CONSCIOUS INTERACTION WITH IMMATERIAL SPACE:

Augmented Reality of everyday life

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Abstract. This paper describes an on going research that uses design experimentation to provide an insight into different modes of space representation – in this case, physical, augmented or virtual space – and the type of experience triggered by their juxtaposition. We investigate, thus, how the simultaneous labyrinthic navigation and the moving or "shifting" "overview" enrich our experience of the city and "bring forth" the function of the bus-stop as an intermediate space of transition. We also question the way in which one perceives his/her own body spatiality and motility in physical, augmented and virtual environments, and how the particular kind of experience created by this juxtaposition, "brings forth" one's awareness of his/her *navigation* in the city, or the instrumentality of the specific place. Our theoretical approach highlights issues pertaining to *embodiment*, *spatiality*, *consciousness*, *intentionality*, *virtuality* and *immateriality*.

1. Introduction

The boundary between physical and virtual space - the in-between condition - is the subject of an increasing interest within architectural discourse. Hybrid spaces that blur this boundary, and the immaterial elements that constitute them, such as media or technology, will be the focus of this paper. This paper is an attempt to advance the theme of augmentation by applying it to the function of a specific public context, thus, exacerbating this coterminous boundary into becoming a different experience, whether, as Michel de Certeau (1984) suggests, an overview, a labyrinthic route through, or some other kind of hybrid experience in this context. We propose a spatio-temporal intervention, or an augmentation, to be applied to

a bus-stop, as an example of a public context. The augmentation is to question our perception and experience of space.

Oxford English Dictionary defines *space* mainly as "denoting time or duration, denoting area or extension*"Metaph,*. Continuous, unbounded, or unlimited extension in every direction, regarded as void of matter or without reference to this. Freq. coupled with *time*."[1] However, and for the purpose of this paper, this definition falls short of providing a meaningful description of what we are about to investigate. Michel de Certeau (1984) defines space as the element that involves activity including mental activity. He makes the distinction between space and place by characterising place by containing a physical fabric of land and buildings. Malpas suggests that the distinction between 'subjective and objective spaces' is mainly conceptual (1999, 64), however, "place is that within which and with respect to which subjectivity itself is established." (1999, 35)

We argue that space is a narrative device referring to the human physical being (embodiment) as perceived, memorised, and projected with relation to time, which constitutes an ontological setting in which our lives unfold. Space provides a coherent, systematic account of meaning for our perception and a way for investigating all aspects of being that may provide an interesting insight into our existence and add to our knowledge.

Hence the delineation of place is a phenomenological process that encompasses various conceptual intimate spaces, as argued by Bachelard, and constitutes an existential narrative about human condition. We are going to take this narrative in the form of a bus journey, and criss-cross it with the consciousness of the traveller.

2. Description of the Bus Stop

Our design-in-progress intends to make the experience of *waiting*, *expecting* to travel and *travel* perceived, as such, in a new perspective and under a new approach towards time, space and way-finding. It manifests or challenges the *ambiguity* of the bus-stop-waiting (since people waiting cannot be sure of the precise bus arrival time), the condition in-between the physical travelling and the intended, desired, expected or mentally imagined one, and the richness of the multiplicity of ways for exploring a city, by the fragmented "overview" juxtaposed to the actual view of the physical place).

By contrast, there have been several examples of augmented bus stops designs that concentrate on the functionality of providing informing to pedestrians about where the bus is at a precise moment or about the time that the bus is due to arrive. In some cases, interactive systems are installed to aid in planning the trip in the city by picking up the shortest or fastest bus routes and connections. MIT SENSEable City Lab's design of Zaragoza's

bus stops enables passengers, using a touch-sensitive screen-wall, to plan their trip on an interactive map, exchange community relevant information on a digital message board, surf the web, and use the media on the bus shelter as an interface to their mobile devices. (MIT News Office, 2006)

Another example of bus stop design with embedded technologies, is the Nokia interactive advertisement wall installed at some bus stops in London and in Canada. While a memory game –accompanying the advert– is installed and can be played by people waiting at the bus stop in London (textually.org, 2007), its counterpart in some cities in Canada acts as an enlarged Walkie Talkie that enables pedestrians waiting at the bus stop to chat with others waiting at other bus stops in other cities of Canada. (engadgetmobile.com, 2007)

These are some of the examples of technologies embedded in bus stops in order to augment the experience, inform, help in travel planning and enjoy the passengers.

The proposed bus stop (Fig.1) is a hybrid –physical and virtual-environment, which connects the city's different parts of the city in several ways; physical, visual, conceptual, temporal.

