	2
Significance	p < .01

Table LX: CBC counts for the Teaching attribute

From the Teaching attribute, the preferred level was Studio based, with a significant difference, followed by External work based and, lastly, with a larger difference, Classroom based teaching.

As mentioned in the previous chapter, the study included among choice tasks two fixed holdout cards. The results obtained for these cards confirmed the results above. Both holdout cards showed no significant difference for choices on both levels of General emphasis (Holdout 1: $\chi^2 = 3.43$, $df=1$; Holdout 2: $\chi^2 = 0.86$, $df=1$). The other levels tested by the holdout cards were studio based and classroom teaching, showing significant differences in both cards (Holdout 1: $\chi^2 = 51.48$, $df=1$, $p<0.01$; Holdout 2: $\chi^2 = 33.48$, $df=1$, $p<0.01$).

In addition, in the last card of the conjoint study webpage, Card 18, respondents had the opportunity to make up their own programme profile by selecting from drop-down lists the levels of their preference to each of the four attributes. The choices confirmed the significant difference results of Counts for main effects for the three last attributes: skills focused ($\chi^2 = 59.200$, $df=2$, $p<0.05$), knowledge focused ($\chi^2 = 39.211$, $df=3$, $p<0.05$), and teaching ($\chi^2 = 67.347$, $df=2$, $p<0.05$). However, the first attribute, General Emphasis, showed significant difference, with 62% of choices for LA Knowledge the remaining 38% for LA Skills ($\chi^2 = 5.568$, $df=1$, $p<0.05$).

Another possibility the Counts program offers is the exam of two-way effects, by combining two attributes, also allowing the screening for interaction between attributes in the choice process.

After examining all the two-way tables generated for this CBC study, only one pair of attributes showed to interact significantly, as in Table LXI below. Reading the results of two-way tables can be done either direction, with no difference as to which if the attributes is chosen as 'banner' or 'stub'.

Skills focus * Knowledge focus		
Total Respondents		95
Skills focus: Communication	Knowledge focus: Environmental Sciences	0.29
Skills focus: Communication	Knowledge focus: History and Theory of LA	0.20
Skills focus: Communication	Knowledge focus: Professional practice	0.22
Skills focus: Communication	Knowledge focus: Technology	0.24
Skills focus: General thinking skills	Knowledge focus: Environmental Sciences	0.41
Skills focus: General thinking skills	Knowledge focus: History and Theory of LA	0.25
Skills focus: General thinking skills	Knowledge focus: Prof. practice	0.24
Skills focus: General thinking skills	Knowledge focus: Technology	0.18
Skills focus: Problem solving through design	Knowledge focus: Environmental Sciences	0.44
Skills focus: Problem solving through design	Knowledge focus: History and Theory of LA	0.42
Skills focus: Problem solving through design	Knowledge focus: Professional practice	0.42
Skills focus: Problem solving through design	Knowledge focus: Technology	0.38
Interaction Chi-Square		18.15
D.F.		6
Significance		p < .01

Table LXI: CBC counts for the two combination of attributes Skills focus * Knowledge focus

To improve visualisation of results, Figure 5.32 presents them in the manner of the 'demand curves' of economics. The x-axis displays the Knowledge focus attribute and

the y-axis is for probability of choice, also referred as preference or higher valuation. This order was chosen for the convenience of producing a graph with three curves instead of four, which would result from Skills focus as the x-axis.

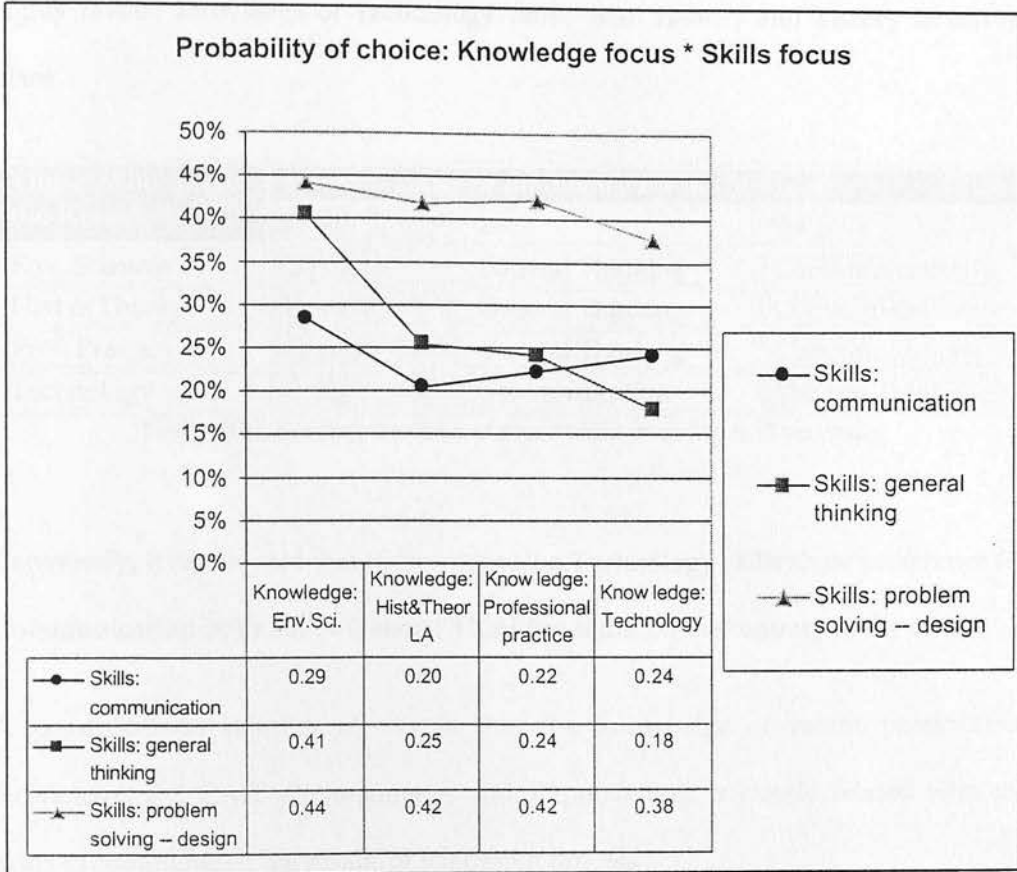


Figure 5.32: Probability of Choice: Knowledge focus by Skills focus

Figure 5.32 can be read horizontally and vertically. The tables below makes the reading in each of the directions, showing orders of preference:

Those who prefer the skills:	Have the order of preference for knowledge of:			
	1st	2nd	3rd	4th
Design	Env. Sciences	Hist & Theory = Prof. Practice.		Technology
General Thinking	Env. Sciences	Hist & Theory	Prof. Pract	Technology
Communication	Env. Sciences	Technology	Prof. Pract	Hist & Theory

Table LXII: Reading the order of preferences from Fig. 5.32 horizontally

The horizontal reading in table LXII shows the inversion of preference in the bottom line, in that, differently from the others, those who value **Communication** skills more highly favour knowledge of **Technology** rather than **History and Theory** in second place.

Those who prefer the Knowledge of:	Have the order of preference for the Skills of:		
	1 st	2 nd	3 rd
Env. Sciences	Design	General Thinking	Communication
Hist & Theory	Design	General Thinking	Communication
Prof. Practice	Design	General Thinking	Communication
Technology	Design	Communication	General Thinking

Table LXIII: Reading the order of preferences from Fig. 5.32 vertically

Conversely, it can be said that those who value **Technology** skills show preference for **Communication** skills above **General Thinking** skills, on the contrary of the others.

A possible interpretation of this is that the knowledge of recent presentation technology, e.g. CAD, photomontage, and 3D modelling, is closely related with the skills to communicate the results of the design process.

Although Counts is an intuitive form of displaying results, it has some associated drawbacks and inaccuracies, and, as Orme (2000) recommends, it should not be used as the final base for decisions, reason enough for proceeding with Logit analysis, described below.

3. Logit analysis of choice tasks

The CBC system offers the option for the more statistically robust multivariate analysis method of Logit, which produces results in terms of effects, or logit 'utilities' for each level of each attribute (Orme, 2000).

As Orme (2000:4-41) describes, 'A utility refers to the degree of worth or preference for a product feature', and larger utilities mean more preferred levels. For the 95 respondents of the present study, the results of the Logit run are displayed in Figure 5.21 below, with utilities under the column 'Effect'.

	Effect	Std Err	t Ratio	Attrib/Level	Attribute Level
1	0.05	0.0313	1.46534	1 1	General emphasis: LA knowledge
2	-0.05	0.0313	-1.46534	1 2	General emphasis: LA and general skills
3	-0.24	0.04539	-5.35245	2 1	Skills focus: Communication
4	-0.17	0.04553	-3.75298	2 2	Skills focus: General thinking skills
5	0.41	0.04206	9.83837	2 3	Skills focus: Problem solving through design
6	0.29	0.05371	5.37136	3 1	Knowledge focus: Environmental Sciences
7	-0.04	0.05898	-0.67831	3 2	Knowledge focus: History and Theory of LA
8	-0.06	0.05665	-1.10363	3 3	Knowledge focus: Professional practice
9	-0.19	0.05964	-3.11818	3 4	Knowledge focus: Technology
10	-0.55	0.04917	-11.1759	4 1	Teaching: Classroom based
11	0.14	0.0429	3.25295	4 2	Teaching: External work based
12	0.41	0.04078	10.05254	4 3	Teaching: Studio based

Table LXIV: Logit output for utilities

Significance of differences between utilities is tested with a t-test, with t being the ratio between the difference between utilities and the pooled standard error – the square root of the sum of the squared standard errors. This calculation was performed using this formula in a Microsoft Excel spreadsheet, resulting in significances shown in table LXV.

