FAKULTÄT FÜR !NFORMATIK
Faculty of Informatics

Diplomarbeitpräsentation der Fakultät für Informatik

Improving the visibility of in-game advertisements

Diplomstudium
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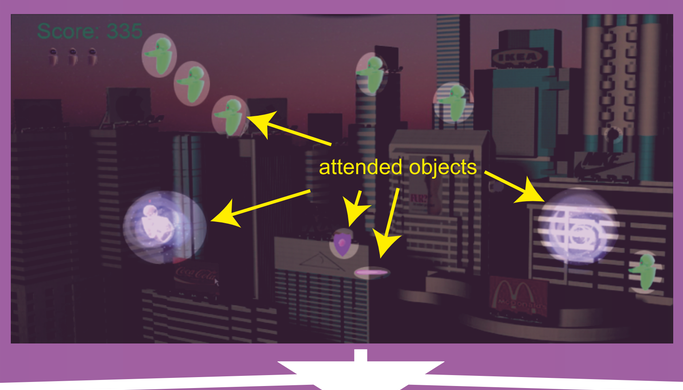
Motivation

Video games, a new attractive channel for advertising

Relevance for marketing:
- In-game advertising market has a high growth rate
- Computer games reach particularly young people.

Different perception of advertisements:
- The interactive nature of computer games interferes with players' memory and attention



Problem

Inattentional blindness in computer games

Video games impose an intensive task to the players. Hence, the full perceptual and cognitive capacity of the player is focused on task relevant information. But task irrelevant information is ignored.

In-game advertisements are task irrelevant objects.

in-game advertisements remain often unattended

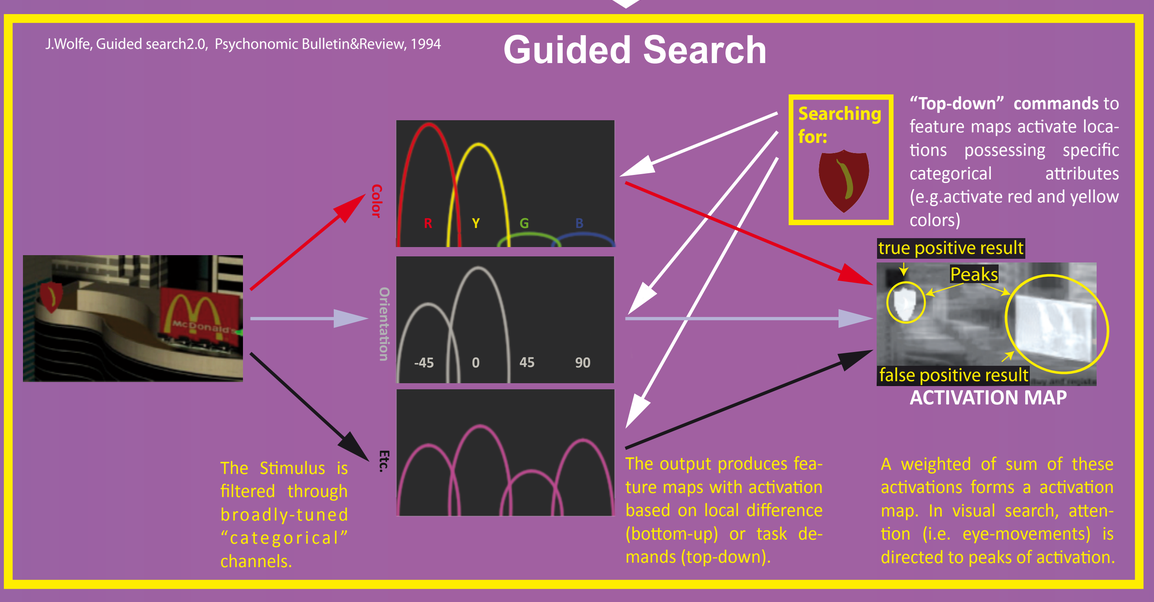
Goal

Breaking through Inattentional Blindness

Idea: Apply theory of Guided Search "in reverse"
- There is often a visual search task in a game (e.g. looking for health items)
- During visual search, we can attract player's eye-movements to advertisements by changing pre-attentive vision.
- Therefore, we link visual search tasks and advertisements by using similar abstract features for advertisments and search targets

Guided Search

J.Wolfe, Guided search2.0, Psychonomic Bulletin&Review, 1994

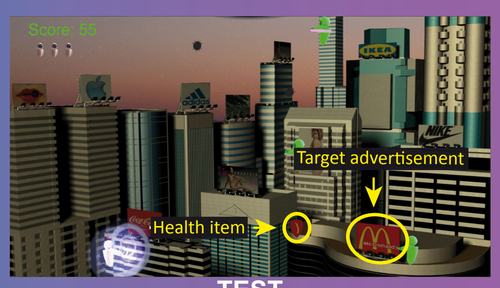


Experimental Validation

Hypothesis:
- If we design frequently searched game items such that they share some perceptual features with advertisements, Guided Search predicts that advertisements become "false positive suggestions" for the deployment of attention during visual search.