It is a rectangular cube with specific sides of it replaced with semi-transparent screens, transmitting the passengers view as captured by a camera or a set of cameras installed inside the bus. This video is transmitted in real-time to the screens of the bus stop. It makes it available, thus, to the pedestrians waiting, transmitting them virtually to the point of the route where the bus is, at each simultaneous moment.

Figure 1. Perspective displaying the view inside the bus and inside the bus stop.

The semi-transparent screens allow multiple layers of experience and vision, however, construed differently: one layer of the captured and transmitted video of the route, and one of the actual view of the road. When the two environments – the projected one and the actual one – are of the

same, it is the time when the bus arrives. The people who were waiting at the bus stop leave the virtual route and follow an actual one.

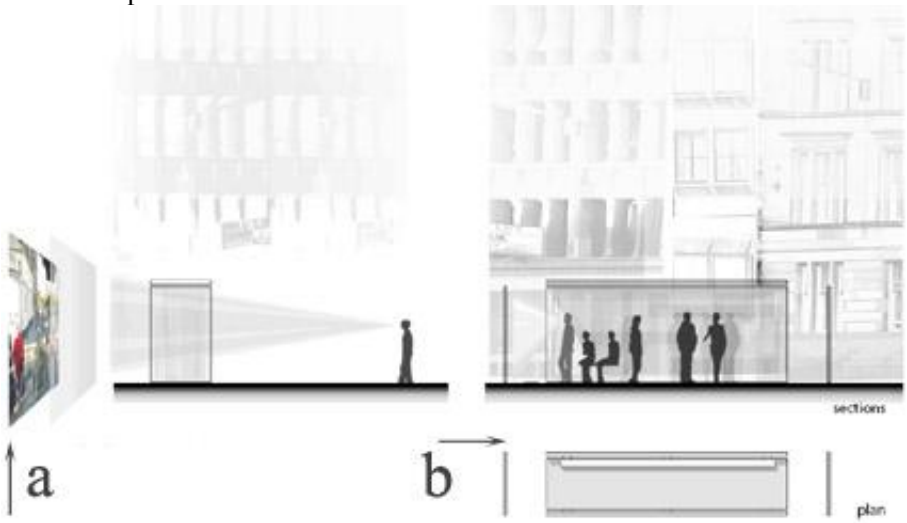

Figure 2. a) Actual view at the bus stop behind the screen, and b) A projection on the semi-transparent screen at the bus stop

The journey starts virtually when they arrive at the bus stop; at that moment they become aware of the place where the bus is at that moment. They get simultaneously virtually transmitted to a previous part of the bus route, from when on they follow it. When the bus arrives their "journey" continues as a physical, actual one. It is, thus, a spatio-temporal device for perceiving the route of the city in an enriched way.

This projection "box" can be experienced either from within (by the people waiting for the bus) or from the outside (by the people who are passing by), since the screens are semi-transparent in both directions. It provides an enriched experience of routes of the city, thus, not only to the people who use it as a bus stop, but to anyone who would come across this place.

Figure 3. Timeline displaying overlapping layers of the route at both locations.

3. Being of Everyday Life

Martin Heidegger proposed "Dasein" (1962, 83), [literally "to be there"] or being, existence as a conscious body. Heidegger explains the entity that exists in its time: "Dasein is the entity which I myself am in each instance" (Heidegger, 1985. 152). He argued that we need to understand the essential structure of "Being-in-the-world" to achieve a proper account of meaning for its spatiality, and tried to analyse it from an ontological point of view, from the point of view of this entity. The fundamental character of Dasein, which is 'to be it in its each particular instance (of time),' must be maintained, therefore the first step will be to let this character be derived from Dasein itself. Michel de Certeau adopts this phenomenological approach in describing the way we perceive the city by walking in it and by viewing it from above (1984). Based on these two ways of experiencing the city, he discusses the way in which one perceives himself within the city; his position is concurrent with Merleau-Ponty's view on embodiment. Merleau-Ponty asserts "Our own body is in the world as the heart is in the organism" (Merleau-Ponty, 2003, 235). In other words, our embodiment in the world constructs physical interaction because our recognition and interpretation of this interaction is embodied. Our bodies are implicated in our experiences.

