

The Fugue of the Five Senses and the Semiotics of the Shifting Sensorium

Selected Proceedings

from the 11th International Conference of the Hellenic Semiotics Society



editors:

Evangelos Kourdis
Maria Papadopoulou
Loukia Kostopoulou

e-book (pdf)

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publisher:



The Hellenic Semiotics Society
Ελληνική Σημειωτική Εταιρεία

ISBN 978-618-82184-1-3

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for the publication

the Hellenic Semiotics Society

for the proceedings

the authors

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The Fugue of the Five Senses. Semiotics of the Shifting Sensorium

MEDIA & MULTIMEDIA



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The multi-sensoriality of virtual reality immersion: An experimental study

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Abstract

The immersion properties of digital culture and its all-engulfing effects have been repeatedly referred to in the literature (see Polimeris & Calfoglou, 2015 for an overview). This paper attempts to shed some further light on the potency of the digital medium and, more specifically, of virtual reality, by conducting research comparing the effects of diverse modes of presentation of tourist and cultural tourism destinations on respondents' choice of a place. The results are discussed in light of virtual reality discourse entailing a multi-sensorial immersion meaning-making experience, ocular, auditory and also, potentially, haptic, unlike the purely ocular non-immersion dimensions of a brochure or the 'augmented' ocular dimensions of a website. The degree to which the 'aura' of a destination interferes with the effect of the medium is also discussed. Participants' relatively reduced awareness of the powerfulness of the medium and its multi-sensorial semiotics is considered in relation to affect as "always just beyond the control threshold of" and "travers(ing)" rather than "possess(ed)" by the subject (Shaviro, 2010; cf. Salvatore & Freda, 2011).

Keywords

multi-sensoriality, VR, aura, affective processes

Introduction

In 'The Aesthetics of Mixing the Senses', Howes (n.d.) elaborates on 'a full-bodied, cross-modal aesthetics' (p. 80), to be found in the Ancient Greek symposion, in contradistinction with the "refined" (*ibid.*) understanding of the nature of aesthetic experience" showing aside the nonvisual senses, which was brought about by 18th century philosophers. In doing so, he clearly demonstrates that the 'fugue' of the senses has not always been a harmonious one and that the contrapuntal element has not always been given voice in perception. Digital technology has allowed the polyphony of the senses to revive, however. Late 20th and early 21st century digital technology has actually led to the creation of multi-sensorial virtual reality (henceforth VR) environments, whose immersion properties have given the multi-sensorial a strong boost. Immersion may involve "the body's capacity to supplement technology" (Hansen, 2003, p. 4), the human subject being "devoured by the process" (Polimeris & Calfoglou, 2015, p. 76), while the body-machine interplay arouses multiple senses to the point of alertness. As a matter of fact, immersive environments have been said to involve both 'sensorial deprivation', due to the distance from the 'real thing', and "a perpetual synaesthetic negotiation in order to reconnect different stimuli into a coherent whole" (Wynants *et al.*, 2008, p. 157). In other words, they give rise to a different kind of cross-modal aesthetics and a new type of narrative (cf. Copley, 2001).

In an attempt to explore VR effects and shed further light on the digital immersion experience and the plurality of the senses involved in it, this paper presents an experiment in which the participants select among a number of tourist and cultural tourism destinations presented to them in diverse modes and seeks to explore the degree to which VR environments will assert their dominance over the other two modes of presentation, namely the brochure and the website. It is laid out as follows: We first present the relevant theory, highlighting its semiotic implications, and then, in the next section, we describe the experiment, the results of which are presented and discussed in the final section. We will attempt to highlight the insight affect theory gives us into subject behaviour and go on to suggest that the 'aura' of a cultural product may need to be redefined to respond to the 'augmented', multi-sensorial needs of a digital world.

Virtual Reality environments: Where has all the 'aura' gone?

Immersion was referred to above as an all-engulfing reality. This has meant that the medium can be shatteringly powerful in leading subjects to specific choices. With regard to the selection of a destination in particular, which is what we have sought out to explore in the present study, its impact may be all-sweeping. This is probably enhanced by the fact that, as has been argued (see, e.g., Selby & Morgan, 1996, Powell. & Kokkranikal, 2015), one's perception of a place may well determine one's decision to visit it (see also discussion in Polimeris & Calfoglou, 2015). An earlier, small-scale version of this experiment