With the results of the t-test is possible to have a better interpretation of the utilities as plotted in Figure 5.33. The value of t is only shown when there is significance at $p < 0.05$.

effect	SE	t Ratio	Attrib/Level	Calculated t	t-test
0.05	0.0313	1.46534	1 1		
-0.05	0.0313	-1.46534	1 2	2.07	sig t<0.05
-0.24	0.04539	-5.35245	2 1		
-0.17	0.04553	-3.75298	2 2	1.12	n.s.
0.41	0.04206	9.83837	2 3	9.43	sig t<0.05
0.29	0.05371	5.37136	3 1		
-0.04	0.05898	-0.67831	3 2	4.12	sig t<0.05
-0.06	0.05665	-1.10363	3 3	0.28	n.s.
-0.19	0.05964	-3.11818	3 4	1.50	n.s.
			.		
-0.55	0.04917	-11.1759	4 1		
0.14	0.0429	3.25295	4 2	10.56	sig t<0.05
0.41	0.04078	10.05254	4 3	4.57	sig t<0.05

Table LXV: Test for significance of differences between utilities, for the global sample

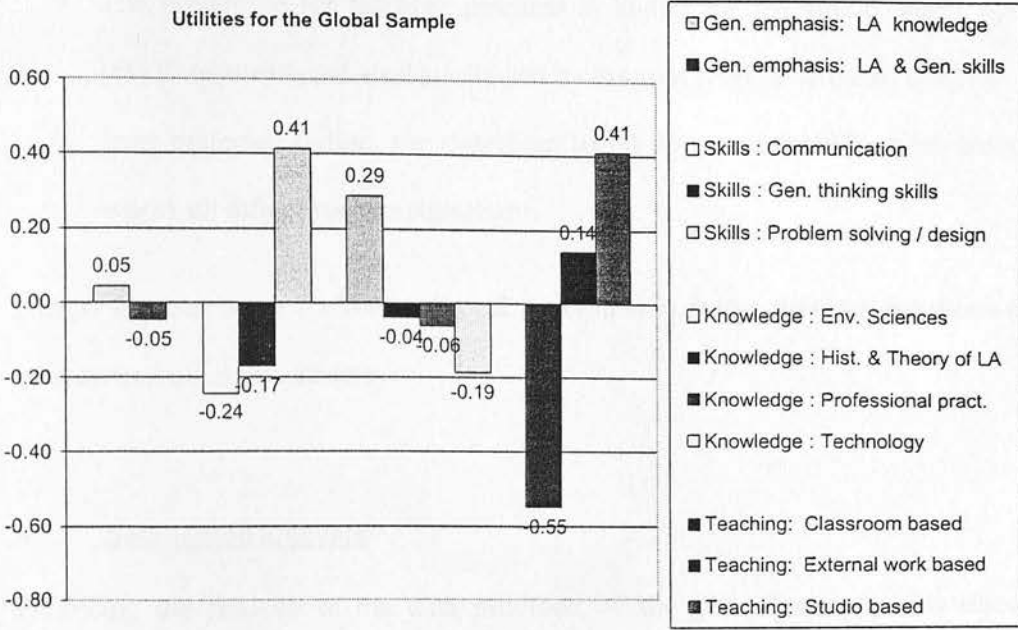


Figure 5.33: Conjoint utilities for the global sample

The interpretation of Figure 5.33 above is as below, following the order of attributes shown as clusters of bars, from left to right:

- There is a significant general preference for the emphasis on the acquisition of knowledge over the development of skills ($t=2.07$);
- Problem solving through design skills are valued more highly than communication and general thinking skills with a significant difference ($t=9.43$), while an apparent preference for general thinking skills over communication skills is not significant;
- With a significant difference ($t=4.12$), respondents in general value the knowledge of environmental sciences more highly than the knowledge areas of history and theory of landscape architecture, professional practice, and of technology. Although the figure shows a slight tendency for preference for the last three areas of knowledge in this order, differences are not significant.

- The preference for teaching practices is higher for the studio based option ($t=4.57$ over external work), followed by external work based and, lastly, as the least preferred option, the classroom based approach ($t=10.56$, with external work); all differences are significant.

Further exploration of the data collected is possible in many different directions and with several other procedures.

4. Segmented analysis

Following the analysis of the data provided by the general sample, this research utilised the segmentation facilities offered by the CBC software. Segmentation segments of the sample united by common characteristics. The information used in the segmentation analysis was that collected at the 'Demographics' section of the website, which preceded the choice tasks.

Each of the nine questions that made up the questionnaire provided enough information to constitute segments. For this study, resulting from the issues raised in previous chapters, decision was made to focus on the segments based in three of respondents' characteristics: their occupation during 2001, the world region where they studied, and the number of years they have been practicing in the field. The other segmentation results not used for this discussion with respective tables and figures are available as part of the annexes of this dissertation.

The analysis after each figure is based on the t -test for significance as calculated in Table LXV above performed between adjacent levels unless stated otherwise in the text or with the results in brackets. The discussion is more thorough with the first segmentation to expose the process of reasoning towards the final differences. In the second and third segmentations only the final differences are given.

First segmentation: Educators, Practitioners, Students

Here the preferences of these three groups are compared.

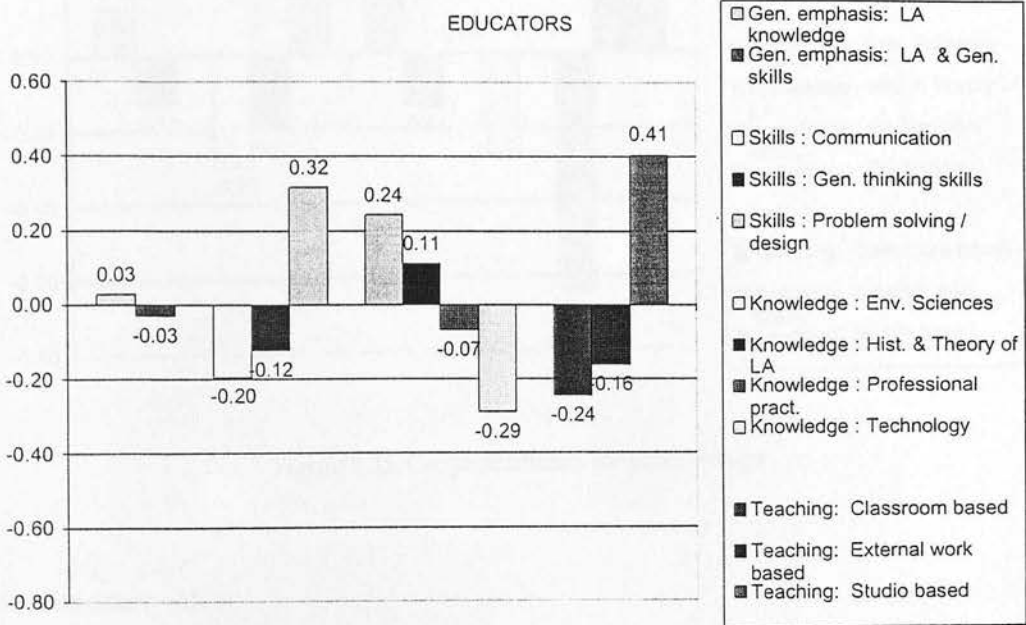


Figure 5.34: Conjoint utilities for educators

Educators value:

- an emphasis on knowledge as much as on skills;
- the skill of problem solving through design more highly than the others ($t=3.55$), with no difference between communication and general thinking skills;
- the knowledge of environmental sciences as highly as history and theory, but more highly than professional practice ($t=1.97$) and technology; history and theory as highly as professional practice, but more highly than technology ($t=2.41$);
- studio based teaching more highly than classroom based and external work ($t=4.61$).

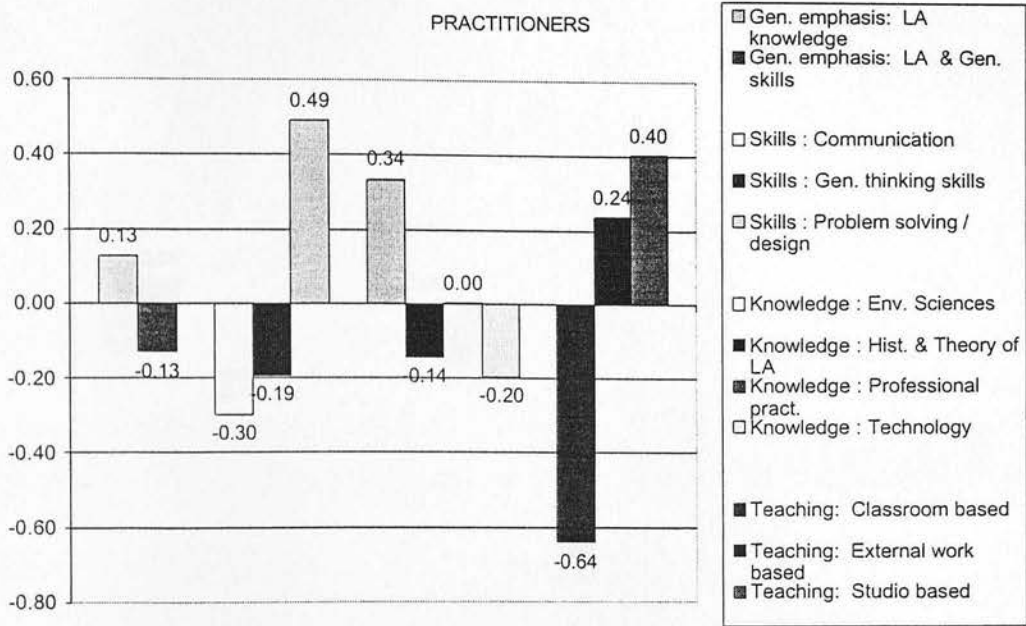


Figure 5.35: Conjoint utilities for practitioners

Practitioners value:

- an emphasis on knowledge more highly than on skills ($t=3.63$);
- the skill of problem solving through design more highly than the others ($t=6.88$), with no difference between communication and general thinking skills;
- the knowledge of environmental sciences more highly than all the others ($t=2.71$ against history & theory); history and theory as highly as professional practice and technology;
- studio based teaching as highly as external work based, but both more highly than classroom based ($t=8.44$ for classroom against external work).