De Certeau's example is Manhattan and the view of the city from the 110th floor of the World trade centre. He describes the viewer as "an Icarus flying above"; the overview of the city provides an understanding of it, different from the one gained by the experience of the city from within. From above, the viewer "puts himself at a distance" and "reads" the city before him (de Certeau, 1984, p. 92). The viewer's experience is framed in terms of distance, and interaction. Both variables are orchestrated by scale, and hence the implications of scale, as a factor that dictates our perception of the city, highlight a controversial relationship. The perception or the understanding of the relationship between the viewer experiencing the city from within a context and from outside that context, i.e. the city as an object, shifts; as Michel de Certeau describes it:

> "… it transforms the bewitching world by which one was 'possessed' into a text that lies before one's eyes. It allows one to read it, to be a solar Eye, looking down like god." (de Certeau, 1984, p. 92)

Scale implications are clearly in the centre of this endeavour is an important element of our perception as it often contributes to the logic, or the absence of logic, of the relationship between the human body and its surroundings. Framing our experience in terms of scale vindicates the issue of scale as a major determinant of immersion and engagement within an environment (Al-Attili and Coyne, 2004). The body is the centre of our

interaction and our mediation with the world (Johnson, 1987). Gaston Bachelard in his poetics of space

The viewer can simultaneously be aware of the overall layout of the city. In this context the viewpoint is what defines the kind of knowledge one is exposed to; "the fiction of knowledge", as de Certeau calls it, "is related to this lust to be a viewpoint and nothing more" (de Certeau, 1984, p. 92). However, Gaston Bachelard interprets the city from a distance as a minuscule that opens up an entire world. The viewer is like "a man with a magnifying glass"; he "bars the every-day world. He is a fresh eye before a new object" (Bachelard, 1964, 155).

Even before the time when the means to provide an overview were available, the desire to have a view of the city was already expressed; De Certeau refers to H. Lavedan by describing "Medieval or Renaissance painters represented the city as seen in a perspective that no eye had yet enjoyed" (1984, p. 92). The use of the perspective as such, and the specific perspective view chosen, are both indicative of the way the self was perceived in relation to the world. It is also indicative of the desires or of the mythical connotations of the being-in-the-world. Writers often build imaginary spaces that defy logic, and provide creative points of view. Charles Nodier[1], for example, in his novel Bean Treasure, writes about his hero who gets into a fairy's coach the size of a bean, yet carrying over six thousand beans.

In opposition to the overview of the city, de Certeau refers to the experience of the city by walking within it. The walkers live *in* the city and experience it step by step. They do not have a simultaneous view of multiple places; they live "below the threshold at which visibility begins". They are "ordinary practitioners of the city", "whose bodies follow the thicks and thins of an urban 'text' they write without being able to read it". (de Certeau, 1984, p. 93)

He describes the city as a network of practices, stories, fragments, trajectories, that are not visible, and which do not have an author or a spectator. Refering to Maurice Merleau Ponty he describes these invisible or non-representable practices as "another spatiality", an anthropological, poetic and mythic one.

> "These practitioners make use of spaces that cannot be seen; their knowledge of them is as blind as that of lovers in each other's arms. The paths that correspond in this intertwining, unrecognized poems in which each body is an element signed by many others, elude legibility. It is as though the practices organizing a blusting city were characterized by their blindness. The networks of these moving, intersecting writings compose a manifold story that has neither author nor spectator, shaped out of fragments of

[1] Charles Nodier, 1780-1844. French writer of tales of fantasy.

> trajectories and alterations of spaces: in relation to representations, it remains daily and indefinitely other." (de Certeau, 1984, p. 93)

This duality of being able to see the whole or see only a fragment is described by de Certeau as a sort of knowledge, and it finds resonance in Heidegger's concepts of being *present-at-hand* and *ready-to-hand*. (Heidegger 1962, pp. 135-144)

The boundary-condition between perceiving the tool – the bus stop in our case – as a "present at hand" or dealing with it as "ready to hand", is probably enriching our perception of our environment. We become aware or conscious of the object of perception and the interactive process of perceiving it.

4. Technology and theory applied to the bus stop

We juxtapose technology and everyday space, within our context, to observe the resulting hybrid space and the way it navigates or leads one in the world (or in the city). We question, the way one perceives himself within them and how he perceives himself in relation to the city or to other places.

Is the inhabitant of the city a flaneur, finding his way by experiencing places walking through them – is he "*away*" from the city "*overlooking*" at it? The hybrid environment we designed poses these questions by the way it leads the user through the city. We consider that the way it functions would make the user aware of his hybrid route in the city; it would activate his thinking or awareness of his *being-in-the-world* or rather of his being in a particular part of a route within this city, connected in multiple ways to other parts of it. The real-time video display virtually leads the user through actual streets of the city; he "explores" the route little by little, as the bus moves towards the bus stop. He does not have a view from above or from a very special perspective. He is not aware of what happens simultaneously in many different parts of the city. He is a virtual "flaneur". Nevertheless, he is not an actual flaneur; he follows the routes only visually, he does not experience them by all his senses and he cannot affect what happens in other parts of the city either. He sees from far away; like Ikarus. He has a kind of "overview" of the route without going through it. He is aware of what happens in some other parts of the city and simultaneously he is aware of what happens in the precise place that he is physically in. The fact of a temporal gap existing between the *being-here* and *being-there* has been shifted.