(*ibid.*) indicated an advantage of the virtual over the 2D-digital, namely the website. This advantage has been argued in the literature (e.g. Yu, 2013) to be a result of increased subject control and interactivity, the 'illusion' of body dominance, to which multi-sensoriality contributes, as work done on the digital modification of space and multi-sensoriality seems to suggest (e.g. Breffeih & Azarbayjani, n.d.). We are witnesses to this 'expansion of the body into space' which McLuhan (1964) refers to so eloquently and which has led both to a redefinition of space and time in the digital universe (Polimeris & Calfoglou, 2014, 2016) and a concomitant redefinition of the role of the senses in perception. As Sosnowska (2015, p. 2) puts it, "The so-called 'language of new media' is largely based on the very concept of sensory language". Thus, it is quite natural to expect the virtual and multi-modal to override the non-virtual.¹

The potency of the medium, with its multi-sensorial dimensions, may be said to counteract the individual charm, the 'aura' of a place. Benjamin (1936/1968) defines the concept as the distance required to give an object its "uniqueness and permanence" (p. 4). We borrow the term from Benjamin's description of a work of art to refer to the uniqueness of a place, a destination, in its physical sense, its bodily presence, as against its virtual existence. In Benjamin's terms (*ibid.*), the aura of a place is now battled against by the masses' "desire () to bring things 'closer' spatially and humanly, which is just as ardent as their bent toward overcoming the uniqueness of every reality by accepting its reproduction". Applied more generally, this definition could be a very apt comment on the impact of virtual reality, of the way it appropriates objects, creating digital synaesthetic effects. In other words, the place as a unique physical entity might give way to the covetous wish to devour it digitally. This is a dimension we explore in the experiment described in the next section.

But how could the impact of the medium on one's choice of a destination be translated in semiotic terms? On the basis of Peirce's argument that "a sign is something *A*, which brings something, *B*, its interpretant sign determined or created by it, into the same sort of correspondence with something, *C*, its object, as that in which itself stands to *C*" (Peirce, 1902/1976, vol. 4, pp. 20-21), in an "infinite process of semiosis" (Salvatore & Freda, 2011, p. 120), namely the need for this triad to exist in order for a signification to be achieved, we hypothesise the following: If *A* is our idea of a place, *B* is the place as presented and *C* is the place itself, then, in the case of a virtual tour, the interpretant, the interpreting sign, would involve the mediation of the digital-virtual. The question, therefore, is how robust is this sensorially enriched experience in signifying *C*, the destination, the place, and whether the virtual interpretant is more effective than its non-virtual counterparts. Could it be that the actual experience fades away if pitted against the virtual one, giving rise to the so-called 'avatar blues' (Piazza, 2010)? On the other hand, if the aura of the place, as suggested earlier, its singularity outdoes its VR replication, as a result of having visited the particular place, for example ('I've been there'), then perhaps this would

mean that the multi-sensoriality of the actual experience is a stronger interpretant than the virtually mediated, synaesthetic one.

The question arising, however, is whether this sense-making process is conscious. As a matter of fact, it may be tempting to attribute potential VR, immersion effects to affective semiosis (cf. Taffou, 2015). This would involve a pre-semiotic – semiotic interface in Salvatore & Freda's (2011)² terms, merging the signs referred to above with non-intentional sense-making (but cf. Leys, 2011). As Salvatore & Freda (2011, p. 131) put it, "people cannot help affectively making sense, just as they cannot help perceiving or thinking. (For) every experiential encounter with the world triggers a movement of affective semiosis that shapes the existential meaning [...] of such an experience for the subject". Most relevantly, affective semiosis is a homogenising process, "a mental operation whose product is the transformation of the flow of experience into [...] a single global mental state associated with the totality of the experience the subject is part of ..." (*ibid.*). If affective semiosis follows this 'categorisation mode', we might expect respondents' perception of the virtually presented destination to be a syncretic one, treating it as the class it belongs to rather than as a distinct object of visit. In other words, Rome, for example, might be seen not as Rome but as a collection of beautifully presented sights. As might be expected, such an outlook would further testify to a destination's loss of aura.

The experiment

On the basis of the issues discussed in the previous section, we designed an experiment in which we presented participants with a number of destinations in the form of a brochure, a website or a VR environment with the following threefold aim:

- We were interested to see whether participants' choices would reveal any preference for one of the three presentation modes, suggesting, for example, that the VR presentation mode, allowing the digital visitor a virtual tour of the destination advertised, with its multi-sensorial immersion component, is more popular and thus selected more often than the other two, namely the brochure, with its purely ocular dimensions, and the website, with its enriched, 'augmented' visual – auditory features, enhancing the plain illustrated reading text of a brochure. The synergy of signs at work in the virtual tour might add to the effectiveness of the medium.
- We also wanted to see whether the 'aura' of the destination, its popularity in lay terms, would counteract the strength of the medium.
- Third, we wished to examine the degree to which participants were conscious of medium effects in their decision.

