Creating brand awareness in outdoor advertising

Designing for interactivity and presence

Fredrik Kedfors
Veronika Madzinova
Abstract

This thesis aims to explore the design process of incorporating elements of presence and interactivity in order to measure brand awareness in outdoor advertising. The paper starts out with a description of research related to the field. It then goes through the process of the construction of two kinds of prototypes; one traditional and one interactive advertisement. Two prototypes which are exposed to twelve participants in order to measure a difference in brand recall between them. The result of this measurement is then presented and followed with a discussion. In the end we conclude that the implementation of interactivity and presence when designing for interactive advertisement can in some ways be used to increase brand recall. It may however also lead to the loss of secondary text-based information that is better received through traditional advertisement.

Keywords: Interactivity, Advertising, Presence, Brand Awareness, Traditional Advertising, Interactive Advertising, Outdoor advertising, Human-Computer Interaction
1. Introduction

This thesis aims to explore the design process of incorporating elements of presence and interactivity in order to measure brand awareness in outdoor advertising.

Brand awareness can be described as the ability for the audience to identify, recall or just acknowledge the existence of a brand (Keller, 2001). It is also one of the main factors within the consumer's decision making and their overall attitude towards a brand (Huang, Sarigöllü, 2012).

Today, the marketing concept embraces the idea of consumer engagement and believes that the right products must be delivered for the customer and not the other way around (Keller, Kotler, 2009). Users also show better recollection for an interactive type of advertising, rather than a passive and impersonal one (Lombard, Snyder-Duch, 2001). As already mentioned, in our paper we are trying to achieve this improved sense of recollection by incorporating elements of both *interactivity*; which we define within the context of advertising as a range to which users can influence the experience (Lombard, Snyder-Duch, 2001), as well as sense of *presence*; which can be defined as a psychological state where a person’s current experience is either generated or filtered through the use of human-made technology (Lombard, Snyder-Duch, 2001). Presence creates the illusion of “being there” in a digital environment. This is an effect that is perceived as a key ingredient when creating interactive media with the hope of emotionally affecting the user (Riva, Mantovani, Waterworth & Murray, 2014).

In our thesis, we are exploring the possibilities of incorporating these elements in public advertising. This is a type of advertisement that exists in many different forms and locations, usually in the context of large displays being placed in the most central areas of society. In later years, these displays have come to adapt various kinds of interactivity, making it possible for users to engage more actively. Designing for this kind of interaction is however accompanied with many hinders. First of all we have to get people to notice the existence of the advertisement in question as well as to understand its interactive capabilities. Then we need to motivate the user to take the next step and actually start interacting with the display. As a final step of interaction, we also want the user to reach a specific goal or final stage. This could for example involve signing up for a service being advertised. (Parra, Klerkx & Duval, 2014; Ojala et al., 2012; Müller et al., 2012).

For our study, we’re focusing solely on this final part of the user interaction. Different researches show that the combination of interactivity and the experience of *presence* when interacting with an advertisement can increase the sense of brand recall and attitude towards a product (Fox, Christy & Vang, 2014). We are therefore exploring the design process involved when making a stronger customer brand awareness be the end goal of the user interaction. We hope that by exploring this field of research; investigating the effect that the combined design of interactivity and presence might have on the brand awareness of a user, we will be able to add more knowledge to the research field concerning the design for brand awareness in the context of outdoor advertising, as well as to answer the question of:
How can interactivity and sense of presence be combined to positively affect the brand awareness in outdoor advertising?

The first part of this paper gives a summary of related research within the fields of defining and designing for presence, interaction and brand awareness. The next part introduces our method of constructive design research and the different stages of prototyping this method came to include. In the final part of our paper, we discuss our research result, present our conclusions and talk about possible implications for future research.

2. Related research

This part describes research related to traditional, interactive and outdoor advertising. It also covers the design for presence as well as a definition of brand awareness.

2.1. Traditional advertising

For (Dahlen and Edenius, 2007) traditional advertising is represented by media like print, posters or TV, which are in opposition to the non-traditional media, which are defined as media not previously used for advertising purposes. They argue that traditional advertising is burdened with the so-called advertising schema. It is one of our mental shortcuts that help us to automatically distinguish and respond to information (Pillow, 1991). The advertising schema strengthens the notion of persuasive intent of an advertisement, and the stronger the signals of persuasive intent of an advertisement are, the less positive are the responses from potential consumers (Dahlen, Edenius, 2007; Nordfält, 2005).

(Bezjian-Avery and Calder, 1998) are concerned with another aspect of traditional media; linearity of presented information in traditional advertising. Linearity means that the consumer is passively exposed to the advertisement. This entails advertising controlled solely by the sponsors, while consumers are excluded from participation (Lombard, Snyder-Duch, 2001).

Both these aspects make traditional advertising less personal and effective. The response of the advertisers is to make the advertising more aggressive (violent, radiant colors, etc.), which is only a temporary solution (Lombard, Snyder-Duch, 2001).