We could argue that the user's experience of the city is hybrid too. He does not experience it as a walker or by having an overview. He experiences qualities of both in a non-conventional kind of environment.

With this experimentation we challenge ways of perceiving ourselves within a spatio-temporal context. The hybrid augmented environment enriches the experience of the place; it turns it into an experience of multiple places in a designed way of overlapping sequences.

The narrative – the way the videos are captured and projected – is perceived differently by those who are familiar with the city in comparison to those who are not. The ones who are familiar with the city recognise the places that the bus passes by and which are projected on the bus stop screens; they become aware, right from the beginning, of how the device functions. The ones who are not familiar with the city probably do not recognise what the projection is about. They would possibly recognise it, though, when the bus arrives, as the two environments – the physical and the projected – become identical. The interpretation of the device, or of the city through the device, depends on the users' previous experience. The virtual aspect of the environment is the same for all the users, but their interpretation of it and the correlations it creates is different depending on their past experiences of the city, or the level of *familiarity*. This happens, of course, in the physical environment of the city too; the place is perceived in relation to previous experiences of it or of elements of it. In our case the past experience becomes crucial for the interpretation of what happens between places; between the place that the user is *situated* at, and the place that is *coming* to him.

The way people experience this intervention and the amount of time that it would take them to become aware of how it functions, are things that we would like to test in a real *scale*-and-*place* model. Our intention is to explore - by observing how the bus stop is being used by the people – to what extend it eventually functions as an actual bus stop – as a tool *ready-to-hand* and to what extend it makes itself present as a peculiar tool – as a tool *present-at-hand*.9 The two terms introduced by Heidegger (1962, pp. 135-144) refer respectively to entities that we encounter before any others, and entities encountered in terms of their functional values.

In a mode of interaction that is ready-to-hand we expect the bus stop to be an element of perception we encounter in everyday life. We just interact with it as embodied beings. It is only in the event of perceptual breakdown that augmentation comes to light, and our encounter with the same bus stop has more the character of the present-at-hand. The process of visually perceiving two spaces/places at the same time – one physically and the other virtually - presents space to us as alien, and fully present-at-hand.

The element of the environment that we deal with – the bus stop – has a very specific function, and also a series of "*mythical*" or phenomenological connotations. The intervention we impose on it is not an independent installation; it is closely related to the function of the place; it brings forth the function of the bus stop; its "thingness" (Heidegger, 1971). It is an *in-*

between place within a complex urban network; a part of a route and a kind of navigation element in the city.

Our purpose was to experiment with ways in which virtual and hybrid environments enrich the experience of urban places of a particular use. Our intention was to intervene employing these technologies in such a way as to promote and "discuss" the existing, ordinary use of the place.

According to Merleau-Ponty, consciousness denotes a state of being-in-the-world, in which, we actively assign meanings to objects beyond their actual properties perceived by our senses (2003, pp. 77-171). Hence, pedestrians waiting in the bus-stop project themselves to the bus, which is not there yet. They start their virtual trip upon their arrival in the bus-stop, and then materialise it when they take the bus upon its arrival. The bus stop "brings" us the bus, and also the experience of the city that it carries. There is a twofold non-sensual experience of the "bringing" of the bus; one is the conventional event of expecting the bus and being aware of the fact that it is coming, and the second is the virtual one – the virtual "coming" of the bus. The second can possibly turn us conscious of the first one too, enriching the experience of this everyday event.

7. Conclusion

We conclude this probationary part as the theoretical basis of our design experimentation, which is an attempt to examine the ways hybrid environments challenge our consciousness of being-in-the-world; or rather the consciousness of being in a particular everyday urban place of a specific function in relation -also - to other places and times.

Our experimentation is still a design proposal; it is not built, and not tested, thus, in an actual environment. The testing of this experimentation has a series of difficulties since it is not possible to intervene in a public space of such a function without the urban planning office permission. Nevertheless, our intention is to construct it in an actual bus-waiting area and examine the way it works, the atmosphere it creates, the interaction with people and whether or not it would be perceived as an element of familiarity, or a foreign interactive installation. We believe that the actual "experiment" would further develop our study and give us a better insight into the relationship between theory and application of urban places.

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[1] Oxford English Dictionary, Second Edition 1989 http://www.oed.com/. I only mentioned the first and the second categories, i.e. *a)* and *b)*, as the third category, i.e. *c) attributes* and *Combinations*, is not important for my discussion. The quoted meaning can be found under number seven (7), *Metaph.* stands for *Metaphysical.*