CONTRADICTORY RENDERINGS

AN EXPERIMENTAL ORIENTED STUDY OF PERCEPTION OF CONTENTUAL DEVIATION OF PHOTOREALISTIC VISUALISATIONS

MATTHIAS KLAUSER | DIRK STENDEL | HFWU NÜRTINGEN – GEISLINGEN | DLA CONVERENCE | 04. - 06.06.2015
INTRODUCTION

CLARATURM IN BASEL (CH)

Referendum about the realisation of construction project Claraturm in Basel (CH) in 2013.

Pro: Additional living space in the city. | Contra: Shade, negative visual impact on the city.
Do viewers recognise deviations in photorealistic visualisations?

- Urban design competition „Residential quarter at Egginger Weg“. City of Ulm (2012)
- What you see is not always what you get. Downes, M.; Lange E. (2014)
EMPirical experiment

Typical Photorealistic Visualisations

<table>
<thead>
<tr>
<th>Accuracy and expressiveness</th>
<th>Atmosphere and ambience</th>
<th>Depth perception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details</td>
<td>People, animals and plants</td>
<td>Shadows</td>
</tr>
<tr>
<td>Materials</td>
<td>Time of day and year</td>
<td>Shortening of lines and forms</td>
</tr>
<tr>
<td>Plants</td>
<td>Light-, color- and weather-effects</td>
<td>Size of elements</td>
</tr>
</tbody>
</table>

- People, animals and plants
- Time of day and year
- Light-, color- and weather-effects
- Shadows
- Shortening of lines and forms
- Size of elements
- Overlapping
- „Color and Air-Perspective“

Redevelopment Hahnplatz Prüm. Planorama Landschaftsarchitektur

LIMITATION OF RESEARCH

VISUALISATIONS IN LANDSCAPE ARCHITECTURE

VISUALISATIONS IN DESIGN PROCESS / COMPETITIONS

PHOTOREALISTIC VISUALISATIONS

EMPIRICAL RESEARCH

EXPERIMENT

RECOGNITION OF CONTENTUAL DEVIATIONS

- FOCUS OF ATTENTION
- INTENSITY OF DEVIATION
- ATMOSPHERICAL EFFECT
- PROF. EXPERIENCE OF VIEWER

LIMITATION OF RESEARCH

VISUALISATIONS IN LANDSCAPE ARCHITECTURE

VISUALISATIONS IN DESIGN PROCESS / COMPETITIONS

PHOTOREALISTIC VISUALISATIONS
### DEFINITION AND OPERATIONALSATION OF VARIABLES

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contentual deviation (CDe)</td>
<td>Difference of an attribute towards its requirement. The substance of the visualisation differs from other parts of the plan in the meaning of different perspectives proportion or changed design specification.</td>
</tr>
<tr>
<td>Level of deviation</td>
<td>Gradual difference of CDes.</td>
</tr>
<tr>
<td>Atmospheric effect</td>
<td>Features of visualisations like colour and light effects, relatable objects (people) and human activities. These effects primarily evoke an emotional reaction of the viewer.</td>
</tr>
<tr>
<td>Experience</td>
<td>The viewer’s total experience (time and intensity) with professional visualisations.</td>
</tr>
<tr>
<td>Focus of attention</td>
<td>The viewer’s directed assimilation of information.</td>
</tr>
</tbody>
</table>

### FORMATION OF HYPOTHESES

| Work-hypothesis 1       | CDes are not recognised no matter if the focus of attention is on the design or the visual representativeness. |
| Sub-hypothesis 1.1      | CDes are not recognised no matter the level of deviation.                                                                                   |
| Sub-hypothesis 1.2      | CDes are not recognised no matter the level of atmospheric effect.                                                                            |
| Sub-hypothesis 1.3      | CDes are not recognised no matter the professional experience of the viewer.                                                                |
EXPERIMENTAL SETUP

1. PREPARATION AND MANIPULATION

2. SELECTION OF PROBANDS

COMPETITION TOUR

3. BRIEFING AND DIVISION IN EXP. GROUPS

4. TOUR AND DATA COLLECTION

5. EVALUATION AND CONCLUSION
EMPERICAL EXPERIMENT

LEVELS OF CONTENTUAL DEVIATIONS

1. NO DEVIATION
   Correct contentual transmission

2. BARELY
   Slight change of objects, perspective etc

3. AVERAGE
   Moderate deviation and change of relevant information

4. QUITE
   Strong deviation and change of relevant information.

5. VERY MUCH
   Barely any consistency between visualisation and design
EMPERICAL EXPERIMENT

LEVELS OF ATMOSPHERIC EFFECTS

A  WEAK EFFECT
Looks neutral and sober. Evokes little interest and other emotions