2.2 Interactive advertising

Interactive Advertising Bureau (IAB) (n.d.), defines interactive advertising as: “all forms of online, wireless and interactive television advertising, including banners, sponsorships, e-mail, keyword searches, referrals, slotting fees, classified ads and interactive television commercials”.

Lombard and Snyder-Duch (2001, p. 57) see interactivity in advertising as the user’s ability to “influence the form and/or content of the mediated presentation or experience.” They also go one step further, and distinguish between different degrees of interactivity of a medium, and different types of the form and content that can be influenced by the user. They depend on five variables, which are as follows (Lombard, Snyder-Duch, 2001):
1. Number of inputs from the user that the medium accepts and to which it responds like audio, haptic, and kinetic inputs, facial expressions and eye movements, or psychophysiological input (Biocca, Delaney 1995).

2. Number and type of characteristics of the mediated presentation or experience that can be modified by the user. Authors list spatial organization, dimensions of temporal ordering, intensity of different elements like color, volume, etc., frequency characteristic, size, duration and place.

3. Amount of change possible in each characteristic of the mediated presentation or experience. The rule is, the more changes, the higher degree of interactivity.

4. Speed with which the medium responds to user inputs.

5. Degree of correspondence between the type of user input and the type of medium response

In this research we are focusing on outdoor interactive advertising, which is one of four major categories of digital advertising (internet advertising, mobile advertising, in-game advertising, digital outdoor advertising). It consists of digital billboards, interactive 3D displays, and captive video networks (Digital Direction, 2011).

2.3 Outdoor advertising

In general, outdoor advertising consist of both previously mentioned, traditional as well as interactive advertising. As people spend more time traveling, out-of-home advertising represents a good way how to reach a mobile consumer (Francese, 2003).

Interactive devices has played a positive role in the growth of outdoor advertising over the past years. For example, touchscreens help to engage consumers in public places (Burciaga, 2014). Engagement of senses in interactive advertising- primarily of sight, touch and sound, are able to: “create a connective experience with consumers that is tied back to the brand” (Burciaga, 2014).

When designing interactive outdoor advertising, one must take into consideration many different aspects. First, the designer must decide what type of interaction should be used within the interactive system. There are three interaction techniques, which are largely used with public interactive displays (Kurdyukova, Obaid, Andre, 2012; Parra et al., 2014):

- **Direct interaction**, which takes place when the user is close to the display and uses his/her hand, or additive control device. Even though this technique requires additional physical effort, it is considered to be fast and natural.

- **Body interaction** is characterized by a mix of motion gesture, posture and proximity. It is intuitive and quick, but can cause cognitive load to the user.

- **Mobile-based interaction**, which requires the least amount of physical effort, but is usually considered to be inconvenient and complicated.

Another question is that of choosing a convenient location for an advertisement, and taking into consideration how it can influence the overall success of campaign (e.g. study from Wilson & Till (2011), in which they analyze the possible effects of the environment on brand attitude and purchase intent of the advertised brand).

Another task is to engage people into interacting with the system. Here designers must face problems like interactivity blindness or advertising clutter. (Parra, et al., 2014).
Important are also safety issues; how to make interaction in the public safe. That means designing for interaction where personalized content is transmitted and publicly displayed. (Kurdyukova et al., 2012), divide this type of interaction into three phases:

**Identification** is when user logs in and personalized information appears on the public screen.

**Navigation phase** is when the user, with a specific goal in mind, manipulates displayed personalized information.

**Collecting results** is the accomplishment of intended navigation goal (Kordyukova et al., 2012; Parra et al., 2014).

The process of engaging people into interaction is an important task, which we will talk more about in the next section.

### 2.4 Engaging through a public display

As suggested by (Parra et al., 2014), the process of getting a user engaged with the interaction of a public display can be divided into four parts. The first two involve getting the user to both notice an interactive advertisement, as well as realizing the interactive capabilities of the display. After this an interest must also be triggered, getting the user to actually start interacting with the display. The fourth and final goal is to keep the user's interest for enough time that they are able to leave with a feeling of accomplishment, the fulfillment of a goal (Parra et al., 2014; Ojala et al., 2012; Müller et al., 2012).

For this paper we're exploring the effect that a combination of interactivity and virtual presence might have on this final goal of interaction. Studies have already shown that it can lead to a variety of effects, some of which include enjoyment and persuasion, the primary goals of an advertisement. Studies also indicate a positive relationship between the attitude towards advertising and purchase intention to the effectiveness of interactive advertising. One of the very important effects of interactivity is its ability to increase the sense of presence (Lombard, Snyder-Duch, 2001; Tan et al., 2013).

### 2.5 Designing for virtual presence

The term virtual presence was originally used to describe the feeling of presence that a human operator reaches when navigating through technology from a remote place. It originates from the state called telepresence and was first mentioned by (Minsky, 1980). Since then, the term has broadened and come to been seen as having a key role within our cognitive process (Riva, Mantovani, 2014).

