What is methodology?
What is methodology?

“A science or study of method, i.e. de description, explanation and valuation of methods”

Source: Roozenburg and Eekels, 2011
Methodology in research and design

SYSTEMS OF INQUIRY

Practical Science

RESEARCH STRATEGIES

Design research / research-by-design

RESEARCH TACTICS

principles of study and practice

Source: Nijhuis 2010, adapted from Groat & Wang 2002
Subject: Getting to know theories, methods and techniques in landscape architecture as academic design discipline

It aims to provide the students with:

(1) important theoretical and practical clues for developing a critical academic attitude towards research and design

(2) understanding of theories, methods and techniques in the field, with the focus on design-related research
1. Introduction

2. Systems of inquiry

3. Research strategies

4. Research tactics

- Landscape anamnesis
- Landscape as process
- Landscape as three-dimensional construction
- Landscape in context
1. Introduction

2. Systems of inquiry

3. Research strategies

4. Research tactics
   - Landscape anamnesis
   - Landscape as process
   - Landscape as three-dimensional construction
   - Landscape in context
Methodology in research and design

SYSTEMS OF INQUIRY
Practical Science

RESEARCH STRATEGIES
Design research / research-by-design

RESEARCH TACTICS
principles of study and practice

Source: Nijhuis 2010, adapted from Groat & Wang 2002
We cannot properly engage in research – and methods – without addressing **fundamental theoretical questions**.

These philosophical questions concern the **nature of reality** (ontology: subject) and **how we go about understanding it** (epistemology: perspective).

These philosophical questions tend to get sorted out into **paradigms** – bodies of theory/knowledge that groups of researchers follow as part of their everyday scientific practice.

Source: Deming & Swaffield, 2011; Groat & Wang 2002; Gomez & Jones 2010
Context-driven, problem-focussed and interdisciplinary research:
research carried out in context of application, arising from the very work of problem solving and not governed by the paradigms of traditional disciplines of knowledge: formal, physical, life, social and behavioural sciences (mode 1 knowledge)

The design-based research as described is a process of abduction, an investigation on *what might be*, using verifiable knowledge derived from analysis of suitable precedents.

**Systematic exploration** to increase the understanding of the relationships between the world as it is and the possibility of what it might become.

General research criteria:
- truth value (internal validity or credibility),
- applicability (external validity or generalisability),
- consistency (reliability, stability, or dependability),
- transparency (objectivity),

Validity question is not “is it true”, but “does it work”

Body of knowledge in landscape architecture is embedded in:

• **design theories**: objectives and principles

• **process of design**: design strategies and tactics

• **products of design**: compositions and their representations

(Source: cf. Ganshirt 2007; Cross 2006)
1. Introduction

2. Systems of inquiry

3. Research strategies

4. Research tactics
   - Landscape anamnesis
   - Landscape as process
   - Landscape as three-dimensional construction
   - Landscape in context
Methodology in research and design

SYSTEMS OF INQUIRY

*Practical Science*

RESEARCH STRATEGIES

*Design research / research-by-design*

RESEARCH TACTICS

*principles of study and practice*

Source: Nijhuis 2010, adapted from Groat & Wang 2002
Research strategies

Body of methods, procedures, working concepts and rules employed by a particular science, art or discipline

Nested within the theoretical coordinates of paradigms are a set of decisions one has to make about methodology: the selection of research objects, the questions directed towards them, the design of a study, and the implications that objectives have for carrying out research

Quantitative, qualitative and mixed-methods

Source: Roozenburg & Eekels, 2011; Deming & Swaffield, 2011; Groat & Wang 2002; Gomez & Jones 2010
Design as research strategy
Design as research strategy

We can consider the landscape as a composition of physical, biological and cultural elements in relation to ecologic, social and economic parameters.

Endless possibilities to model the landscape:
- Methodology is important in this respect
- and also the ‘properties of the procedure’
- and of course: ‘the proof is in the pudding’

The Endless Landscape (myriorama), 1830
1.686.553.615.927.922.354.187.720 possible combinations (24 cards)
Design as research strategy

Image source: Kalay 2004
Design as research strategy

Methodology = intended to make this search more effective
Methodology = a study of method: description, explanation and valuation

Image source: Kalay 2004
Design operations:

(1) Research feeds the design process with the ultimate objective to improve the quality of the designed object and increase its credibility: **research-based-design**

(2) Designs (or the process of designing) are used as a vehicle to make spatial problems visual and spatial (‘framing’) and to generate solutions: **design-based-research**