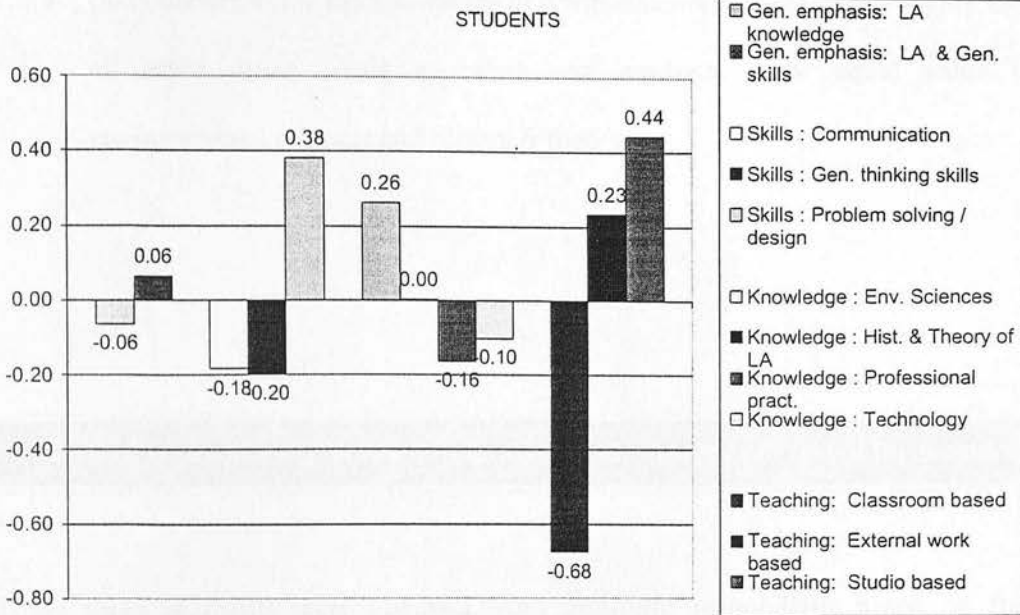


Figure 5.36: Conjoint utilities for students

Students value:

- an emphasis on knowledge as much as on skills;
- the skill of problem solving through design more highly than the others ($t=5.41$), with no difference between communication and general thinking skills;
- the knowledge of environmental sciences as highly as history and theory; but more highly than technology ($t=2.61$) and professional practice;
- studio based teaching more highly than external work ($t=2.06$) and classroom based; and external work more highly than classroom based ($t=7.82$).

The main differences found between segments were:

- practitioners place more value on the acquisition of landscape architectural knowledge than on development of skills at school, while educators and students, although showing a slight trend to diverge, value them the same;

- practitioners value the knowledge of environmental sciences more highly than all other areas, while educators and students place equal value on environmental sciences and history & theory.

Second segmentation: Studied in Europe, North America or rest of the world

These three segments were obtained from grouping respondents based on their selection for world region where they studied. As numbers for Africa and Middle East, Asia, Australia/Oceania, and Latin America were small, they were grouped as 'rest of the world'. Another observation is that respondents who selected North America had all studied in the USA.

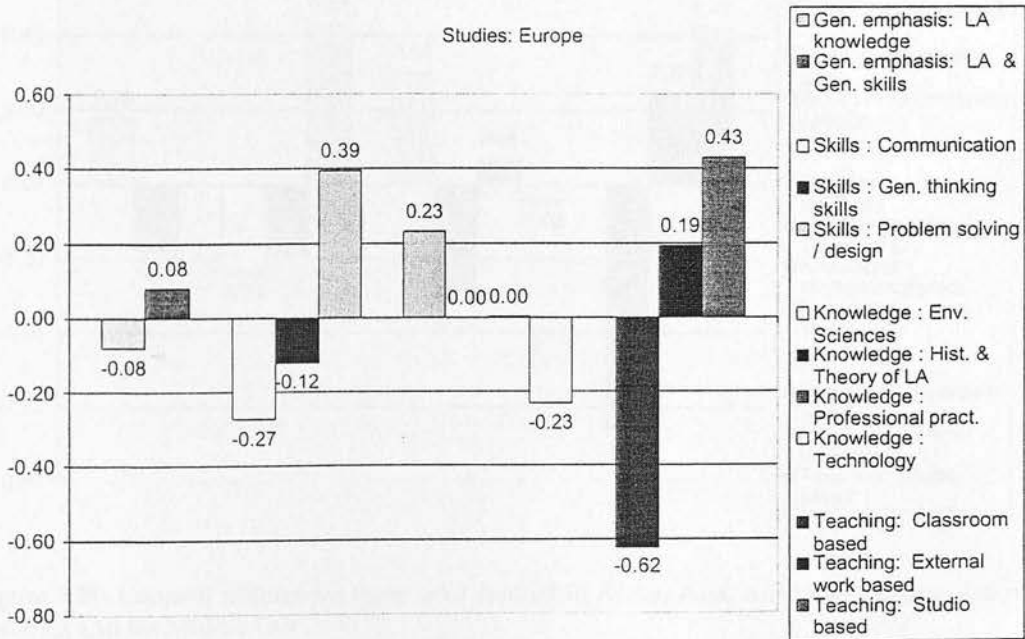


Figure 5.37 : Conjoint utilities for those who studied in Europe

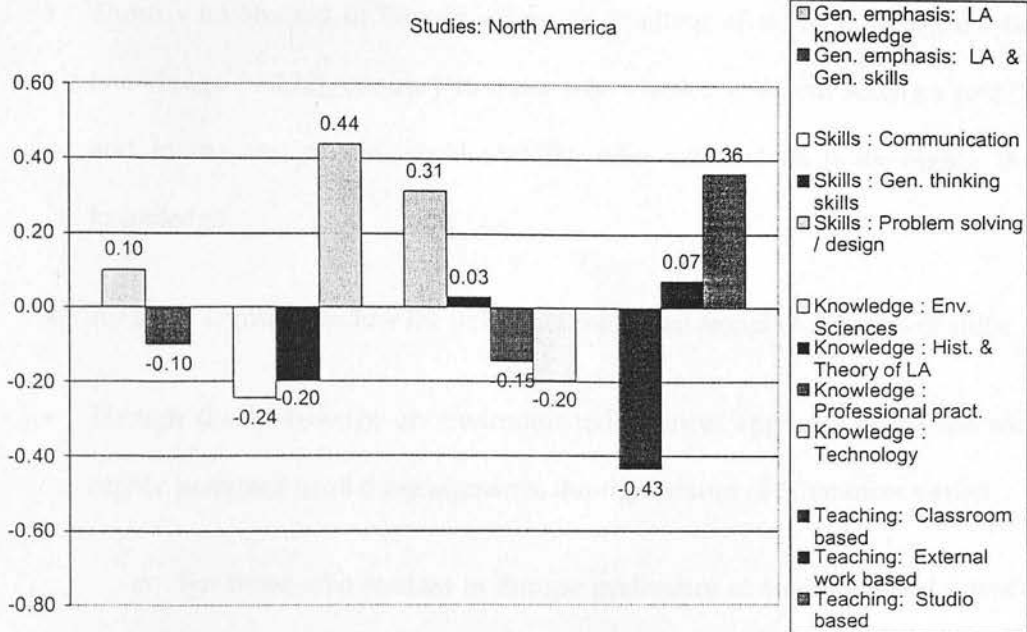


Figure 5.38: Conjoint utilities for those who studied in North America

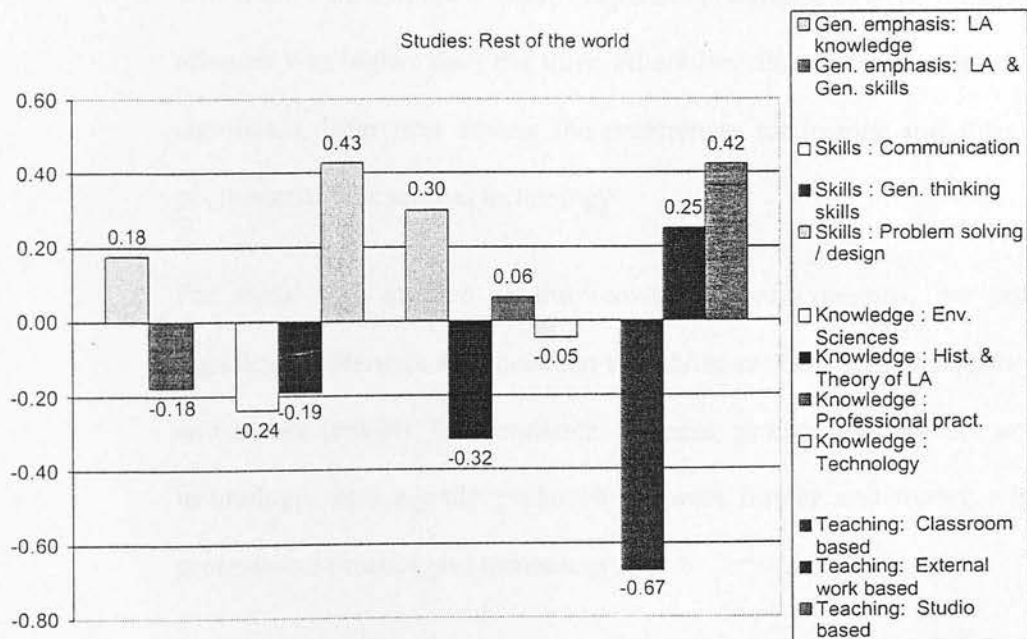


Figure 5.39: Conjoint utilities for those who studied in Africa, Asia, Australia/Oceania, Latin America and the Middle East

The main observations within these groups were:

- Those who studied in Europe value the teaching of skills more highly than knowledge ($t=2.22$), contrary to those who studied in North America ($t=3.02$) and in the rest of the world ($t=3.28$), who value skills more highly than knowledge.
- All three segments follow the pattern of the global sample for values of skills.
- Though the knowledge on environmental sciences appeared to be the most highly preferred in all three segments, the significance of differences varied.
 - For those who studied in Europe preference to environmental sciences was equal to history and theory and professional practice, but higher than technology ($t=3.50$).
 - For those who studied in North America, preference to environmental sciences was higher than the three others ($t=3.25$), and there were no significant differences among the preferences for history and theory, professional practice and technology
 - For those who studied in the remaining world regions, the only significant difference was between environmental sciences and history and theory ($t=3.08$). Environmental sciences, professional practice and technology were equally preferred, as were history and theory with professional practice and technology.
- For those with European and North American degrees, studio instruction was significantly preferred over external work ($t=2.48$ and $t=3.25$, respectively) and external work over classroom based ($t=7.50$ and $t=5.27$ respectively)

Third segmentation: 0 to 10 and 11 or more years of professional practice

In the demographics questionnaire, question 6 gave six response options for the question 'How long have you been working in landscape architecture?', ranging from 'I haven't started yet' to 21 years or more. For this segmentation, those who had not yet started working were disregarded, and the remaining grouped into 0 to 10 years and 11 years or more.