More specifically, the questionnaire participants were given involved the following: There were two types of destinations, represented by 3 questions each, each question involving 3 items: tourist destinations, cities, and cultural tourism destinations, namely muse-

ums, like the Mozart Museum or the Smithsonian. At the end of each group of questions there was a question inviting participants to decide which of the 9 items they had been exposed to they would visit if they had the chance to right at that point. This was meant to test for the lasting effect of the presentation medium. In other words, depending on respondents' choice at this point, we could obtain further evidence as to the strength of the brochure, the website or the VR presentation or mitigate our arguments in favour of presentation medium effects. The destinations in both groups varied in terms of popularity, so each choice involved low- medium- or high-popularity cities or museums. This was meant to explore our second research question, namely the degree to which the 'aura' of the place, as defined in the previous section, interfered with the effect of the medium. In other words, we were interested to see whether the effects of the medium were the same, independently of the strength the destination carried on its own. This would mean that the place as a physical entity may give way to the place as a digital entity.

In addition, to eliminate the possibility of randomness and explore participants' consciousness of the potency of the medium, in response to our third research question, we asked them to state the reason for their choice.

The questionnaire was given to 89 respondents (36 of whom were adults, University students mostly) and another 53 secondary schoolers. No significant differences between the two groups were obtained, so we decided to treat them jointly in our discussion. The questionnaire was available online and respondents clicked each city or museum button and saw a presentation of the city or museum in the form of either a website or a virtual tour or a brochure. Each destination in a row was presented through a different medium. They then ticked the relevant space in the questionnaire hard copy, opting for one of the 3 items/destinations in each row. The results were subjected to quantitative analysis, though some qualitative analysis was reserved for the open-ended questions.

Results and discussion

Let us now take a look at the results. Overall, the VR mode took the lead over the website and the brochure. As we can see in Table 1 below, VR destinations fared much better than their rivals, as they got an overall 45%, that is 236 responses out of a total of 529, while websites got 27% of the total of responses (146) and brochures 28% and 147 responses:

Table 1. Overall number of responses by presentation mode.

Brochure	28% (147)
Website	27% (146)
Virtual tour	45% (236)
Total	100% (529)

We can first of all see that websites, though non-linear and sensorially enriched compared to brochures, do not present any particular advantage. On the other hand, our initial hypothesis regarding the robustness of VR effects is confirmed. As expected, the immersive VR environment engulfed respondents and led them to favour the specific tourist and cultural tourism destinations. In semiotic terms, it appears that the multi-sensorial virtual medium acted as a more effective interpretant for the object described than the visual or the 'augmented' visual one. We thus had evidence for the potency of the semiotic system synergy, achieved through immersion, in the VR destination presentation mode.

If we look at the results for each item/question more closely, we will see that, in conformity with the overall trend obtained, the virtual superseded the other two modes in all cases but one, while the differences were statistically significant at the .05 level in all cases but two. Even in these two items, however, the destination presented virtually had the lead. What is worth commenting on a bit further, however, is that in one of the items where the difference observed was significant, the highly popular cultural destinations one, the brochure outperformed the other two modes most dynamically. It seems that this is when the multi-sensorial recedes in favour of the uni-sensorial and, more specifically, vision. On closer inspection, we can see that this choice involved the Louvre Museum, which a number of participants had visited quite recently, so the visual mode could be relied on safely, since the destination was identified semiotically via the memory of the actual visit, which acted as a stronger interpretant of the destination than its 3D representation.

This takes us to our second point, regarding the effects of the destination 'aura'. The results obtained for highly popular destinations show that, for highly popular cities, the mode effect was not significant, while for highly popular museums it was but inversely, the brochure mode outdoing the virtual and the website, as we saw above. We can therefore deduce that the distinct 'aura' of a destination may sometimes blunt presentation mode effects, though further examples would help us draw firmer conclusions. In other words, the uniqueness of the place may weaken the power of immersion, bypassing the mediation of the virtual interpretant and the synergy of the senses effect. If we adopt Benjamin's (1968) definition of aura as the "associations, which, at home in the *memoire involuntaire*, tend to cluster around an object of perception" (p. 186), and assume that a VR presentation is not compatible with the realm of imagination (Bolter *et al.*, 2006, p.26), then our data also partly argues in favour of the involuntary and the imaginative.