*Presence* is a widely discussed area within the field of HCI-studies. It can be described as a psychological state where a person's current experience is either generated or filtered through the use of human-made technology (Lombard, Snyder-Duch, 2001). It can also be further described through three characterizing features. First of all, it’s able to place the person in an external space that he or she is able to act within. Secondly, the person is able to receive feedback about its own activity within that space. Thirdly, it let’s the person extend themselves through the use of tools. To summarize presence as a concept, it involves a subject's potential of being able to cause action within a virtual world (Riva, Mantovani, 2014). Here follows three elements of designing for presence.
2.5.1 Designing for mediated action

As mentioned earlier, presence can be defined by three characterizing features. One of these features explains how when a person is acting within a space, their actions are often mediated through the use of a tool. This kind of mediated action can be divided into two categories (Riva, Mantovani, 2014; Riva, Mantovani, 2012):

**First-order:** when a person uses a proximal tool in a direct spatial connection to cause action towards another object. An example of this is, simply using a pen to write on a paper. This action will also extend the peripersonal space of the person, making the person feel present within the tool. What this means is that our use of the pen is being merged with our bodily movement thus making the pens movement seems as natural as twisting your wrist.

**Second-order:** when a person uses a proximal tool to cause action on an external object. For example, drawing on a computer through the use of a drawing tablet. This action lets the person feel present in the extra personal space as it creates a second peripersonal space within the external object. This kind of action might also create embodiment, as the person feels present within a new body.

2.5.2 Designing for spatial awareness

Being able to handle an external tool is however not the only definition of presence. (Spagnolli & Gamberini, 2005), claims that to be present in a virtual space, the user must also be able to place themselves within a space, this being a place existing of it’s own set of coordinates, possible actions and even social and cultural dimensions.

To be present in a place however, you have to have some kind of context making your presence have a meaning. To feel a higher quality of presence you as a user should be able to feel some association to the virtual world being presented. This association in turn, creates your purpose of being in the environment (Spagnolli & Gamberini, 2005).

(Spagnolli & Gamberini, 2005) gives the example of being present at the scene of a crime. In that example it’s not your physical presence that is of importance but rather your possible witness of, or participation in a crime. They summarize by stating that to be present in a place is not the same as residing inside a specified environment, in order to feel fully present you also need to feel an involvement towards it.

2.5.3 Designing for a sense of embodiment

(Waterworth & Waterworth, 2014), presents three categories of embodiment which can be defined as follows:

**Presence via altered embodiment** defines a way of embodiment where you navigate and perceive the world within your own point of view but with technology altering your surrounding. A good example of this form of embodiment is the concept of augmented reality.

**Expanded embodiment** defines how we are able to create a mental version of ourselves within an external space. A state of presence that you can experience inside a virtual reality setting, your avatar in a game for example.

**Distributed embodiment** defines how you might experience a version of yourself within an external space, giving you an out of body experience. This could for example involve you being able to view yourself in a virtual environment.
2.6 Brand recollection and awareness of brand

Consumer-based brand equity models usually study the way a brand is perceived in a consumer’s mind. This is done by collecting data directly from the consumer through interviews, surveys or experiments (Kartono, 2005).

In other words, customer based brand equity is defined as a “differential effect of brand knowledge on customer response to the marketing of the brand” (Keller, 1993, p.2). It is when a person has knowledge about the brand and holds some unique associations towards it. A positive equity is assigned to the brand when a person reacts more affirmatively to the element of the marketing mix of a brand, than to the same element that is assigned to a fictional or unknown product or service (Keller, 1993).

There are three subcategories, which we can measure within the area of brand equity. Those are: customer mindset measures, brand performance measures, and shareholder value measures (Keller, 1993; Lehmann, 2003). Customer mindset measures are concerned with the general attitude of an audience towards a brand. They consist of two dimensions. Brand awareness and brand image, which is a set of brand associations (Keller, 1993; Lehmann, 2003).

Within the area of brand awareness it is important how high the chances are that the brand will come to the mind of customer, and how easy or difficult this happens (Keller, 1993).

Brand awareness is an ability of the customer to acknowledge existence of some specific brand, or to recognize and recall it (Keller, 2007). Important is also, how high the chances are that the brand will come to the mind of the customer, and how easy or difficult this happens (Keller, 1993). In other words we can say that brand awareness consists of the brand recall and recognition performance of the consumer. To be more specific, brand recall means, that when the customer is confronted with a product category, or with some tasks and needs that are accomplished through the product category, he or she is able to retrieve the brand. Brand recognition is a state where the consumer stimulated by the brand can immediately acknowledge previous exposure to the brand.

As mentioned, previous studies show that the combination of elements such as interactivity and a sense of presence can have a positive effect on the brand recollection and attitude towards a brand (Fox, Christy, Vang, 2014). Many of these studies have however focused on virtual and online advertising.