As the younger group was more numerous, with 63% of the practitioners, their responses have probably had greater weight in the global utilities, hence the closer similarity with the global picture than the older group.

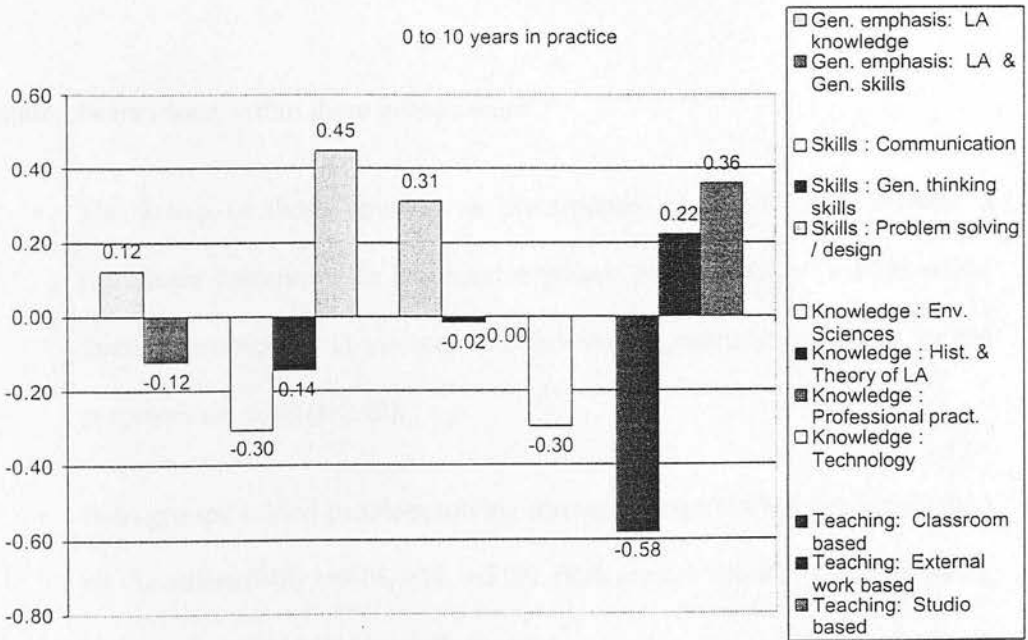


Figure 5.40: Conjoint utilities for those who have practiced in landscape architecture for 10 years or less

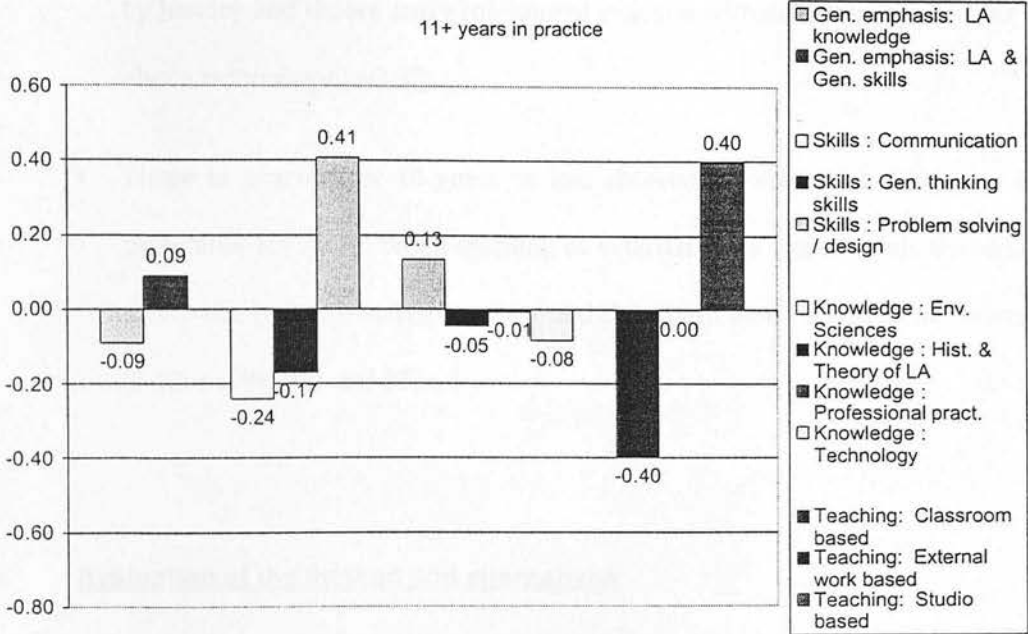


Figure 5.41: Conjoint utilities for those who have practiced in landscape architecture for 11 years or more.

The main observations within these groups were:

- The group of those younger as practitioners, 0 to 10 years, showed a significant preference for a general emphasis on knowledge ($t=4.08$), while those in practice for 11 years or more showed significant preference for the emphasis on skills ($t=2.22$).
- Both groups valued problem solving through design skills more highly than all the others (0-10: $t=7.06$, >11: $t=5.09$). Both groups valued general thinking skills and communication skills equally.
- The preferences of the group of older professionals did not differ statistically for any of the knowledge areas, with a slightly higher value for environmental sciences. However, the younger professionals revealed the preference for the knowledge of environmental sciences ($t=2.96$), followed

by history and theory and professional practice with no difference and both above technology ($t=2.57$).

- Those in practice for 10 years or less showed no statistical difference in preference for studio based teaching or external work based, while the older group did ($t=3.66$). Both groups valued classroom based teaching the lowest (0-10: $t=8.99$, >11: $t=3.35$).

5. Evaluation of the method and alternatives

CBC was an efficient method for, as proposed, measuring the attitudes of respondents to a set of characteristics of landscape architectural instructional programmes. Its capability of evaluating preferences that are not normally expressed in isolation proved useful to this thesis. Another important feature was the possibility of segmentation, which allowed comparisons between the preferences of different strata of the sample.

The conjoint study would not have reached its target sample were it not web based. The location of respondents in so many different countries would have made telephone interviewing cost-prohibitive and the return of disks by respondents themselves directly to this researcher very unlikely, as self-addressed envelopes to mail field disks would have to be posted at the respondent's expense.

The option of offering a reward to respondents who completed the study was contemplated at an early stage of the work as a way of increasing response rates. However, the operation of a prize-draw or similar amongst respondents would require a whole new set of procedures when programming the website. One of them would be the request of identification of respondents, contrary to the decision of keeping anonymity.

A formal previous contact with professional associations in the different countries could have provided better access to practitioners, possibility only envisaged and used in the final stages of the work.

The usage of English as the sole language in the study was a limitation that may have weighed in achieving a lower response rate from non-English speaking subjects.

A limitation of the study not anticipated was the problem with browser compatibility, resulting from the programming language used, PHP. As a programming language still growing in popularity, PHP is yet to become more widely available in most web servers.

Browser compatibility also played a part in reducing response rates. Older browser versions, such as Netscape 4.x and older, and Internet Explorer versions older than 5.x had problems working with the dynamic features of the CBC study website. Problems of compatibility were also found with Internet Explorer 6, reported by respondents and later observed by this researcher. One of the sources of problem was the routine that reminded respondents of the questions not answered, preventing the submission of incomplete forms, later removed without jeopardising the study.

Because of the restrictions above, the CBC study sample consisted of

- Landscape architecture professionals and students;
- With access to the Internet on computers with updated browsers;
- Able to read and understand texts in English.

The procedure presented here is repeatable in other contexts, e.g., educational preferences within a country or region, and other spheres of interest, such as environmental preferences of potential user in preliminary design studies. The same

consideration as for the first web based survey presented here that the target population should be significantly represented in the universe of web users applies to web based CA.

This thesis found that CBC and other types of conjoint analysis in general to be robust tools for use in landscape architectural research.

With the caveats pointed, such as cost and means of administration, CBC, ACA, and others deserve consideration whenever the multi-factorial analysis of preferences becomes necessary.

D. Chapter Summary

Chapter 5 presented the statistical results, tables and figures relative to the three quantitative data collection procedures developed during this research:

- Analysis of Brazilian *paisagismo* websites;
- LEPAB – web based survey on Brazilian *paisagistas*;
- CBC – web based Choice Based Conjoint analysis study.

Brief discussion of the methods and methodological alternatives were also presented, showing the suitability of the methods chosen for the purposes of this research as delineated in previous chapters, and raising their potential for use in other investigations.

With this material, this thesis proceeds to the formulation of its conclusions and implications.

CHAPTER 6

CONCLUSIONS AND IMPLICATIONS



Figure 6.1: Transformative Education? (Picture from the movie Karate Kid, Columbia Pictures.1985)

This concluding chapter starts by discussing the data collection methods used and proceeds with a retake of the main research question.

A. On research methods

Regarding methods of investigation used, this research has found that they were very satisfactory in providing the information sought. The 'conjoint' use of all the methods, as alluded in the title –one informing each other–, has proved to be a sound approach to research, and has strengthened this researcher's interest in the practice of enquiry under the paradigm of constructive alternativism.

The data collected by the qualitative and quantitative methods can still be construed in many more ways, being open to further examination and discussion, which are left open for the future, as that surpasses the proposed scope of this thesis. It is suggested that the data available should be used in further exploration and that the usage of methods performed here should inform future research not as prescriptive, but as a springboard for further methodological constructions.

