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Augmented places: An impact of embodied historical experience on attitudes towards places☆

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ABSTRACT

Aim: The purpose of this paper was to examine the possibility of using Augmented Reality to reduce memory-related ethnic bias towards places and to increase understanding of multicultural place meaning and change emotional attitudes towards historical sites.
Background: Theoretical and empirical works suggest that the direct, embodied contact with place's history facilitates understanding of its past. Places which were deprived of historical continuity are less liked and threatened by ethnic bias in collective memory. AR technology gives a possibility of recreating past of such places and in a consequence tests an influence of experience of place's history on psychological aspects of the people-place relationship.
Method: A between-subjects experiment was conducted, in which participants either walked with an AR application displaying historical photos in real environment or watched photos on computers. The chosen place was the former Jewish district in Warsaw, Poland.
Results: The results of multiple regression analyses showed that the AR application can facilitate positive attitudes towards a place, reduce ethnic bias and enhance multicultural place meaning.
Conclusions: We argue that AR could be used as a method of reviving (multi)cultural heritage, but also as a tool of reducing prejudices and increasing openness to other cultures and traditions.

1. Introduction

Places of cultural heritage are mostly associated with renown and spectacular constructions whose traditions go back several centuries. These are objects whose historical significance and continuity is clearly visible and could be even regarded as national symbols. However, other places also exist that have a long (e.g. multicultural) past and are rich with historical meaning that have lost their value due to historical processes, current policy needs, or ethnic or national biases. Now they exist as spaces with unknown or unfamiliar significance, less popular both among citizens and tourists, deemed negligible or uninteresting. These places often reflect the complicated history shared by many countries. One such example are the European cities that were more often multiethnic before the XX century, but were deprived of connections with their history (in terms of both people and architecture) during World War II. Typical forms of reviving the memory of the historical value of such places include presenting information about their past in the form of monuments, commemorative plaques, or historical books. Theoretical and empirical studies suggest that these forms are insufficient to increase understanding of place history and reproduce the full spectrum of sensations arising from interaction with historical places (Connerton, 2009; Lewicka, 2012). One of the possible explanations for this is the fact that traditional transmitters of historical information do not attract attention and are perceived as static, permanent parts of the landscape—as Musil (1920) famously stated, "There is nothing in this world as invisible as a monument".

We assume that recreating embodied experience of the place's past and its psychological consequences could be more efficiently done by applying novel and attractive Augmented Reality technology which enables supplementing (augmenting) the real places that lost historical continuity with original photographs displayed on them.

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So far, AR was mostly used to provide additional information about places or as a method of improving the efficacy of learning. To our knowledge, this research is the first attempt to employ AR as an experimental tool in domains of social and environmental psychology in order to modify psychological processes of thinking about places.

Using Augmented Reality technology seems to be particularly beneficial in environmental psychology. In this domain, there have been limited possibilities of experimental manipulation of physical features of place since they are usually constant and unmodifiable. AR technology, as a method that enables treating place features as relatively easily modifiable stimuli, could pave the way for other research on the causal relationship between places and psychological attitudes towards it.

The aim of this paper is to examine the possibility of changing three aspects of the relationships between people and historical places—emotional attitude, place meaning, and memory-related ethnic bias – with the usage of AR.

Our specific research questions were:

1 Could recreating place history via AR modify emotional attitudes towards it?
2 How efficient is the embodied AR-mediated experience in influencing the understanding of multicultural place meaning?
3 Can embodied historical experience be an efficient method in reducing memory-related ethnic biases?

2. Theoretical framework

2.1. Emotional attitudes towards historical places

In our work, we employ an environmental psychology approach, which focuses on the relationship between people and places - understood not as locations in a geographical space but as meaningful environments that are objects of people's emotional attachment (e.g. Tuan, 1974; Relph, 1976).