(Keng & Lin, 2006) for example, measured the effect that different levels of presence might have on brand recall in the context of Internet advertising. This was done by dividing presence into three different levels: content, social and personal presence. (Li, Daugherty & Biocca, 2002), focused on measuring the effect that presence has when building product knowledge in a three-dimensionsional advertisement space. (Yim, Cicchirillo & Drumwright, 2012), took this one step further and measured the effect that presence has in advertisements designed for stereoscopic 3D.
3. Method

The topic of our research is not only a subject for designers working for advertising agencies; it also concerns the field of human-computer interaction. For our method it therefore seemed relevant to test our research question in practice. We wanted to combine the advantages provided by both rough prototyping, as well as related research within the field. Our intention was to capture and further analyze unique knowledge which one can get through actual interaction, and which cannot be achieved only by studying literature. We also wanted to be able to better describe the process that goes into constructing a design. Considering all of this, we decided upon building a prototype using the method constructive design research. As (Koskinen, Zimmerman, Binder, Redstrom, Wensveen, 2011) states, this method let’s the construction being produced during the design process become the main source of knowledge. This can include anything from a scenario, detailed concept, mock-ups or as in our case, the building of two prototypes used to measure brand awareness.

3.1 Prototyping

For the purpose of our research we constructed two prototypes; one interactive and one traditional poster. The design process started off with a couple of brainstorming sessions where we talked about how to visualize our idea. This was a long process that came to involve a lot of adapting and adjustments. After settling on the main characteristics we wanted to include, we built our first prototypes. To get feedback that would help us to improve our prototypes further and also to get rid of possible hinders we interviewed three media companies. In addition, we also consulted our thesis supervisor. After analyzing feedback, we made additional changes and proceeded to the testing. Here follows the process of constructing both prototypes in more detail:

3.1.1 Brainstorming and construction

For our interactive prototype we focused on implementing elements of both presence and interactivity in the context of a public outdoor advertising. As mentioned in the previous section, we first decided upon the construction of two prototypes, one interactive and one traditional poster. The purpose of these prototypes was to compare different users ability to gain a sense of brand awareness, data that could help to answer our research question.

Agreeing on this idea we started to discuss different ways of shaping it while also making quick sketches in the mock up software Balsamiq. For example, we talked about creating a fictional movie poster in which the user could navigate through the information. This idea was however scraped after we realized that this would be too abstract. Also, for our purposes it would be more efficient to have a physical product defined by a label and a name.
With this in mind we came up with the idea for “Ve-Fe”, a family of different systems with the functionality of being able to connect to each other in the purpose of distributing media. In the center of this family would be the hub-station which could store and stream media around the user's home. This hub also became the center of attention for our advertisement, and especially for the process of initiating a media stream. While thinking about how to exhibit the possibilities of the system, we came up with an idea of presenting a living room environment with a couple of different media systems in it. The user would be able to navigate through the environment and interact with the different systems.

The process of media being sent from the hub to the different media systems was a key element in our design process. Since we wanted the user to feel a sense of presence during this whole process we worked towards the idea of the user being able to physically drag media around the room using motion gestures. In addition to this, the idea was also for the user to be able to drag the hub station around the room. However, we quickly anticipated that this might lead to confusion regarding the hubs actual purpose. We therefore made it so that the user would instead draw a line from the hub towards the different systems. To further increase the sense of presence for the user we were also talking about adding feedback to this process in the form of audio and sound. Now if the user dragged music to the speakers, music would start playing. The same thing happened if the user instead chose to drag video to the television or a picture to the computer.

After settling on the main skeleton of our prototypes, we had to solve how we were going to construct them. During this process we had two main requirements in mind; ease of use and time efficiency. We decided on using three different softwares; Adobe Illustrator, for drawing lots of different image assets. Adobe Photoshop, for making additional edits, as well as to create the traditional poster. Game Maker Studio, which uses a easy to use “drag-and-drop” interface and allowed us to import all our image assets, create a composition of them and add interactivity to the prototype.

For physical navigation and interaction we decided upon using Leap Motion Controller, a sensor device for motion gesture control on PC and Mac. This device is able to scan and track your hand movement while hovering over it.
The idea of presenting the living room environment was in order to let the users feel the sense of a familiar setting. In turn, hopefully a sense of involvement would be built, this being an important part of designing for a sense of presence within a space (Spagnolli, Gamberini, 2005). In the case of our prototype, it meant the participants being involved with the process of distributing media around the living room.

The leap motion controller was used as a proximal tool to give the users a sense of second order mediated action (Riva, Mantovani, 2014). To ease the navigation and the user's way of locating themselves within the environment we changed the mouse cursor into the illustration of a hand. The hand symbol was designed to create a sense of embodiment for the users, letting them create a mental version of themselves to use when navigating within the virtual space of the advertisement (Waterworth, Waterworth, 2014).

The traditional poster was to be a more compromised version of the interactive poster, built in the same style and presenting the same information.

3.1.2 Interviewing companies
As a next step in the prototyping process, we conducted a set of interviews with a couple of experts within the field of advertising. We interviewed three media companies situated in the northern part of Sweden, all of which had previously worked with interactive advertising in some form. The purpose of these interviews was to get some professional feedback on how to both develop the prototype further, as well as to gain a better understanding on how to measure brand knowledge. As Benyon (2013) states, participative design is a good way to
measure the existing state within the field as well as to understand the requirements for this kind of prototyping. These three sessions lasted about an hour and was a good way to compare our prototypes to the previous work of these companies, giving us a better idea of what is needed in the field today. It was also a way to gather ideas on how to approach brand awareness and findings way of measuring its effect. These are some of the key points we got from these three sessions.