This thesis acknowledges that both LEPAB and CBC would have benefited from larger samples, although the number of participants in both studies was satisfactory for statistical analysis. The feasibility of conjoint analysis with small samples is one of the strengths of the method that this research pointed out in the exposition of the method in Chapter 4.

It is also recommended here that, if a survey similar to LEPAB is designed aiming at wider coverage in Brazil, that the web format should not be used as the sole one.

It is worth stressing the strength of conjoint analysis as a method to evaluate attitudes, offering deeper information of relationships and interactions between attributes investigated. Although few interactions were observed in this study, the potential of the method to reveal and analyse them has been proved.

Similar conjoint studies can be used to examine local preferences in landscape education to better inform policies for a given region. Environmental preferences and attitudinal assessment are other areas CA can prove useful, informing decision making processes, policymaking, design, and post-occupancy evaluation.

B. Research question and hypotheses

At this final stage, this thesis reiterates the question that condensed the intentions of this research:

Considering the Brazilian context with its assets and needs, and international preferences, how should landscape architectural education in Brazil be to foster the ability of 'thinking like a landscape architect', and that way catalyse the evolution the profession needs?

Along with that, the hypotheses on which the thesis is built are:

- There is discord in Brazilian landscape architecture and a solution for that is necessary.
- Education is an instrument of transformation.
- Education can contribute to a solution for the 'perverse conflict' and the elitist profile attributed to landscape architecture in Brazil.

This chapter examines the ways these were addressed and the final conclusions of this work. The way it is composed follows parts of the above question, not necessarily in order.

C. *Considering the Brazilian context with its assets and needs...*

As hypothesised in its Introduction, this thesis confirmed in Chapter 2, via literature review complemented by the interviews, the existence of discord in Brazilian landscape architecture and that it needs a solution.

Paisagismo in Brazil still needs a continued effort to make its true potential known to the public and to practitioners themselves, adding in due course and level, all the other attributions to the design of gardens, from where it started and where it focuses today, as the analysis of web sites showed.

As part of this effort, this thesis played a part in clarifying the profile of *paisagistas* by providing numerical characterization of a sample of the category. The LEPAB survey presented original information on the characteristics of a group of 151 *paisagistas* practicing in Brazil.

Although this number was sufficient for statistical analysis, the sample collected may not represent the total population, whose exact size is unknown. Judging from the numbers presented by four providers of technician degree –MLTC– and non degree-awarding courses, in Chapter 2, at least 4100 people had some form of landscape instruction during the last decade, although it is uncertain how many of them went into practice. This calls for further study, for which this survey pointed a viable direction, and should comprise more comprehensive surveys, that could be carried out, for instance, at conferences and other gatherings. This new database could substantiate the necessary reviews of the legislation regulating the practice of landscape architecture in Brazil, raised here as necessary measure but out of the scope of this thesis.

Table LXVI displays the profile of the Brazilian *paisagista* this research raised, based on the most common responses to the survey. The subsequent paragraphs of this section

result from the discussion of survey results, approximately in the order related questions appeared in the questionnaire.

	Primary profile	Secondary profile
Occupation in 2001	Professional	Professional studying
Undergraduate degree	Architecture	Agronomy
Courses with specific content in <i>paisagismo</i> taken at the undergraduate level	1 or 2	3 to 5
Where studied	São Paulo state	Rio de Janeiro state
Highest degree	Undergraduate	MSc
Autodidact or academic	Both, equally	Totally or mostly autodidact
Other landscape instruction	Non degree awarding courses	<i>Strictu sensu</i> postgraduate course
Courses with specific content in <i>paisagismo</i> taken at this other level	6 or more	3 to 5
Opinion about apprenticeship for her/his training	Great to fundamental importance	Little or no importance
Time spent in apprenticeship	Less than one year	Between one and two years
Time in practice	0 to 5 years	6 to 10 years
Most frequent activity	Design projects	Education or construction/planting
Second most frequent activity	Construction/planting ⁴¹	Design projects
Third most frequent activity	Consultancy	Maintenance and restoration
Membership at a professional association	None	ABAP
Age	41 to 50 years old	31 to 40 years old
Gender	Female	Male
Present in web space offering...	services of design and other and orientated towards gardening	Offering services, plants and equipment, architecture orientated

Table LXVI: The profile of Brazilian paisagistas based in LEPAB findings

⁴¹ Inverted for coherence

LEPAB also showed that there is space in Brazil for all the course levels to coexist. A demand for each of the levels surveyed exists, and this research expects that the demand for the new sequential courses should also grow as the public becomes more largely aware of their existence.

The predominance of architects in the practice of landscape architecture in Brazil is relative. Architects are the most numerous and cohesive category, but 62% of *paisagismo* practitioners have tertiary degrees in other disciplines. In terms of accreditation to practice, 60% of the total surveyed are architects or agronomists, entitled, as CREA professionals, to practice *paisagismo* or *parques e jardins*, which could mean an advantage for these professionals if, instead of competing, they joined efforts to put the existing regulations into practice.

Although LEPAB did not ask respondents about their origin and place of practice, the mobility of students and graduates is expressive. The concentration of studies in the Southeast region, particularly in the states of greater economic activity and population, deposits on the educational establishments thereof the responsibility of preparing professionals able to practice in other regions with different characteristics. This reinforces the need for transformative education, which should enable practitioners to adapt to their local context of practice.

The level of studies of Brazilian *paisagistas* was shown to be high, counting favourably for the profession. It offers hope, indicating that the field has an academic base to support growth, suggested by the number of postgraduates encountered.

Numbers have partly confirmed initial expectations raised by literature and interviews about the importance of the autodidactic component in the professional development of *paisagistas*, but it did not show an absolute precedence over the academic. A high percentage of *paisagistas* consider, as expected, that their professional development was

predominantly autodidactic, but the largest fraction of the group surveyed revealed that the academic component of their training is equally important.

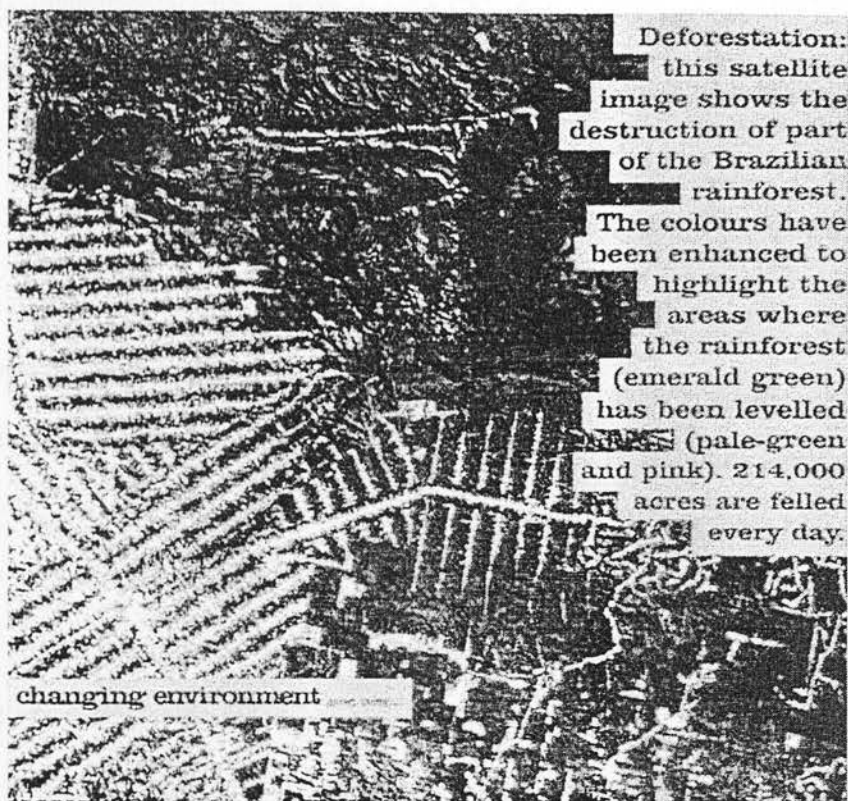


Figure 6.2: IKEA Room, on deforestation of the Amazon forest – the stereotypical image of the environmental crisis (London, John Brown)

According to Table XLVIII, 66% of respondents took undergraduate degrees in disciplines in which *paisagismo* is taught, namely architecture, agronomy and forestry. In such programmes, there are usually one or two *paisagismo* courses available – with rare exceptions, as FAUUSP, with three or more. Considering that the offer of these courses has varied over the years, that in different times they were mandatory or optional to different professions, and that respondents vary as to when they studied, the findings are coherent. The same can be said about the results for '3 to 5' and '6 or more' courses, with the caveat that a percentage of programmes referred by respondents would still be in progress, according to Table XLVIII that shows 17% of

the sample as studying or having studied *Paisagismo*, the programme usually offering the largest number of courses. This highlights the importance of courses in undergraduate programmes, which, not only should be increased in numbers for better coverage of present contents, but also in terms of options and content –relevant content. This recommendation is of special significance to agronomy and architecture courses, since, as legally entitled to practice in the field, need better basis for their work.

The survey showed that most of the taught courses taken by *paisagistas* on the subject were in levels other than undergraduate. This, associated to the importance attributed to academic training, draws attention to the importance of *paisagismo* courses in all levels as preparatory of professionals. These points highlight to instructors their responsibility in shaping the profession. Considering that numerically the non-degree awarding courses are the most expressive, it results that they should receive more attention as formative of opinions about the profession and, particularly, of the ethics for the practice of *paisagismo*.

Apprenticeship, as reported in the literature review, is an important means of instruction for *paisagistas*. The survey confirmed that, also showing that durations are in most cases less than a year. However, as some of the comments from the survey, interviews, and literature showed, opportunities are not always available, usually resulting from personal contacts and acquaintances. Chances of finding practices open to traineeships are even slimmer in areas away from the Rio-São Paulo axis, where number of practices is smaller.