(3) Research undertaken on existing designs as a knowledge basis for future design: **design research-based-design**

Source: Nijhuis et al. (2012)
Design-related strategies

- **descriptive strategies**: direct observation, social surveys
- **modelling and correlation strategies**: descriptive and synthetic models, simulations
- **experimental strategies**: preference studies
- **classification schemes**: typology, taxonomy
- **interpretative strategies**: discourse analysis, formal analysis
- **evaluation and diagnosis**: parameters and norms, landscape assessment
- **engaged action research**: participatory action research
- **logical systems**: pattern language, space syntax

Source: Deming & Swaffield, 2011; Groat & Wang 2002; Gomez & Jones 2010
Descriptive strategies

Social Survey: questionnaires, social media
Descriptive strategies

Crowd sourcing: geotags

Source: Nijhuis
Descriptive strategies

GPS-Monitoring pedestrian movement - Rouen

In collaboration with: Stefan van der Spek
Simulation

Source: Karres en brands + ETH Zurich Kaisersrot
Simulation

Movement and accumulation of visitors

Source: Nijhuis
Classification

Polder typology based on physical-geographic location

Source: Nijhuis
Interpretative strategies

Formal analysis lake-bed polder the Beemster

Source: Nijhuis
Interpretative strategies

Formal analysis of position and orientation estates Veluwe-Oost, the Netherlands

Source: Nijhuis
Simulation of (future) visibility
External factors: visual urbanisation:
High-rise, city edges, wind turbines, etc.

Source: Nijhuis
Evaluation and diagnosis

Visual impact analysis of a landscape development plan

Source: Nijhuis
Evaluation and diagnosis

Landscape characterisation

Source: Nijhuis
Engaged action research
Logical systems

^ Space syntax Keukenhof
   In collaboration with Michiel den Ruijter

> Space syntax Noord-Holland
   In collaboration with: Akkelies van Nes en Egbert Stolk
Subject, aims and content

1. Introduction
2. Systems of inquiry
3. Research strategies
4. Research tactics
   - Landscape anamnesis
   - Landscape as process
   - Landscape as three-dimensional construction
   - Landscape in context
Methodology in research and design

SYSTEMS OF INQUIRY

*Practical Science*

RESEARCH STRATEGIES

*Design research / research-by-design*

RESEARCH TACTICS

*principles of study and practice*

Source: Nijhuis 2010, adapted from Groat & Wang 2002
Research tactics

[c] Research tactics (methods and techniques)

“procedures for investigation” and “tools of investigation”

Finally, at the most concrete and practical level we find research methods and techniques: the ways we go about collecting and analyzing data, and the conclusions we draw from these processes

Source: Deming & Swaffield, 2011; Groat & Wang 2002; Gomez & Jones 2010
Ways of understanding landscape

Based on: Nijhuis 2006; Marot 1999; Prominski 2005

(1) Landscape anamneses:

Reading the landscape as an expression of historical culture, or as a palimpsest that evidences all of the activities that contributed to the shaping of the landscape

(2) Landscape as process:

Construction of landscape as a process rather than a product. Projects play a role as an open-ended strategy, as in staging or setting up future conditions. The landscape is a expression of the dynamic interaction between biotic, anthropogenic factors

(3) Landscape as three-dimensional construction:

The visual form of the landscape is based on the sensorial experience that emerge only by movement and is affected by the position and intensity of light sources. The act of perceiving is linked with the sequential unfolding of information as our bodies pass through space

(4) Landscape in context:

Landscape as relational structure connecting scales and spatial, ecologic, functional and social entities. Attachment, connection, embedment of a specific site or location into the broader context
Ways of understanding landscape

Based on: Nijhuis 2006; Marot 1999; Prominski 2005

(1) Landscape anamneses:

Reading the landscape as an expression of historical culture, or as a palimpsest that evidences all of the activities that contributed to the shaping of the landscape.

(2) Landscape as process:

Construction of landscape as a process rather than a product. Projects play a role as an open-ended strategy, as in staging or setting up future conditions. The landscape is a expression of the dynamic interaction between biotic, a biotic en anthropogenic factors.

(3) Landscape as three-dimensional construction:

The visual form of the landscape is based on the sensorial experience that emerge only by movement and is affected by the position and intensity of light sources. The act of perceiving is linked with the sequential unfolding of information as our bodies pass through space.