**Defining characteristics**
- We were suggested to add another element to our prototype, to have the user connect with his/her own phone and try out the equipment available in the advertisement. Letting the users choose between different brands in the living room and send pictures, music and video from their own phone to the advertisement.
- We were suggested to further increase the visual similarity of the two prototypes.
- We were suggested to add some kind of reward to the user, possibly a discount for the product.

**Memory recall**
- We were advised to specify three or four elements, which would be defining elements of our product. If the test persons are able to recall these elements, we can say they have achieved brand awareness.
- In order to measure a more accurate result, we were advised to add a time gap of 1-2 days between the sessions.

### 3.2 “Ve-Fe” the all-in-one media hub (Final prototype)

The final version of Ve-Fe (see picture 5) ended up being a brand consisting solely of a media hub. Here are the key changes that was made to the final prototypes:
- A new set of different logos were created and given a more prominent place in both prototypes.
- We inserted known electronic brands such as LG, Bose and Dell as possible products for connecting Ve-Fe to. The idea was to show the users that everything is connectable.
- A paper prototype for a mobile phone application was designed. The purpose of this application was to show the consumers how they can interact with the product in their home environment, letting them try out their own songs as well as getting an understanding of the process that goes into storing and streaming media. (See picture 3)
For the traditional poster we made sure it included all the information that could be found in the interactive version. This was done by adjusting the number of devices included, as well as adding boxes of information explaining the product further. (See picture 4)
• We also set up five defining definitions of Ve-Fe:
  1. Media storage - Ve-Fe is a box that storage media.
  2. Connectivity - It’s a box that streams media towards equipment in your room.
  3. Competitive - It is considered to be a rival to media stations like Apple TV, Chromecast or Boxee Box and to be placed in the context of your living room.
  4. Flexible - You can navigate the system using your phone as a remote.
  5. Affordable - It’s an affordable system.

**Picture 5 – The interactive poster**

### 3.3 Measuring brand awareness

The last part of our method was used to measure the sense of brand knowledge that the two prototypes could help to spawn. To do this we gathered two different groups consisting of 12 people in total. Each group involved two different sessions where we met with every person individually. The first session was used to expose the test persons to the advertisement and hopefully build a sense of brand knowledge. The second session was used to measure what the users were able to recall from their exposure. These two sessions were separated from each other with a two day long gap in order to get a more accurate result.
3.3.1 First session

<table>
<thead>
<tr>
<th>PARTICIPANT 1A</th>
<th>PARTICIPANT 1B</th>
<th>PARTICIPANT 1C</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER MALE</td>
<td>GENDER FEMALE</td>
<td>GENDER FEMALE</td>
</tr>
<tr>
<td>AGE 25</td>
<td>AGE 25</td>
<td>AGE 29</td>
</tr>
<tr>
<td>TIME OF EXPOSURE 8:30 MIN</td>
<td>TIME OF EXPOSURE 5:40 MIN</td>
<td>TIME OF EXPOSURE 6:30 MIN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PARTICIPANT 1D</th>
<th>PARTICIPANT 1E</th>
<th>PARTICIPANT 1F</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER MALE</td>
<td>GENDER FEMALE</td>
<td>GENDER FEMALE</td>
</tr>
<tr>
<td>AGE 27</td>
<td>AGE 30</td>
<td>AGE 24</td>
</tr>
<tr>
<td>TIME OF EXPOSURE 4:45 MIN</td>
<td>TIME OF EXPOSURE 6:10 MIN</td>
<td>TIME OF EXPOSURE 6:30 MIN</td>
</tr>
</tbody>
</table>

Table 1 – Participants Interactive poster

For the first session of the interactive prototype we used a lab environment. We decided upon this mainly because of time limitations. Also, as Koskinen et al. states in their study (2011), a laboratory setting provides researchers with the possibility to focus on one thing at a time.

We invited six participants and started off by telling them to imagine themselves being outside in a public environment, we also told them that in this scenario they've just walked by an interactive poster, which they've gone up to and started interacting with. We then told them that they're soon going to interact with this poster using motion gesture. The prototype itself was displayed on a big screen TV.
Before exposing the participants to the actual prototype, we had them navigating through a simple “playground”. The reason for this was that because of limitations in the prototype, we first wanted them to get used to navigating through this kind of interaction. Once they felt satisfied with the navigation we initiated the interactive poster and gave them a guided tour through the whole process.