Results confirm literature information that the numerical expansion of the profession is recent, with the majority of practitioners surveyed active in practice for ten years or less. A very large portion of the sample is young, recent in practice, and possibly

willing to develop professionally, as suggests the number of professionals studying and of people who took part in two or more independent courses of study in *paisagismo*. Though this appears to be a valid proposition, this research did not have enough elements to determine whether the cause of the large percentage of practitioners receiving education found is the desire for 'continued professional development' or whether, allowed by the laxity of professional regulations, the entry of students into professional practice is premature.

Design is the predominant activity of *paisagistas*, followed by construction and planting, and education. Although the survey did not collect detailed information on this, literature and the website analysis discussed earlier suggest garden design as the most frequent area of practice.

Professional associations

Membership numbers in professional organisations was found to be low. The absolute numbers informed by ABAP and ANP, and responses to LEPAB show that a very low percentage of practitioners are affiliated to any of them. Some of the possible reasons for that may be their little visibility and the general unawareness of their potential advantages to individual professionals and for the industry as a whole.

The single mention in the survey of AEASP as a professional association of *paisagistas* brought to attention that architects and agronomists from the sample appear not to see their own professional associations, such as the CONFEA/CREA system or IAB – Institute of Architects of Brazil – and the states' AEAs – associations of agronomists – as concerned with landscape practice.

It was a choice of this researcher not to focus on this area of the debate, but its importance as part of the solution for the existing discord is evident and its mention here could not be avoided, albeit briefly.

The management of schools and instructors' accreditation and the centralisation of professional registry are fundamental tasks frequently seen, internationally, in the hands of professional associations. This thesis refrains from postulating whether the key for Brazil is creating a new and overarching association that would take on both roles, forming one to respond for each, or yet, delegating powers to any of the existing organisms to undertake those tasks. Whichever the road taken in the future, some aspects regarding education will need attention, all demanding open channels of communication between those in education and those in practice –represented by their organisation(s), which should:

- Organise a registry of courses, schools, and individual instructors specifying qualifications held and offered, which LEPAB has shown to vary widely. This could be a first step towards future professional regulations that would acknowledge the different levels of instruction received by *paisagistas*.
- Manage the scarcity and bad distribution of positions for apprenticeship, such an important part of the education of future *paisagistas* as the survey confirmed.
- Invest in marketing among students and professionals to make themselves known and encourage association.

This topic demands further study at length, left for other research opportunities. Nonetheless, this thesis restates and underlines Jenkins's (1943) words on the willingness to yield and compromise personal and corporatist interests. It is unavoidable that all sides involved will have to take seats at a negotiation table with 'each prepared to sacrifice some of his [sic] sectional interests in order to reach an amicable agreement' (Jenkins, 1943: 13)

The discrepancy found via CBC on the valuation of educational attributes between those in practice and those in the academia shows that even though most of the points formulated above regarding associations are followed in the countries to which the majority of respondents are connected, communication can be deficient. This serves as a warning to Brazil when the work to review, reformulate or create the association(s) is finally undertaken, underscoring the importance of close connection between both sector so that they can be mutually relevant.

D. Considering international preferences...

This part of the research question was mainly addressed via the CBC study, and the paragraphs below are extensions of the analysis of tables and figures in Chapter 5.

The first issue examined, that of emphasis on knowledge vs. on skills, is a polarised topic in landscape architecture. Although the literature review suggested a trend to emphasise the development of professional skills in higher education, the conjoint analysis study showed that there is still a general preference for an education based in the assimilation of knowledge. The development of design related skills was found to be the most highly valued amongst the options offered, as were the knowledge of environmental sciences and studio based instruction. This makes up the profile of programmes that would be valued most highly by the international sample of landscape architects.

CBC results and the conjoint nature of the procedure support the conclusion that respondents in general believe the studio and its associated practices can address efficiently not only practical skills expected from a 'learn by doing' approach, but also the necessary knowledge for the practice of the profession. Though generally accepted the studio is not exempt of criticism, as Chapter 3 discussed.

After segmentation of CBC results, a stern dilemma in the mindset of international landscape architects was identified: a chasm between practice and academia. Against expectations, practitioners were found to give greater importance to the acquisition of knowledge at the landscape school than to the development of skills, while educators and students see the need to cultivate skills as equally important. Similarly, practitioners were found to ascribe greater importance to the acquisition of knowledge on environmental sciences, whereas educators and students value learning history and theory of landscape architecture as much as environmental sciences. This could mean that efforts, time, and resources in landscape schools may be directed to the training of a professional that is different from what the market is demanding.

The variation observed at different segments for the value attributed to the history and theory content of landscape education could be a sign that the relevance of this content to practice should be reassessed, with attention to teaching procedures employed and emphases given. These aspects may be jeopardising the usability of the historical and theoretical content of landscape curricula.

- A. The international trend in favour of the knowledge of environmental sciences for landscape education speaks in favour of agronomists and forestry engineers in Brazil, highlighting their role in the profession and in the education for it. This fact is already acknowledged by schools of architecture, which are growingly hiring agronomists and related professionals as members of landscape teaching staff.
- B. Results of LEPAB and CBC made it possible to draft a table of characteristics of Brazilian *paisagistas* vis-à-vis international landscape architects – Table LXVII. Although similar in some points, these profiles, in the light of the characteristics

raised at the literature, stress the need for careful consideration when using imported elements in the process of structuring landscape architecture as a profession in Brazil.

	<i>Paisagista</i>	Landscape architect
Occupation in 2001	Practitioner	Practitioner
Undergraduate degree	Architecture	Landscape Architecture
Where studied	São Paulo state	USA
Highest degree	Undergraduate	Undergraduate
Time in practice	0 to 5 years	0 to 5 years
Age	41 to 50 years old	31-40 years old
Gender	Female	Male

Table LXVII: Comparison of profiles between LEPAB and CBC

E. ...how should landscape architectural education in Brazil be to foster the ability of ‘thinking like a landscape architect’...

The literature review in Chapter 3 supported the acceptance of the hypothesis that education is an instrument of transformation that can help mitigate the conflict existing in Brazilian landscape architecture, and that the paradigm of transformative education, as presented, is a possible approach.

In the concluding remarks of that chapter, this thesis stated that the tenets of transformative education are not alien to Brazilian education because they are strongly connected to the educational philosophy of Paulo Freire (1972), which now permeates many of the pedagogical initiatives in the country.

The adoption of the transformative educational paradigm will affect every part of the process. It will be present:

- in the way learning and teaching happen,
- in the choice of techniques and media,
- in the choice and preparation of the learning environment – real or virtual–,
- in the design of curricula and syllabi as a participatory process,
- in the way landscape architecture is approached and taught as a profession,
- in the way design capabilities are nurtured, and, finally,
- in the way landscape architecture is understood –a construct liable to evolve, rather than an absolute invariable truth, guarded by a hermit cloistered at the summit of an ivory tower lacking windows and mirrors.

As pointed out by CBC results, this thesis recommends the studio approach to landscape architectural education in Brazil. Caveats of cost, low tutor/student ratio demand, physical space and more, as in Chapter 3, should not be deterrents to the implementation of studio instruction.

In that respect, Brazilian schools of architecture have the advantage of the 'atelier courses' that embody great part of the studio philosophy. In many schools, the atelier receives a smaller time share of programmes, but is still present.

Models of studio instruction vary, as does the amount of time dedicated to it in landscape schools. Many British and American schools showed predominance of studio work, though other forms of instruction are used in parallel and have their role recognised by many landscape educators, like mentioned about George Hargreaves (Landscape Architecture, 1998). There are established schools in Europe that do not use studio at all.

Yet the landscape design studio figures here as the most indicated of existing pedagogic practices for the discipline, this research stresses that it is not a ready package and needs to adapt to local peculiarities. From resources available, through culture, to staff experience, many factors will influence the way the landscape studio will work, how much time will be dedicated to it, and how much investment it will require to work.

The present use of the format cited as occurring in Brazilian architecture schools confirms that it is also viable for landscape schools existing and yet to be created.

Brazilian landscape courses shall also have to consider that the debate 'knowledge or skills' is not closed, has found no consensus, and probably never will, embodying the dynamic balance of a pendulum, swinging between the two ends. Similarly they need to read the times and understand which abilities and areas of knowledge are the most relevant for the day and place—design skills and environmental sciences today in most of the world.

F. ...and that way catalyse the evolution the profession needs

The professional trained under the framework proposed in this thesis shall be able to think like a landscape architect, thus becoming apt to face the unexpected and the changing —intrinsic nature of the profession.

The one who personifies the initial problem of this research, Burle Marx, was not the first, and will not be the last to cross disciplinary boundaries and succeed. Today landscape architects are even more likely to trespass these boundaries, which are woolly and vanishing. He thrived in a market unknown and virtually non-existent, and

likewise, new landscape architects receiving training now will have to be prepared – educated – to act in a world, with all likelihood, very different from the present.

His model of professional education has proved to be valid according to the conclusions of this thesis, because of its integrative and deeply relational nature. It paves a road that future *paisagistas* should not have to walk alone, but supported by a transformative school.

Beyond that, this thesis also acknowledges him, his work, and his words as illustrating the conflict in a profession that knows how relevant it can be to the world but is very often in practice limited to write poetry that few privileged people can read – the very point where landscape architecture in Brazil needs to evolve.

Creative education can prepare people for the unknown. (Maslow, in Lowry, 1979:18)



Figure 6.3: (Photo: João Caetano)

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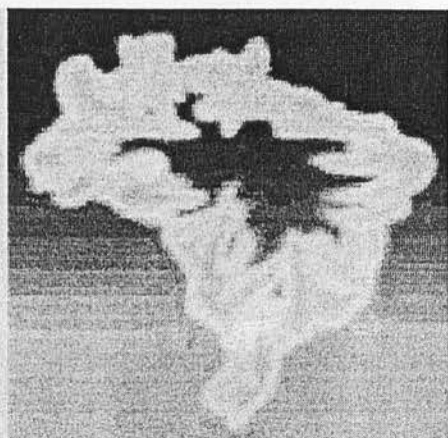
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ANNEXES: WEB PAGES

Survey questionnaire for Brazilian Paisagistas



Ensino de Paisagismo no Brasil

Levantamento

Este *site* tem o objetivo de coletar dados para pesquisa de doutoramento, em realização junto à School of Landscape Architecture, do Edinburgh College of Art.

