# **IAEE EXPO EXPO**

Visual perception of trade show booths

- evaluating booth design elements by attention analysis

# Prof. Dr. Thomas Bauer | Vera Hantel, B.A.

# **INTRODUCTION**

## Literature

## **Theoretical Background:**

- Trade show environments are rich in sensorial stimuli competing to attract visitors' attention (Rinallo, Borghini & Golfetto, 2010)
- Booth attraction or booth design are described as determinants of trade show success (Gopalakrishna, Lilien, Williams & Sequeira, 1995; Bloch, Gopalakrishna, Crecelius & Scatolin Murarolli, 2017).

## **Contribution:**

The purpose of this study is exploring the visual design elements that create visitors' attention to consider visiting an exhibitor's booth.

## **RESEARCH APPROACH AND HYPOTHESES**

## Experimental Design

Character: Explorative, experimental study using eye tracking technology

Setup: comparison of visual perception in a laboratory vs. field study environment (real life trade show booth setup)

Participants: n=31 in Laboratory Study; n=32 in Field Study

## functional zone 00 storage meeting zone 00 exhibits high tables

## Hypotheses:

Thesis 1: The perception of the trade show booth overall is different in a field vs. lab study environment. Thesis 2: The perception of booth design elements is different in a field vs. lab study environment. Thesis 3: Graphics get a higher gaze attention in both field and lab study vs. textual elements.





- Suitable for studies in the field
  - **1** Glasses (wearable eye tracker) Consists i. a. of scene camera, eye tracking sensors, IR illuminators
  - 2 Recording unit Connected to glasses via HDMI cable Consists of battery and SD
  - memory card **3** Tablet with controller software Enables to manage participants, view eye tracking data and control the eye tracker
  - 4 Tobii Pro Lab Analyzer Software
- Table-mounted system
- Tobii Pro X2
- Static eye tracking system
- Suitable for studies in the lab



- **1** Eye tracker unit (static eye tracker) Can be attached i. a. to monitors and laptops
- Consists of eye camera and IR illuminators
- 2 Distance
- Optimum distance between eye tracker and participant: 55 – 65 cm
- 3 Tobii Studio



Thesis 4: There is a relationship between the perception and recognition (recall) of key elements. Thesis 5: Graphics get higher recognition (recall) vs. textual elements.



# **BOOTH DESIGN ELEMENTS AND AREAS OF INTEREST**

Evaluation of booth design parameters as eye tracking AoIs



### Booth Design Elements classification by Solberg Soilen (2013):

- Towers: free standing components
- Canopies: false ceilings

- Wallpaper and paint

- Lighting - Carpet and flooring - Furniture





## **RESULTING BOOTH DESIGN**

Results applied for a future booth design layout

2.

4.





2

#### **RESULTS** Heat Maps of Fixation Counts







#### RESULTS **Evaluation of Hypotheses**

|             | Lab<br>n:                        |                            | F     |               | Booth design elements, which were remembered sustainably<br>(in laboratory)<br>n=31 |                      |        |                 |          |                |              |                          |    |       |  |
|-------------|----------------------------------|----------------------------|-------|---------------|---|----------------------|--------|-----------------|----------|----------------|--------------|--------------------------|----|-------|--|
|             | Fixation count Fixation duration |                            |       |               |   | <b>Fixation cou</b>  | nt     | ixation         | duration |                |              | Count of recall mentions |    |       |  |
|             | Percentage Share of total        |                            |       | nare of total |   | Percentage           |        |                 |          | Share of total |              |                          |    |       |  |
| AOI         | Φ count Fix                      | Φ count Fixated Φ sec time |       | ne in %       | AOI   | $\Phi$ count Fixated |        | Φ sec time in % |          |                | $\Phi$ count | Φ in %                   |    |       |  |
| Whole Booth | 85,61                            | 100,00                     | 17,76 | 100           | Whole Booth   | 33,62                | 100,00 |                 | 9,81     | 100,00         |              |                          |    |       |  |
| Towers      | 22,10                            | 100,00                     | 4,37  | 24,61         | Towers  | 8,87                 | 93,75  |                 | 2,51     | 25,59          | Towers       |                          | 17 | 54,84 |  |
| Canopies    | 20,00                            | 100,00                     | 3,72  | 20,95         | Canopies  | 4,66                 | 62,50  |                 | 1,09     | 11,11          | Canopies     |                          | 16 | 51,61 |  |

|    | innunc            | 13,72 | 50,77  | 5,20 | 10,47 | runnture           | 7,70 | 75,00 | 1,71<br>1 | 14,57 | Turniture          | 25 | 55,55 |
|----|-------------------|-------|--------|------|-------|--------------------|------|-------|-----------|-------|--------------------|----|-------|
| W  | allpaper and text | 8,84  | 100,00 | 1,91 | 10,75 | Wallpaper and text | 3,35 | 75,00 | 1,09      | 11,11 | Wallpaper and text | 9  | 29,03 |
| Cl | ouded sky         | 7,55  | 90,32  | 1,39 | 7,83  | Lighting           | 3,28 | 53,13 | 1,34      | 13,66 | Lighting           | 16 | 51,61 |
| Li | ghting            | 3,64  | 70,97  | 0,89 | 5,01  | Clouded sky        | 2,25 | 43,75 | 0,48      | 4,89  | Clouded sky        | 7  | 22,58 |
| Ca | rpet & flooring   | 1,61  | 41,94  | 0,29 | 1,63  | Carpet & flooring  | 0,44 | 28,13 | 0,08      | 0,82  | Carpet & flooring  | 3  | 9,68  |
|    |                   |       |        |      |       |                    |      |       |           |       |                    |    |       |

#### Hypotheses:

Thesis 1: Confirmed. Lab study gets significantly more and longer fixations.

Thesis 2: Not confirmed. Order of fixation count is the same in lab study and field study.

**Thesis 3:** Not confirmed. Texts on towers, canopies and wallpaper with higher gaze attention vs. clouded sky graphic and lighting. Thesis 4: Not confirmed. Furniture stands out in recall, though the tower (airplane) and canopy stood out of the presentation. Thesis 5: Confirmed. Canopies, towers and lighting as design elements dominate recall over text on those elements (i.e. people did not remember what the texts said).