![Picture 6- Process of interaction during the first session](image)

**Table 2 – Participants Traditional poster**

<table>
<thead>
<tr>
<th>PARTICIPANT 2A</th>
<th>PARTICIPANT 2B</th>
<th>PARTICIPANT 2C</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER MALE</td>
<td>GENDER MALE</td>
<td>GENDER FEMALE</td>
</tr>
<tr>
<td>AGE 28</td>
<td>AGE 61</td>
<td>AGE 32</td>
</tr>
<tr>
<td>TIME OF EXPOSURE 25 SEC</td>
<td>TIME OF EXPOSURE 4:10 MIN</td>
<td>TIME OF EXPOSURE 2 MIN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PARTICIPANT 2D</th>
<th>PARTICIPANT 2E</th>
<th>PARTICIPANT 2F</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER FEMALE</td>
<td>GENDER MALE</td>
<td>GENDER FEMALE</td>
</tr>
<tr>
<td>AGE 55</td>
<td>AGE 53</td>
<td>AGE 24</td>
</tr>
<tr>
<td>TIME OF EXPOSURE 2 MIN</td>
<td>TIME OF EXPOSURE 2 MIN</td>
<td>TIME OF EXPOSURE 35 SEC</td>
</tr>
</tbody>
</table>

For the traditional poster we instead used Skype as a tool for exposing the test persons to the advertisement. We started off by presenting themselves to the scenario as we did with the first group, telling them to imagine themselves walking down the street going past a poster that attracts their attention. After this we started screen sharing and exposed them to the traditional poster. We told them to take a look at the poster for as long as they felt an interest. As soon as they signaled feeling done, we turned off screen sharing and told them we would like to talk to them again in two days.
3.3.2 Second session

For the second session we conducted a semi-structured interview with both groups. The purpose of this session was to measure how many of the five definitions we had set up that could be recalled by the test persons.

We started off by reminding them of the scenario from two days ago, how they had been walking down the street but suddenly stopped to look at a poster. We then made clear that we wanted to ask them some questions about what they could remember from this experience, not of the advertisement or the prototype but of the product being advertised.

To quickly measure the participant's initial brand recall, we first prepared two sets of logos for the users to identify. First a set of more similar logos was shown on which we asked them to tell us which logo they could remember. When the participants gave their answer, the second set of logos were shown and the same question was told.

After this we asked each participants to tell us every detail that they could remember about the product being advertised. By this phrasing, making it clear that we we’re not interested in details concerning the prototype. We also wrote down a couple of questions relating to our five defining elements. These questions were used as an additional way to measure brand awareness:

1. Can you tell us the name of the product that was being advertised?
2. Can you describe the product, like how did it look, the color of it?
3. Can you describe the functions of the system?
4. Can you give examples of things you were able to connect to?
5. Can you describe the process of storing media on this system? (Interactive poster)
   /Can you tell us what kind of storage opportunities that the system offers? (Traditional poster)
6. How would you define this kind of system? What would you compare it too?
7. How would you define the role of the mobile phone within the process?
8. Can you tell the price range this product is in?

In order to capture all of the information, and not to miss anything, all of the sessions were recorded. After we were finished with all the interviews, each session was transcribed and analyzed.
4. Result

This part describes the result that we gathered from our twelve interviews, analyzed from the perspective of our five defining aspects of Ve-Fe as a product.

<table>
<thead>
<tr>
<th></th>
<th>Interactive</th>
<th>Traditional</th>
</tr>
</thead>
<tbody>
<tr>
<td>First set of logos</td>
<td>83%</td>
<td>50%</td>
</tr>
<tr>
<td>Second set of logos</td>
<td>83%</td>
<td>16%</td>
</tr>
</tbody>
</table>

*Table 3 – Results logo recognition*

**Interactive test group:** From the first set of logos, participants 1B, 1C, 1D, 1E and 1F identified the logo correctly. Participant 1A couldn’t identify the correct logo.

From the second set of logos, participants 1A, 1B, 1C, 1E, 1F guessed the right logo. Participant 1D chose the wrong logo.

**Traditional test group:** From the first set participants 2D, 2E, 2A were able to identify correct logo. Participants 2B, 2C, 2F guessed the wrong logo.

From the second set of logos, only participant 2D was able identify the right logo. The rest five of the participant 2A, 2B, 2C, 2E and 2F were wrong.

<table>
<thead>
<tr>
<th>Media storage</th>
<th>Interactive</th>
<th>Traditional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>66%</td>
<td>66%</td>
</tr>
</tbody>
</table>

*Table 4 – Results of defining element Media storage*

**Interactive test group:** Participants 1D, 1E, 1F could specify that Ve-Fe is a media storage box, and that it was the advertised product. Their definitions of the details for the product however differed some. Participant 1E knew it was a box but she didn't remember the name of it. Participant 1D knew it was a box, he even remembered the position of it in the poster, but mixed up the color of the product.

Participants 1B and 1C didn't know that advertised product was a storage box. Participant 1B said:

"There was a box, from there to the screen and then it was playing". But nevertheless, both of these participant thought the product consisted of a mobile application.