B  MEDIUM EFFECT
Visualisation with medium atmospheric effect

C  STRONG EFFECT
Exceptionally dramatic and aesthetic depiction
### SCHINKEL-COMPETITION 2014 – SPANDAU IN BERLIN

**AUTHORITY**
Architekten- und Ingenieur-Verein zu Berlin

**PROFESSIONS**

**DESIGNS FOR EXPERIMENT**
- Getaped – Urban Planning
- Spandau Sequenzen – Landscape Architecture
- Promenadenring – Landscape Architecture
- Havelsprung – Landscape Architecture

**URBAN PLANNING AND LANDSCAPE ARCHITECTURE**
- Urban connections of the old town to bordering city quarters and to the river landscape.
- Carve out and accentuate qualities of open spaces.
- Consistent, perceptible and barrier free open space sequence along the river bank with connection towards Havel/Spree.
- Completion and development of recreational and cultural offerings.

Planning area Schinkel-Competition 2014. Architekten- und Ingenieur-Verein zu Berlin e.V.
PREPARATION OF POSTERS

Design selection criteria
- Landscape architecture | Urban planning
- Photorealistic visualisations
- Award-winning

Manipulation method
- Manipulate to change CDe and atmospheric effect
- Even distribution of categories
- Adjust to match the individual visual style

DESIGN 1: GETAPEladen

DESIGN 2: SPANDAU SEQUENZEN

DESIGN 3: PROMENADENRING SP.

DESIGN 4: HAVELSPRUNG

SPANDAU SEQUENZEN

Spandau Sequenzen. Hamacher, F.

V: Pocketpark with view on the Townhall Square

IV: View from Lindenpromenade to the mouth of the river Spree
EMPIRICAL EXPERIMENT

PROMENADENRING SPANDAU

VI: View from harbour towards the mouth of the river Spree

VII: View on old-town-Terraces

Promenadenring Spandau. Thieme, J. Müller, J.; Holk, H.; Rösner, P.
## SURVEYS

1. **The urban connection** between the river landscape and the surrounding quarters is adequate.
2. **The sequence** along the riverbank is consistent and can be experienced and the water is accessible.
3. **Use and culture offerings** are extended and supplemented in a reasonable way.
4. **Qualities of relevant open spaces** are emphasized convincingly and are worked out in high detail.
5.a **The concept** is conclusive and creates an independent identity.
5.b **The visualisations** are representative for the design.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Barely</th>
<th>Average</th>
<th>Quite</th>
<th>Very much</th>
</tr>
</thead>
</table>

## SYSTEMATIC OBSERVATION

<table>
<thead>
<tr>
<th>Recognition of CDes</th>
<th>Time</th>
<th>Statement of probands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific design and visualisation</td>
<td>Specific question of the survey</td>
<td></td>
</tr>
</tbody>
</table>
EVALUATION AND CONCLUSION

PERFORMANCE OF THE EXPERIMENT

- PREPARATION, SELECTION AND BRIEFING
- DIVISION IN GROUPS
  - EG 1: Conclusiveness of concept
  - EG 2: Representative-ness of visuals
- TOUR AND DATA COLLECTION
  - SYSTEMATIC OBSERVATION
  - SURVEYS
- EVALUATION AND CONCLUSION

SH1.1
Level of CDe
SH 1.2
Atmospheric effect
SH 1.3
Prof. experience

H1
Focus of attention
### GENERAL RESULTS

**PROBANDS**

|        | 57 probands | 15 groups |

**SUB GROUPS**

|        | 26 probands | 7 groups |
| EG 1   | 31 probands | 8 groups |

|        | 20 probands | 4 groups |
| B-LA 2 | 10 probands | 3 groups |
| B-LA 4 | 24 probands | 7 groups |
| B-LA 6 | 3 probands  | 1 group  |
| M-LA 4 |             |          |

**SEMESTER**

|        | 20 probands | 4 groups |
| B-LA 2 | 10 probands | 3 groups |
| B-LA 4 | 24 probands | 7 groups |
| B-LA 6 | 3 probands  | 1 group  |

**AVERAGE TIME PER TOUR**

19 minutes

**DATES OF EXECUTION**

02. - 05.06.2014

### RATING OF THE GROUPS

<table>
<thead>
<tr>
<th></th>
<th>1. GETAPED</th>
<th>2. SPANDAU SEQUENZEN</th>
<th>3. PROMENADENRING</th>
<th>4. HAVELSPRUNG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Rank</strong></td>
<td>1</td>
<td>13</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td><strong>2. Rank</strong></td>
<td>2</td>
<td></td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td><strong>3. Rank</strong></td>
<td></td>
<td></td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td><strong>4. Rank</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Legend:**
  - 1. Rank
  - 2. Rank
  - 3. Rank
  - 4. Rank
EVALUATION AND CONCLUSION