Further Assumptions:
- Only attended objects may enter memory. Hence, we can validate our hypothesis with a memory test (dependent variable)
- Effectiveness of advertisements correlates with ability to remember them

User Study



TEST

CONTROL 1

CONTROL 2

Stimuli

We implemented a representative action game:
- 2D shooter
- 3D background
- 6 advertisement billboards
- We used brands with similar popularity in Europe according to the Brandz Ranking Report 2010
- McDonalds = Target Advertisement
- Shield = Health Item (frequently spawns on random positions)

Independent variable

The game was played in 3 conditions:

- **TEST:** Heath items shares features with the target advertisement (McDonalds)
- **CONTROL 1:** health item is not similar to advertisements
- **CONTROL 2:** Same health item (as in TEST), but target advertisement absent

We need to compare results to control conditions to compensate potential bias which may come from differences of popularity or saliency of the advertised brands.

Dependent Variable

We tested brand memory:
- 3 alternatives forced choice recognition test
- Application shows 3 advertisements: 1 in-game adv. + 2 distractors
- User selects with mouse click (forced choice)
- 36 trials: 6 for each in-game adv.
- Count correct selections


MEMORY TEST

Procedure

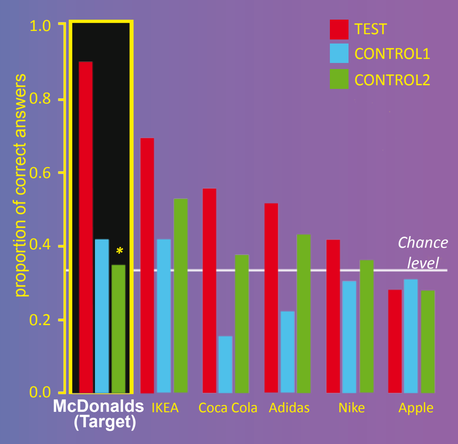
The following protocol was used for the experiment:
1. Playing game (3 minutes)
2. Memory Test (6-8 min)
3. Distraction: We used a dummy questioniare to distract participants from their game experience and clear their short-term memory (6 minutes)

Participants

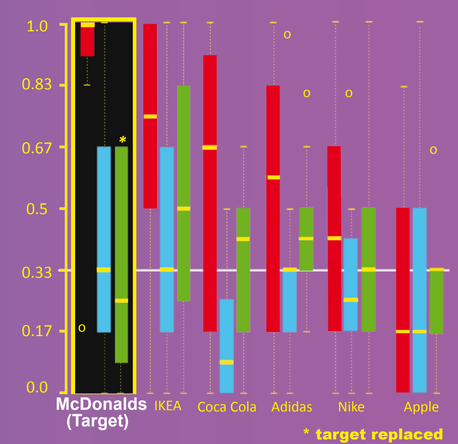
- 36 volunteers recruited from TU campus: (7 female, age = 24.3 ± 4.0)
- Every participant could play the game in only one condition
- Random assignment to one conditions→12 particip. /condition

Results of the Memory Test

Mean



Distribution (box-plots)



Stastical Analysis

We evalutated the statistical significance

Compare TEST with control conditions (for target advertisement) using non-parametric tests (Wilcoxon Rank sum):

- **H1: Target > other** adv. (in **TEST**), ***p ≤ 0.007***
- **H1: TEST > CONTROL 1**, ***p = 0.003***
- **H1: TEST > CONTROL 2**, ***p < 0.001***

Conclusion

Design of game items has a significant impact on users' attention:
- Advertisements which are similar to important search targets are recognized better
- Advertisements which are dissimilar are recognized worse

This may have the following consequences:
- Account for Guided Search when determining advertising prices
- Attention guidance for other purposes than advertising

Future Work:
- Full 3D game (more popular)
- Eye tracking (more accurate data)
- Multivariate analysis (several features, more subtle similarties)

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