Research in environmental aesthetics shows that people all over the world prefer historical places to modern ones and develop particularly strong emotional reactions to such places (Lewicka, 2012; Nasar, 1998; Galindo & Hidalgo, 2005). Milgram (1976), an urban psychologist, asked a group of French participants where they would like to go for a walk if this was to be their last walk in the city. Without exception, the historical parts of the city were chosen. Historical parts of cities are where tourists go, where the best restaurants in the city are located, where people arrange important family events, where artists place their studios, etc. (Milgram, 1976). Moreover, a historical appearance is among factors most frequently mentioned as contributors to the beauty of a place (Kirillova, Fu, Lehto, & Cai, 2014).

In our research, we would like to check whether it is possible to evoke positive emotional attitudes towards place that is deprived of historical traces by reviving them with an Augmented Reality application.

2.2. Place meaning and memory-related ethnic bias

According to Richard Stedman (2003a, 2003b), place meaning mediates the relationship between a place's features and emotional attachment to it. Place meaning can be understood in many ways; places include the physical setting, human activities that occur there, and human social and psychological processes (Stedman, 2003a). History of place and memory – both individual and collective – is one of the crucial points of creating place meaning (e.g. Low, 1992).

However, studies on places deprived of direct, architectural connections with their history have shown that social memories tend to be biased: some events or historical facts are remembered, some are absent, some are deliberately "forgotten" to follow existing policy objectives (Liu & Hilton, 2005; Lewicka, 2008). Additionally, research devoted to previously ethnically heterogeneous and at present mostly homogeneous cities has revealed a powerful ethnic bias in how the past of these cities is perceived: an overestimation of the role played by one's own ethnic groups in the city's history (Lewicka, 2008, 2012). The main function of this bias is the justification of the currently dominant group's right to that place. This effect is often enhanced by artificial memory traces, such as monuments, archives, or museums (cf. Nora, 1989).

2.3. Embodied memory of place

Artificial memory is definitely not enough to induce the whole spectrum of impressions and meanings of a place. Connerton (2009) emphasized the role of place memory experienced through daily individual experiences with authentic traces of history. This is the real environmental memory, social and unviolated, including bodily sensations, memories of smells, sounds, haptic experience, and emotions associated with the place. This kind of memory shapes the emotional relationship with the place, and plausibly facilitates a recognition and understanding of the place's unbiased past.

Regarding the embodied cognition approach (Rosch, Thompson, & Varela, 1992; Gallagher & Zahavi, 2012) that type of memory may be called an embodied memory. Embodied and situated cognition assumes that the situation in which an individual acts should be considered as a whole, and that the human body is the most important medium between the person and the world. As Merleau-Ponty (1962) said, a person's bodily response to the environment determines his or her basic experience of space and place. Moreover, it gives a "sense of emplacement through an incorporation into the corporeal life of my habitual movements" (Connerton, 2009, p.32).

The main mode of interaction between the environment and the body is movement (Johnson, 2008). Movement gives knowledge about the world, this is a live, bodily experience and individual – sensory and emotional – engagement. According to Johnson (2008), movement is the principal way by which we shape the meaning of things. Thus, meanings of objects and places are shaped during a direct interaction between the environment, the mind, the body and emotions– all constantly interacting with each other.

In line with the theories and concepts presented above, our aim is to examine whether embodied experience of the past, while walking in a place that has been transformed and deprived of historical continuity, could modify attitudes towards it.

2.4. Augmented reality as a way to an embodied experience of place history

We assumed that direct experience with a place's historical meaning would be crucial for understanding this meaning, changing ethnic bias, and changing emotional attitude. Direct research on the relationships between embodied experience of memory traces and opinions about place is possible because of the recent development of Augmented Reality technology.

Azuma et al. (2001) defined Augmented Reality (AR) as a combination of virtual and real objects in a real environment. The most important aspect of this technology is its ability to align virtual and real objects with each other and display the effect of such a combination in real time. Tablets, smart phones or special binoculars (AR glasses) allow the combination of sensory impression