(4) Landscape in context:

Landscape as relational structure connecting scales and spatial, ecologic, functional and social entities. Attachment, connection, embedment of a specific site or location into the broader context.
Evolution of the landscape:

Analogy to the evolution of the bicycle. The interrelation between subsystems such as wheels, saddle, handlebars, frame and pedals stabilises over time, eventually creating the most functional tool (Jencks 1972)

Source: Jencks 1972
(ad 1) Landscape anamneses

Genius Loci: topos + locus
(Steenbergen & Reh, 2003)

Erasing and writing history
(Lukez, 2007):

Operations of Erasure:
Eradication (complete), Eradication (partial), Etching, Excision, Entropy & Excavation

Operations of Writing:
Parceling, Infill, Addition, Absorption, Enveloping, Wrapping, Overlay, Parasitic & Morphing

Source: Lukez 2007
(ad 1) Landscape anamneses

Oranjewoud Estate:
The main layout of the original estate was respectfully accepted as an inspiration for the present intervention. All superfluous frills were removed. Oranjewoud derives its beauty and strength from the restrained rectilinear and elongated avenues flanked by woods and meadows. The northern part opens up to the vast flat landscape of Friesland.

Michael van Gessel, 2004,-2005
(ad 1) Landscape anamneses

Minimal intervention/creative analysis
Placing a slice of white paper within the red tulip, the colour appeared to bleed across onto the white

Bernard Lassus, 1965, Un Air Rose (The Tulip Experiment)
(ad 1) Landscape anamneses
Ways of understanding landscape

Based on: Nijhuis 2006; Marot 1999; Prominski 2005

(1) Landscape anamneses:
   
   Reading the landscape as an expression of historical culture, or as a palimpsest that evidences all of the activities that contributed to the shaping of the landscape

(2) Landscape as process:
   
   Construction of landscape as a process rather than a product. Projects play a role as an open-ended strategy, as in staging or setting up future conditions. The landscape is a expression of the dynamic interaction between biotic, a biotic en anthropogenic factors

(3) Landscape as three-dimensional construction:
   
   The visual form of the landscape is based on the sensorial experience that emerge only by movement and is affected by the position and intensity of light sources. The act of perceiving is linked with the sequential unfolding of information as our bodies pass through space

(4) Landscape in context:
   
   Landscape as relational structure connecting scales and spatial, ecologic, functional and social entities. Attachment, connection, embedment of a specific site or location into the broader context
Landschap als een holistisch en Dynamisch systeem (Zonneveld, 1985)

Landschap als uitdrukking van ruimtelijke en ecologische processen (Vroom et al., 1976)

3. Antropogenic patterns
Parcellation, Settlement

2. Biotic patterns
Flora (vegetation) and Fauna (animal life)

1. Abiotic patterns
Geology, Relief, Soil and Hydrology (water)
Changing compositions of streams, constructions and sedimentary islands, Michel Desvigne, 1988
Changing compositions of streams, constructions and sedimentary islands, Michel Desvigne, 1988
(ad 2) Landscape as process
(ad 2) Landscape as process
(ad 2) Landscape as process

Principe van de zeefkaart:

Source: Nijhuis
Zeefkaart

Gewogen voorwaarden

3 legenda-eenheden
- uitsluiten ivm natuur/water
- voorwaardem ivm natuur/water/cultuurhistorie (1, 2, 2-5, 5-8 voorwaarden)
- geen restricties/voorwaarden

Source: Nijhuis
(ad 2) Landscape as process

Evacuation zones; Hurricane Sandy
(New York City, 2012)

Areas suitable for urbanisation (McHarg, 1969)
(ad 2) Landscape as process

Landschap als een resultaat van sociale processen

Source: De Jong 2002
(ad 2) Landscape as process

RESOURCES – These are the human and material resources available to inform and enrich the creative process; the resource base includes a physical inventory and a project program, objectives and expectations.

SCORE – As in a musical score or the choreography of dance; the score orchestrates design, participation, events and activities that visibly delineate, generate and sustain a project.

VALUATION – As an integral part of the process, people’s feelings and belief systems, as well as community needs and desires must be integrated with a decision-making process that respects, acknowledges and incorporates these values.