O tema é o ensino de paisagismo e este levantamento é parte da seção dedicada à caracterização dos paisagistas brasileiros.

Além deste trabalho, os

Se você é paisagista, sua colaboração será essencial. Participe do

LEPAB -Levantamento sobre o Ensino de Paisagismo no Brasil-

e indique este *site* a outros paisagistas.

Suas respostas serão analisadas e armazenadas sigilosamente. Os resultados estatísticos serão publicados após sua conclusão, em

resultados aqui
obtidos irão
alimentar nossa
reflexão e
enriquecer
nossos debates
sobre a
profissão do
paisagismo no
Brasil.

veículos a serem
divulgados nesta
mesma página.

Desde já agradeço sua participação.

Prossiga: LEPAB

Alfonso H. J. Zuin

a.zuin@eca.ac.uk

Não deixe de visitar o



que gentilmente colabora
com este projeto.



LEPAB

Levantamento sobre o Ensino de Paisagismo no Brasil

Aponte seu cursor para os termos sublinhados no texto e veja a explicação na barra inferior de seu navegador.

Sua Formação

1. Considerando o ano de 2001, você é ou foi :
(Marque tantas opções quantas forem apropriadas)

- Estudante de curso livre de paisagismo
- Estudante de curso técnico
- Estudante em nível superior (graduação)
- Estudante de pós-graduação
- Profissional
- Nenhum destes

2. Qual é sua formação superior no nível de graduação apenas (completo ou em andamento)?
(Marque tantas opções quantas forem apropriadas)

- Agronomia
- Arquitetura e Urbanismo
- Biologia
- Engenharia Civil
- Engenharia Florestal
- Geografia
- Paisagismo / Landscape Architecture
- Outra
- Não se aplica ao meu caso

3. Onde você se formou/estuda?
(Marque e escreva o/s nome/s segundo apropriado)

Instituição 1

- Formei-me Estudo Não se aplica ao meu caso

No nível

Na instituição (nome):

Cidade: Estado:

País (se fora do Brasil)

Instituição 2

- Formei-me Estudo Não se aplica ao meu caso

No nível

Na instituição (nome):

[]
Cidade: [] Estado: []
País (se fora do Brasil) []

Instituição 3
 Formei-me Estudo Não se aplica ao meu caso
No nível []
Na instituição (nome):
[]
Cidade: [] Estado: []
País (se fora do Brasil) []

4. Qual é seu nível mais alto de estudos, completo ou em andamento?
- Fundamental (Primeiro Grau)
 - Médio (Segundo Grau)
 - Técnico (Segundo Grau)
 - Superior (universitário)
 - Especialização (Pós-graduação latu-sensu)
 - Mestrado (MSc, MLA, MPhil; Pós-graduação strictu-sensu)
 - Doutorado (DS, DDes, PhD)
5. Como você classifica sua formação paisagística quanto ao caráter autodidata (aprendida por si mesmo/a, sem professores ou escola) ou acadêmico (aprendida em escola ou universidade):
- Total ou quase totalmente autodidata
 - Predominantemente autodidata
 - Igualmente autodidata e acadêmica
 - Predominantemente acadêmica
 - Total ou quase totalmente acadêmica
6. Quantas disciplinas apresentando conteúdo específico de Paisagismo você cursou em sua graduação?
- Nenhuma 1 2 3 a 5 6 ou mais disciplinas Não fez graduação universitária
7. Excetuando sua graduação universitária, você faz ou fez algum curso em que é/foi ministrado conteúdo específico de Paisagismo?
(Marque uma ou mais respostas, se apropriado)
- Nenhum Curso
 - Curso livre (de qualquer duração)
 - Técnico (oficialmente reconhecido)
 - Especialização (Pós-graduação latu-sensu)
 - Mestrado (Pós-graduação strictu-sensu)
 - Doutorado (DS, DDes, PhD)
8. Quantas disciplinas apresentando conteúdo específico de Paisagismo você cursou **neste outro nível?**
(Se você marcou mais de uma opção em 7. acima, responda segundo o curso com maior número de disciplinas de paisagismo)

Nenhuma 1 2 3 a 5 6 ou mais disciplinas Não se aplica ao meu caso

9. **Que importância teve para sua formação o estágio com profissionais do paisagismo?**

Nenhuma Pequena Média Grande Total

10. **Quanto tempo de estágio você fez ao todo durante sua formação?**

- Nenhum
- 6 meses ou menos
- De 7 meses a 1 ano incompleto
- De 1 ano completo a 2 anos incompletos
- 2 anos completos ou mais

Seu Exercício Profissional

11. **Há quantos anos você atua no paisagismo?**

Ainda não atuo 0 a 5 6 a 10 11 a 15 16 a 20 21 anos ou mais

12. **Em primeiro lugar, em que atividade dentro do paisagismo você atua com mais frequência?**

- Consultoria/assessoria
- Ensino
- Execução/Construção/Plantio
- Estudos ambientais (EIA/RIMA, RCA/ PCA, Plano de Manejo, PRAD, etc.)
- Pesquisa
- Projeto paisagístico
- Manutenção/Restauração
- Outro
- Não se aplica ao meu caso

13. **Em segundo lugar, em que atividade dentro do paisagismo você atua com mais frequência?**

- Consultoria/assessoria
- Ensino
- Execução/Construção/Plantio
- Estudos ambientais (EIA/RIMA, RCA/ PCA, Plano de Manejo, PRAD, etc.)
- Pesquisa
- Projeto paisagístico
- Manutenção/Restauração
- Outro
- Não se aplica ao meu caso

14. **Em terceiro lugar, em que atividade dentro do paisagismo você atua com mais frequência?**

Envio de suas respostas

Muito obrigado por sua participação.

As informações fornecidas serão mantidas em sigilo. O conjunto de todos os questionários respondidos será estatisticamente analisado e discutido no trabalho de tese em preparação e publicações pertinentes. Dentro de alguns meses, será possível acesso ao produto deste levantamento. Confira nossa [página principal](#) ou faça contato: a.zuin@eca.ac.uk .

[Volta à página principal](#)

[Indique o LEPAB a um/a colega paisagista](#)

eca

edinburgh
college of art
school of
landscape
architecture



Welcome to the
**Landscape
Architectural
Education Conjoint
Study** Web site.

Your participation is
vital to this study.
The next page will
collect some general
information about you
and direct you to the
CBC study itself.

Our hope is that you
will enjoy and benefit
from the reflection
proposed here.

If you would like
more information on
the context of this
study, including
Conjoint Analysis
please follow this link
or the one on the
page after you submit
your completed
questionnaire.

continue

Choice Based Conjoint Demographics Form as used in the study

You are part of a select group of landscape architects who have been invited to give their opinions regarding professional education in landscape architecture.

First we would like to know a little about you for statistical purposes. Please answer the questions bellow and then proceed to the next section by clicking "continue" at the bottom of the page.

Obs.: All answers are anonymous and confidential.

1. Where do most of your activities in landscape architecture happen?

Region:

please select world region

Country: please select country

2. What was your main occupation in landscape architecture during the year 2001?

- Educator (teacher, tutor.etc, combining or not research and other practice)
- Practitioner (any activity except education)
- Student - postgraduate
- Student - undergraduate
- None of the above

3. What did you study to become a landscape architect?

- Landscape Architecture as a first qualification
- Landscape Architecture as a second/third qualification

- Agriculture/Agronomy/ Horticulture
- Architecture
- Biology
- Engineering
- Forestry
- Other

3b. Where did you study landscape architecture?

Region:

please select world region

Country: please select country

4. What is the highest degree of studies you have completed?

- Undergraduate (university degree: e.g. BA, BSc, MA, etc.)
- Postgraduate Diploma
- Masters (MLA, MSc, MPhil etc.)
- Doctorate (PhD, DDes, DSc etc.)
- None of the above

5. Where are you from?

Region:

please select world region

Country: please select country

6. How long have you been working in landscape architecture?

please select

7. Sex: Female Male

8. Your age: please select

CONTINUE

Instructions

In this section we are considering some aspects of landscape architecture programmes. Some combinations of these aspects will be presented to you in cards. They can look similar but are not identical, so please read carefully.

You will choose in 17 independent cards. This is what to do at each card:

- choose the column with the combination you prefer;
- click the button below it;
- click "next" to continue;
- do the same in each new card, but don't think about the previous choice;
- card 18: make up your own combination by choosing from the boxes;
- "Submit".

To see explanations for the underlined words in the cards you can point your mouse to them and read in the bottom line of your browser or click them to see a text box.

To choose, consider the following:

Suppose you have just finished school and you are ready to start university. Your decision was to follow a career in landscape architecture and you are now choosing a course of study.

Considering all you know about the profession, which of the options presented in the following cards would you prefer?

[Click here for card 1](#)

card 1

	A	B	C	D
General emphasis: landscape architecture...	* <u>skills</u>	* <u>skills</u>	* <u>knowledge</u>	None of these
Landscape architecture skills focused	* <u>Problem solving through design</u>	* <u>General thinking skills</u>	* <u>Communication</u>	
Landscape architecture knowledge focused	* <u>Technology</u>	* <u>Professional practice</u>	* <u>Technology</u>	
Teaching	* <u>Studio</u>	* <u>External work</u>	* <u>Classroom</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[next card](#)

[back to instructions](#)

card 2

	A	B	C	D
General emphasis: landscape architecture...	* <u>knowledge</u>	* <u>skills</u>	* <u>skills</u>	None of these
Landscape architecture skills focused	* <u>General thinking skills</u>	* <u>Problem solving through design</u>	* <u>Communication</u>	
Landscape architecture knowledge focused	* <u>History and Theory</u>	* <u>Environmental sciences</u>	* <u>Professional practice</u>	
Teaching	* <u>Classroom</u>	* <u>Studio</u>	* <u>External work</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- Consultoria/assessoria
- Ensino
- Execução/Construção/Plantio
- Estudos ambientais (EIA/RIMA, RCA/ PCA, Plano de Manejo, PRAD, etc.)
- Pesquisa
- Projeto paisagístico
- Manutenção/Restauração
- Outro
- Não se aplica ao meu caso

15. Você é membro de alguma associação profissional de paisagistas?

- Não Sim Qual?