DISCUSSION

WORK-HYPOTHESIS H1
CDes and Focus of attention

SUB-HYPOTHESIS H1.1
CDes and Level of deviation

- Deviation recognised
- Deviation not recognised
EVALUATION AND CONCLUSION

SUB-HYPOTHESIS H1.2
CDes and level of atmospheric effect

SUB-HYPOTHESIS H1.3
CDes and professional experience

---

Level A: weak effect  |  Level B: medium effect  |  Level C: strong effect

- Deviation recognised  |  Deviation not recognised

---

B-LA 2  |  B-LA 4  |  B-LA 6  |  M-LA 4

- Deviation recognised  |  Deviation not recognised

---

CONTRADICTORY RENDERINGS | MATTHIAS KLAUSER | DIRK STENDEL | DLA CONFERENCE | 04. - 06.06.2015
## EVALUATION AND CONCLUSION

### STATISTICAL TEST OF THE HYPOTHESIS

#### H 1
**Focus of attention**

<table>
<thead>
<tr>
<th>Design</th>
<th>Visualisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>B</td>
<td>C</td>
</tr>
</tbody>
</table>

#### H 1.1
**Level of deviation**

<table>
<thead>
<tr>
<th>LA 2</th>
<th>LA 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td>0.33</td>
</tr>
<tr>
<td>0.33</td>
<td>0.43</td>
</tr>
</tbody>
</table>

#### H 1.2
**Level of atmospheric effect**

<table>
<thead>
<tr>
<th>LA 4</th>
<th>LA 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>0.25</td>
</tr>
<tr>
<td>0.25</td>
<td>0.33</td>
</tr>
</tbody>
</table>

#### H 1.3
**Professional experience**

<table>
<thead>
<tr>
<th>LA 2</th>
<th>LA 4</th>
<th>IMLA 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.33</td>
<td>0.33</td>
<td>0.76</td>
</tr>
<tr>
<td>0.43</td>
<td>0.43</td>
<td>0.76</td>
</tr>
</tbody>
</table>
### EVALUATION AND CONCLUSION

#### STATISTICAL TEST OF THE HYPOTHESIS

<table>
<thead>
<tr>
<th>H 1</th>
<th>H 1.1</th>
<th>H 1.2</th>
<th>H 1.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus of attention</td>
<td>Level of deviation</td>
<td>Level of atmospheric effect</td>
<td>Professional experience</td>
</tr>
</tbody>
</table>

#### H 1.1 Level of deviation

- **Focus of attention**
  - Only strong deviations are recognised.

#### H 1.2 Level of atmospheric effect

- **Atmospheric effects**
  - Distract from content.

#### H 1.3 Professional experience

- **Professional experience**
  - Do not change the recognition of CDes.

---

**Design | Visualisation**

- 2 | 5
- 4 | 3
- 3 | 5
- 3 | 4
- 4 | 5

**A | B | C | B | C**

- LA 2 | LA 4
- LA 4 | LA 6
- LA 2 | LA 6
- LA 2 | IMLA 4
- LA 4 | IMLA 4
- LA 6 | IMLA 4

---

**Focusing the attention** do not increase the chance of recognizing CDes.
CONCLUSION AND OUTLOOK

Not enough **critical approaches** towards PRVs in decisive planning decisions.

### OUTLOOK

<table>
<thead>
<tr>
<th>Research possibilities</th>
<th>Creation process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Different professions (e.g. architecture, urban design)</td>
<td>Creating PRVs as correct as possible (one-to-one simulation)</td>
</tr>
<tr>
<td>CDes in visualisation</td>
<td></td>
</tr>
</tbody>
</table>

### SUGGESTION

<table>
<thead>
<tr>
<th>Competitons</th>
<th>Transmission towards competition jury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test in preliminary process or separate surveyor in process.</td>
<td>Experience does not effect CDe recognition</td>
</tr>
<tr>
<td></td>
<td>Sachjury (Subject-panel) are comparable with students.</td>
</tr>
</tbody>
</table>

How many **decisions** were made based on **misguided Information**?
THANK YOU FOR YOUR ATTENTION
# Table of Literature and Illustrations

## Literature


## Illustrations

- **Manipulated Claraturm visualisation.** UBS Media Relations Schweiz
- **Claraturm visualisation.** Morger & Dettli
- **Frontop.** Changzhou Wanda Plaza, CCI Architecture Design & Consulting Co.
- **Redevelopment Hahnplatz Prüm.** Planorama Landschaftsarchitektur
- **Spanau Sequenzen.** Frithjof Hamacher, F. – Student of landscape architecture
- **Promenadenring Spandau.** Janina Thieme - Student of landscape architecture; Julia Müller – Landscape architecture; Henning Holk – Landscape architect; Philipp Rösner – Landscape architecture