PERFORMANCE – Includes the product and its evolution over time; this component of the Cycles anticipates an organic, non-static solution; an environment or result that is defined by those who use it, experience it, and appreciate it.
Ways of understanding landscape

Based on: Nijhuis 2006; Marot 1999; Prominski 2005

(1) Landscape anamneses:

Reading the landscape as an expression of historical culture, or as a palimpsest that evidences all of the activities that contributed to the shaping of the landscape

(2) Landscape as process:

Construction of landscape as a process rather than a product. Projects play a role as an open-ended strategy, as in staging or setting up future conditions. The landscape is an expression of the dynamic interaction between biotic, anthropogenic factors

(3) Landscape as three-dimensional construction:

The visual form of the landscape is based on the sensorial experience that emerge only by movement and is affected by the position and intensity of light sources. The act of perceiving is linked with the sequential unfolding of information as our bodies pass through space

(4) Landscape in context:

Landscape as relational structure connecting scales and spatial, ecologic, functional and social entities. Attachment, connection, embedment of a specific site or location into the broader context
(ad 3) Landscape as 3D-construction
(ad 3) Landscape as 3D-construction

Ruimte-massa

Source: Warnau, 1979

Source: Vlug et al., 1997
(ad 3) Landscape as 3D-construction

Ruimtelijke beelden

Source: Warnau, 1979

Source: Pittaluga, 1987
(ad 3) Landscape as 3D-construction

Ruimtelijke beelden
(ad 3) Landscape as 3D-constructie

Beeldsequentie

Source: Appleyard et al. 1964
(ad 3) Landscape as 3D-construction
(ad 3) Landscape as 3D-construction

Beeldsequentie

Source: Cullen, 1961
(ad 3) Landscape as 3D-construction
(ad 3) Landscape as 3D-construction

3D visibility analysis (eye-level)
Stourhead landscape park
Exploring the architectonic quality of Piazza San Marco, Venice

(ad 3) Landscape as 3D-construction

Source: Nijhuis
(ad 3) Landscape as 3D-construction

Source: Nijhuis
(ad 3) Landscape as 3D-construction

Analysis of the theoretical field of view from the motorway A1. Incremental viewshed-analysis with GIS

Location: Motorway A1, Deventer
Date: 2007

Source: Nijhuis
(ad 3) Landscape as 3D-construction

Analysis of the theoretical field of view from the motorway A1. Incremental viewshed-analysis with GIS

Location: Motorway A1, Deventer
Date: 2007

Source: Nijhuis
Ways of understanding landscape

Based on: Nijhuis 2006; Marot 1999; Prominski 2005

(1) Landscape anamneses:

Reading the landscape as an expression of historical culture, or as a palimpsest that evidences all of the activities that contributed to the shaping of the landscape.

(2) Landscape as process:

Construction of landscape as a process rather than a product. Projects play a role as an open-ended strategy, as in staging or setting up future conditions. The landscape is an expression of the dynamic interaction between biotic, abiotic, and anthropogenic factors.

(3) Landscape as three-dimensional construction:

The visual form of the landscape is based on the sensorial experience that emerge only by movement and is affected by the position and intensity of light sources. The act of perceiving is linked with the sequential unfolding of information as our bodies pass through space.

(4) Landscape in context:

Landscape as relational structure connecting scales and spatial, ecologic, functional, and social entities. Attachment, connection, embedment of a specific site or location into the broader context.
Any object of study will have impacts on different levels of scale, hitting interests of stakeholders operating on that level. Once you have determined the frame and granule of the object of study in this scheme, the rest is ‘context’. The object of study will have impacts within that context, on different levels of scale and in different layers. Scale is matter of grain and radius. See [http://team.bk.tudelft.nl/](http://team.bk.tudelft.nl/) (De Jong, 2006)
The reach of scale is also important, because conclusions on a specific level of scale could be opposite to conclusions drawn on another level of scale (scale-paradox) (De Jong, 2006)
The Hameau, Chantilly
Analysis

Barbara Stauffacher Solomon, 1988
van stoel tot stad

een verhaal over mensen en ruimte

j. b. bakema
De vaak laaggelegen wijk en de verwarring van vele weg. De evenwichtige plaats in een rivierwond.

De 19e eeuw met

- speculatieve koude of vlakke
- vooral in de
- westelijke wanden
- de 19e eeuw

De verdwenen

- verouderden
- en en bijstappen
- zijn nu nog
- veel en veel

De slums
- die nu nog
- van de waterlijnen
- van veel mensen
- en de bebouwde

De eenheid van huis
- transport- en verkeersmaps
- in nog realiteit
- in de Europese historische
- binnenteden.
Emerald Necklace Boston; start 1878
Chain of parks connected by parkways and waterways
Frankfurt: Hattersheim, Florsheim und Hochheim
(ad 4) Landscape in context
(ad 4) Landscape in context
Methodology in research and design

SYSTEMS OF INQUIRY

*Practical Science*

RESEARCH STRATEGIES

*Design research / research-by-design*

RESEARCH TACTICS

*principles of study and practice*

Source: Nijhuis 2010, adapted from Groat & Wang 2002