Participant 1A knew about Ve-Fe and its functions, but he thought it was one out of three advertised products: "The product? It was three different ones."
Traditional test group: Participants 2A, 2B, 2C, 2F were able to identify Ve-Fe as a storage box. Participant 2B remembered the product and how it looked, but not its name. Participant 2C was quite precise:

"... I think it was black. It looked a little device. I think there was some round corners on it and that it was quadratic with round corners... you could control different functions in the home. What I can remember you could listen to music, TV. Some kind of sending, storing, something like the cloud. You could storage memory. Send up memory. Yeah, a multi-controller you could control several digital things in the home."

Participants 2D and 2E didn’t know that the advertised product was a data storage box. Both of them thought it was a mobile application. Interviewee 2D said: “it is a service which connects equipment and I can synchronize my data or applications.”

<table>
<thead>
<tr>
<th>Connectivity</th>
<th>Interactive</th>
<th>Traditional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>66%</td>
<td>66%</td>
</tr>
</tbody>
</table>

Table 5 – Results of defining element Connectivity

Interactive test group: Participants 1A, 1D, 1E, 1F fully understood the process of storing and sending media towards other equipment. E.g. Participant 1A said, ”I could select the picture and then press the link that it was sent to Ve-Fe and then it showed up on the screen. Then I used my hands to drag to the computer. Then it showed my picture on the computer.” But as we mentioned before, one of them thought Ve-Fe is one of the advertised products.

Participants 1B, 1C were partially right. They understood that the data are sent to the equipment and then they can play them, but they thought that all data are stored and sent directly from the mobile phone.

Traditional test group: Participants 2A, 2B, 2C, 2F, understood that the advertised device sends information towards home equipment but they again differed in details. Participant 2F remembered she could connect it to computer but not other devices. She said it stores data through the cloud or something like that. Participant 2A said: “It is some kind of networking device to connect music and TV and different kinds of home electronics. I could understand that it was wireless also I think.”

Participant 2D was partially right, when she thought, that through the mobile phone she could interconnect home equipment. But she also thought she could send information from the phone directly to the devices.

Participant 2E didn’t know how system worked at all:

"I don’t know... it was in bubbles in one there was something about storage options and in other there was something else and it was interconnect, and mm I don’t know.”
Table 6 – Results of defining element Competitive

Interactive test group: Participants 1D, 1E, 1F were able to assign the advertised product to the right category of products. Participant 1D said:

"Those home electronic systems, where you have like one device to control everything in your home like the lights, the burglar alarm, the temperature and everything. One of those devices, but for multimedia instead."

Participant 1F stated it is like an Apple TV. Participant 1A couldn’t tell us the right category of product. He said:

“...A game?”

Indicating that he believed the advertisement being the product. Again participants 1B and 1C thought it was an mobile app. Participant 1C said:

“Maybe that would be comparable to some transfer apps like maybe Dropbox. With that one I can transfer it to the cloud but for that one I would put it somewhere where it’s invisible.”

Participant 1B compared it to the home theater, which she could control from any place in the house.

Traditional test group: Participants 2A, 2B, 2F were able to assign advertised product to the right category of products. Participant 2A said:

"I thought of those Apple TV, that and wireless hubs or something, I don’t really know what it’s called. Things that, That I associate with wireless music, yeah.." 2B said: "It’s like a Apple TV variant, but I had more functions..."

Participant 2C was partially right. She couldn’t specify the exact category of the products, but she compared it to the one of multifunctional remote controllers, but

“That you control from your mobile phone.”

Participants 2D and 2E didn’t know to which category to assign the product.

Table 7 – Results of defining element Flexible
**Interactive test group:** Participants 1A, 1D, 1E, 1F could identify that the mobile phone is used as the main remote controller for Ve-Fe. Participants 1B, 1C were partially right when they identified it as a device which sends data. Nevertheless they also thought about it as a central hub station.

**Traditional test group:** Participants 2A, 2B, 2C, 2E, 2F were able to identify phone as a remote control for the system. E.g. 2A:

"...as the one you were supposed to control with somehow..."

Participant 2D was partially right when she knew it serves as a remote control but she also thought it was the central hub station.

---

<table>
<thead>
<tr>
<th>Affordable</th>
<th>Interactive</th>
<th>Traditional</th>
</tr>
</thead>
<tbody>
<tr>
<td>16%</td>
<td></td>
<td>66%</td>
</tr>
</tbody>
</table>

*Table 8- Results of defining element Affordable*

**Interactive test group:** Only participant 1E remembered the price range. Participant 1F was partially right, she said:

“Well if it's only for one thing. Then it can't be as expensive as an apple TV, so I would guess, under 50 dollars.”

Participants 1A, 1B, 1C, 1D weren't able to allocate system into the right price range. For example participant 1D thought it cost from 2000 to 4000 Swedish krona. Participant 1B was confused:

“I don't remember right now, because the price range change in different countries, so I sort of can’t remember according to Sweden's.”

**Traditional test group:** Participants 2A, 2B, 2D, and 2F were able to tell us the price of the product. For example participant 2D stated:

“...the most I remember it cost 99 dollars. It was very visible, much more than a logo...”

Participants 2E and 2C couldn’t recall the price of the product. Participant 2E thought this kind of system would be very expensive “somewhere around 2000 euros.”