So, where does affective semiosis come into play? What evidence is there of semiosis "... just beyond the control threshold of and "travers(ing)" rather than possess(ed) by the subject (Shaviro, 2010, p.3), as alluded to in our third question? When respondents were requested to provide a reason for their choice, it appears that a mismatch between

VR selection and acknowledgement of the role of the presentation mode was obtained. More specifically, as can be seen in Table 2 below,

Table 2. Reason for destination selection

	Frequency	Percentage
presentation mode	27	30.3
popularity	12	13.5
other	50	56.2
Total	89	100.0

the proportion of those who attributed their choice to the presentation mode and had selected a VR-presented destination went down to 30.3% as against the initial 45% we saw in Table 1. Interestingly, an overwhelming 56.2% attributed their choice to reasons more or less unrelated to immersion or popularity,³ which may suggest that VR immersion effects acted upon their subconscious. These results gain a further boost if pitted against the final choice of a destination made by our respondents, in answer to the question ‘Which of all the above destinations would you visit if you had the chance to right now?’. Once again, the 30,3% we get in Table 2 above falls short of the 41.6% selecting the virtual in answering this question⁴. It would therefore seem to us that, in Leys’ words (2011, p.450), “there is a disjunction or gap between the subject’s affective processes and his or her cognition or knowledge of the objects that caused them”. In other words, participants make a choice, presumably under the impact of the medium employed for the specific destination, without realizing what led them to the specific choice. This disjunction suggests that the issue of awareness may need to be explored further. In multi-sensoriality terms, we could say that the participants are partially unaware of the strength of multi-sensorial stimuli. This may complicate the signification process, for affect has been referred to as an a-signifying intensity (see Massumi, 2002). On the other hand, isn’t this process complicated anyway by the fact that the mediation function performed by the interpretant becomes the sign itself, as in the famous McLuhan (1964) motto ‘the medium is the message’?

As noted earlier, the homogenizing properties of affect may lead to generic perception, which, of course, the subject is unaware of. This, along with the concomitant loss of aura of the object, in our case the destination, may trap the subject within a synaesthetic perception which eliminates the subject’s need to ‘be’ there. This feeling is greatly enhanced by the fact that immersion may tap affect and the subconscious. These are actually the two sides of the same coin: the body helping technology and technology eliminating the body – the ‘corporeal phantasm’, in Levitt’s (2012) terms. Referring to the im-

plications of immersion technology, Levitt (*ibid.*) speaks of “an affect-driven culture that sells effects, sensation, experience and states of feeling” (p.2). As we saw earlier, the subject may experience depression over the non-virtual. Our subjects apparently managed to resist this trend to a certain extent, when dealing with a highly popular cultural tourism destination, by selecting the visual mode, the brochure. Their choice of the specific presentation mode may have allowed them to perceive the object differently, as suggested earlier, associations forming in the *memoire involuntaire*.

Let us now return to the sensorium. According to Simmel (1912), the increasing dominance of sight in the modern world impacted emotions by heightening “the sense of utter lonesomeness, and the feeling that the individual was surrounded on all sides by closed doors” (Howes, 2013, p.6). Is this lonesomeness counteracted by the multi-sensorial element, the combination of sight, hearing (the accompanying music) and the feeling that the viewer may have haptic contact with the place presented in a VR presentation mode both in our experiment and, perhaps, more generally? There can be no definitive answer, of course, but immersion, though multi-sensorial or, rather, synaesthetically so, may be said to involve substitution of the interpretant, the interpreting sign for the actual object, and this may be more lonesome still. “Perception is a social activity”, says Howes (*ibid.*, p. 9) and there might well be a social-dialogic element in virtually ‘imprisoning’ the senses of viewers globally within seconds of time but the ‘consensus’ achieved may blunt rather than sharpening the senses, thus twisting perception.

Concluding remarks

So, what are we left with? Although there appears to be some resistance to immersion effects, especially in so far as the aura variable is concerned, the future is digital and stereoscopic, so perhaps this variable needs to be redefined. In the not distant future, the non-replication idea of Benjamin’s aura may be fully inapplicable and the contribution of virtual modality to shaping one’s perception of a specific entity may be most dominant. We may therefore need to see how this new kind of ‘aura’ is constituted in the new semiotic triangle, where the interpreting sign, woven in with the digital medium, has become all-powerful. In the definition of ‘aura’, uniqueness might be replaced by its very opposite, namely massive, synaesthetic accessibility (cf. Betancourt, 2006), and the notion of a place ‘as such’ may perish, so the place to be visited, the cultural or other destination in our study, may eventually be a synthesis of immersion experiences.

Endnotes

1. For a social semiotic account of multimodality see O’Halloran *et al.* (2010).
2. The authors actually draw on Matte Blanco’s (1975) theory of the unconscious in formulating their idea of affective processes.

3. They came up with statements like 'It's a beautiful place', for instance.
4. For cultural tourism destinations, virtually presented destination responses went down to 31.5%, which suggests that participants were not adamant in their decisions. This would need to be explored further with the help of more data per person.

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