Dados pessoais

16. Em qual das seguintes faixas etárias você se inclui?

- até 20 anos
- 21 a 25 anos
- 26 a 30 anos
- 31 a 40 anos
- 41 a 50 anos
- 51 a 60 anos
- 61 anos ou mais

17. Sexo: Feminino Masculino

18. Seu endereço eletrônico para contato (*opcional, não será divulgado a terceiros*) e sua home-page:

E-mail

Home page

Se sua escola ou organização tiver outra URL, ou se você desejar indicar algum outro site, por gentileza, utilize o espaço da questão 19 abaixo.

Parte 2: Seus Comentários

19. Seus comentários, sugestões ou perguntas podem ser digitados no espaço abaixo:

[Volta ao início](#)

card 4

	A	B	C	D
General emphasis: landscape architecture...	<u>*skills</u>	<u>*skills</u>	<u>*knowledge</u>	None of these
Landscape architecture skills focused	<u>*Problem solving through design</u>	<u>*Problem solving through design</u>	<u>*Communication</u>	
Landscape architecture knowledge focused	<u>*Environmental sciences</u>	<u>*History and Theory</u>	<u>*Professional practice</u>	
Teaching	<u>*Classroom</u>	<u>*External work</u>	<u>*Studio</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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card 5

	A	B	C	D
General emphasis: landscape architecture...	<u>*knowledge</u>	<u>*knowledge</u>	<u>*skills</u>	None of these
Landscape architecture skills focused	<u>*Communication</u>	<u>*General thinking skills</u>	<u>*General thinking skills</u>	
Landscape architecture knowledge focused	<u>*Technology</u>	<u>*Environmental sciences</u>	<u>*Professional practice</u>	
Teaching	<u>*External work</u>	<u>*Studio</u>	<u>*External work</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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card 6

	A	B	C	D
General emphasis: landscape architecture...	* <u>knowledge</u>	* <u>skills</u>	* <u>knowledge</u>	None of these
Landscape architecture skills focused	* <u>General thinking skills</u>	* <u>General thinking skills</u>	* <u>Problem solving through design</u>	
Landscape architecture knowledge focused	* <u>Environmental sciences</u>	* <u>Professional practice</u>	* <u>Professional practice</u>	
Teaching	* <u>External work</u>	* <u>Classroom</u>	* <u>Classroom</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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card 7

	A	B	C	D
General emphasis: landscape architecture...	* <u>skills</u>	* <u>skills</u>	* <u>knowledge</u>	None of these
Landscape architecture skills focused	* <u>Communications</u>	* <u>Problem solving through design</u>	* <u>General thinking skills</u>	
Landscape architecture knowledge focused	* <u>Technology</u>	* <u>History and Theory</u>	* <u>Environmental sciences</u>	
Teaching	* <u>Studio</u>	* <u>Classroom</u>	* <u>Studio</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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card 8

	A	B	C	D
General emphasis: landscape architecture...	* <u>skills</u>	* <u>knowledge</u>	* <u>skills</u>	
Landscape architecture skills focused	* <u>Problem solving through design</u>	* <u>Problem solving through design</u>	* <u>Problem solving through design</u>	None of these
Landscape architecture knowledge focused	* <u>History and Theory</u>	* <u>History and Theory</u>	* <u>History and Theory</u>	
Teaching	* <u>Studio</u>	* <u>Classroom</u>	* <u>Classroom</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

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card 9

	A	B	C	D
General emphasis: landscape architecture...	<u>*skills</u>	<u>*skills</u>	<u>*knowledge</u>	None of these
Landscape architecture skills focused	<u>*Communication</u>	<u>*Communicationsolving through design</u>	<u>*Problem</u>	
Landscape architecture knowledge focused	<u>*Technology</u>	<u>*Environmental sciences</u>	<u>*Professional practice</u>	
Teaching	<u>*Studio</u>	<u>*External work</u>	<u>*Classroom</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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card 10

	A	B	C	D
General emphasis: landscape architecture...	<u>*skills</u>	<u>*knowledge</u>	<u>*knowledge</u>	None of these
Landscape architecture skills focused	<u>*General thinking skills</u>	<u>*Problem solving through design</u>	<u>*Communication</u>	
Landscape architecture knowledge focused	<u>*Professional practice</u>	<u>*History and Theory</u>	<u>*History and Theory</u>	
Teaching	<u>*External work</u>	<u>*External work</u>	<u>*Studio</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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card 11

	A	B	C	D
General emphasis: landscape architecture...	* <u>knowledge</u>	* <u>knowledge</u>	* <u>skills</u>	
Landscape architecture skills focused	* <u>Communication</u>	* <u>General thinking skills</u>	* <u>Problem solving through design</u>	None of these
Landscape architecture knowledge focused	* <u>Environmental sciences</u>	* <u>History and Theory</u>	* <u>Technology</u>	
Teaching	* <u>Classroom</u>	* <u>Classroom</u>	* <u>Studio</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

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card 12

	A	B	C	D
General emphasis: landscape architecture...	* <u>skills</u>	* <u>knowledge</u>	* <u>skills</u>	None of these
Landscape architecture skills focused	* <u>General thinking skills</u>	* <u>Problem solving through design</u>	* <u>Communication</u>	
Landscape architecture knowledge focused	* <u>Technology</u>	* <u>Environmental sciences</u>	* <u>Professional practice</u>	
Teaching	* <u>External work</u>	* <u>Studio</u>	* <u>Classroom</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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card 13

	A	B	C	D
General emphasis: landscape architecture...	* <u>skills</u>	* <u>knowledge</u>	* <u>knowledge</u>	None of these
Landscape architecture skills focused	* <u>Problem solving through design</u>	* <u>General thinking skills</u>	* <u>Problem solving through design</u>	
Landscape architecture knowledge focused	* <u>History and Theory</u>	* <u>Technology</u>	* <u>Professional practice</u>	
Teaching	* <u>Studio</u>	* <u>External work</u>	* <u>Classroom</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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card 14

	A	B	C	D
General emphasis: landscape architecture...	<u>*skills</u>	<u>*skills</u>	<u>*skills</u>	None of these
Landscape architecture skills focused	<u>*Communication</u>	<u>*General thinking skills</u>	<u>*Problem solving through design</u>	
Landscape architecture knowledge focused	<u>*History and Theory</u>	<u>*Technology</u>	<u>*Environmental sciences</u>	
Teaching	<u>*External work</u>	<u>*Studio</u>	<u>*Classroom</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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card 15

	A	B	C	D
General emphasis: landscape architecture...	<u>*skills</u>	<u>*knowledge</u>	<u>*skills</u>	None of these
Landscape architecture skills focused	<u>*Problem solving through design</u>	<u>*Problem solving through design</u>	<u>*Problem solving through design</u>	
Landscape architecture knowledge focused	<u>*History and Theory</u>	<u>*History and Theory</u>	<u>*History and Theory</u>	
Teaching	<u>*Classroom</u>	<u>*Classroom</u>	<u>*Studio</u>	

click on your choice:



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card 16

	A	B	C	D
General emphasis: landscape architecture...	*skills	*knowledge	*knowledge	None of these
Landscape architecture skills focused	*Problem solving through design		*General thinking skills	
Landscape architecture knowledge focused	*Environmental sciences	*Technology	*History and Theory	
Teaching	*Studio	*Classroom	*External work	

click on your choice:



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card 17

	A	B	C	D
General emphasis: landscape architecture...	* <u>skills</u>	* <u>knowledge</u>	* <u>skills</u>	None of these
Landscape architecture skills focused	* <u>General thinking skills</u>	* <u>Communication</u>	* <u>Communication</u>	
Landscape architecture knowledge focused	* <u>Technology</u>	* <u>History and Theory</u>	* <u>Professional practice</u>	
Teaching	* <u>Classroom</u>	* <u>External work</u>	* <u>Studio</u>	
click on your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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card 18

Now you can make up your own combination according to your preferences:

General emphasis: landscape architecture...

Knowledge

Landscape architecture **skills** focused

Communication

Landscape architecture **knowledge** focused

Environmental sciences

Teaching based in...

External work

This was the last card. You can now submit your answers by clicking the button below.

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SUBMIT

[contact me](#)

This Conjoint Analysis study is part of my PhD research on landscape education, at the Edinburgh College of Art.

This PhD is funded by the Brazilian governmental agency CAPES.

My main interest with this research is to gain further insight into the education of landscape architects to contribute to the organisation of the profession and development of landscape education in Brazil, my home country.

Below you will find a series of links to several points of interest connected to my research and this study.

Conjoint Analysis

This investigation applies Choice Based Conjoint (CBC) as a tool to measure the importance landscape architects place in different aspects of landscape education.

By choosing concepts from a series of combinations presented in cards, you will be making trade-offs that will be measured.

This is how it happens: at each card one combination is expected to appear better than the others, although it may have one or more aspects you won't consider the overall best. Choosing repeatedly from cards with different combinations, you will provide enough information for us to calculate the utility you place in each aspect considered.

That is why the CBC study may appear repetitive.

You can learn more about conjoint techniques following the links below.

Articles on Conjoint Analysis

[Sawtooth Technical Papers Library](#)
[Conjoint Basics, from Sawtooth Library](#)

Landscape Architecture in Brazil (all in Portuguese)

[Jornal da Paisagem](#)
[Journal of the Landscape -
online]

[ABAP - Associação Brasileira](#)
[de Arquitetos Paisagistas](#)
[Brazilian Association of
Landscape Architects]

[ANP - Associação Nacional](#)
[de Paisagismo](#)
National Association of
Landscape Design

Brazil (general interest)

Brazil in brief

Continue to the CBC study

Contact: Affonso H. L. Zuin

I hope you have found this interesting

Please contact me if you have any other queries, comments, suggestions or would like to know about the results of this research in the future.

back to information on conjoint analysis and this research