---

5. **Discussion**

Here follows a discussion surrounding our result. It depicts all the thoughts and assumptions that we were able to draw from our result, as well as the limitations we saw in our study.

5.1 **Measuring brand awareness**

In our research we were able to distinguish two main differences between the interactive and traditional poster:
• People looking at the traditional poster showed a better recollection of passive text-based information, such as the purpose of the mobile phone and the naming of the price.

• People looking at the interactive poster showed a more detailed recollection of remembering logos and the process of interaction, such as describing how the media was being transmitted around the living room environment.

Based on this we can say that our result shows how adding interactivity and presence to a traditional advertisement makes the users more immersed in the experience. It also provides them with a better recollection of spatial movement and the process of interaction, in our case, by the streaming of media from the advertised product to the different devices in the home. Nevertheless, it makes additional text-based information become secondary and sometimes ignored. In traditional advertising however, the information becomes very focused and receptive, but it is harder to describe the actual use of the product.

Furthermore, as mentioned during the interviews with the companies, our result also shows that adding interactivity to a product should always be a justified design decision. In our case it led to users being able to recall the process of streaming information around the living room. Therefore, the interaction was justified. But since it also made additional information obsolete, we propose that interactivity should first and foremost be added in order to fulfill a specific purpose. Separating different forms of advertising into different contexts could also be helpful. Using the interactive poster as a way of steering the customers to an external medium covering all text-based information could be also be a way of covering more details.

In previous studies concerned with measuring brand recall Keng & Lin (2006) set up three levels of presence; content, social and personal. This gave them a result, which could be used when locating differentiations between levels of presence. Something, which helped them show the specific context, for example, when social presence can be used to produce a better product recall. For our study we used a more general look at the process of designing for presence, focusing on the three characteristics mentioned by Riva & Mantovani, (2014). Had more time been given, we could also have added the measurement of different levels of presence, as in Keng & Lin’s (2006) studies. This could have produced additional data, helping to show exactly what level of presence to use when designing for outdoor advertising. As mentioned, when meeting with the companies we were told that adding interactivity to an advertisement should always fulfill a purpose. By measuring different levels of presence we could have gotten more data relating to the participants immersion. With the use of that data we could have seen from what level of presence the participants became so immersed in the advertisement that they ignored additional information. Such a result could help to decrease presence in some parts of the interaction, and thereby compensating for a loss of text-based information.

Since our interactive prototype was hard to define as a low-fi or high-fi prototype, and could better be defined as something in between, some of the participants responded that they had difficulties understanding what the advertised product was and instead mistook it
for the actual prototype. This limitation of our work responds well to Benyon’s (2013) statement about how semi-functional hi-fi prototypes might lead to confusion of the user. Based on this response, gathered during the interviews and our own observations, we can conclude that a more developed prototype would have led to less confusion and more accurate result. For future research we therefore suggest further development and evaluation of the prototype, as it’s the single most valuable source of knowledge within the method of constructive design research (Koskinen et al., 2011).

Despite the time limitations, we feel that the use of constructive design research is the right method to use in order to measure brand awareness. Since our study aimed to research how brand awareness could be constructed and measured through interactive advertisement, building and visualization of a fictional brand is of great essence. Had a final brand or advertisement been used for measuring, we believe that actual brand building would have been much harder to prove. Especially since there would be no way of measuring or limiting previous exposure to existing brands for all participants before sessions. For this reason, prototyping becomes an essential part of the process.

6. Conclusion

Our study has helped to prove how the implementation of interactivity and presence when designing for interactive advertisement can in some ways be used to increase brand recall. For example in our research, a better recall of the process of distributing media in a living room environment. However, the result also showed that immersion in interactive advertisement could lead to a loss of secondary information. Text based information, such as the price of a product or specific details about functionalities, are instead better recalled when a user is exposed to a traditional poster.

The limitations of our study were mostly related to the construction of our prototype. Since our final construction ended up being a mixture of low- and hi-fi prototyping, some confusion was given as a response from the participants. Had more been time been given to the prototyping phase, these problems could possibly have been avoided, and perhaps that in turn could have improved the results of the interactive prototype tests.

With the result gathered from our research, our study provides two main contributions. First, to the field of constructive design research and HCI through new insights and knowledge on how to create brand awareness by designing for presence and interactivity. Second, by comparing traditional and interactive advertising, we observed strengths and weaknesses of both approaches. Therefore the result can also be of use by advertising agencies during the design process as well as for evaluating brand awareness.

Acknowledgements

We would like to thank our supervisor Naushin Malik for her support and guidance throughout the whole course. We would also like to thank all of the companies helping us during the prototyping phase.
References


INTERACTIVE ADVERTISING – AN OVERVIEW Digital advertising is the most rapidly growing form of marketing, we explain the basics, ddrxn.com Retrieved 30.5 2015 from http://ddrxn.com/wordpress/wp-content/uploads/INTERACTIVE-ADVERTISING-WHITE-PAPERS-PART-1.pdf


