

# MA Thesis Argument

## Route Navigation Expert Systems: Consequence and Responsibility in the Age of Locative Media

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## **Abstract**

As locative media are becoming more ubiquitous, the consequences for the physical are sometimes unpredictable and in some cases also unwanted. This can especially be seen in the route navigation systems. Action taken in the virtual are having unwanted consequences for the physical. In this MA thesis proposal examples are given of these unwanted psychosocial narratives.

## **Keywords**

Route Navigation Systems, Psychosocial Narratives, Computer Ethics, Locative Media, GPS, Critical Design, Augmentation, Extensions of the self.

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## 1. Introduction

The safe environment behind the desktop computer has changed with the coming of locative media. No longer are users of the new media only typing behind their screens. They don't just become involved cognitively, but also in physical and locative ways.

Route navigation systems present us a locative medium that is becoming more and more ubiquitous. Many cars in The Netherlands are equipped with these guiding expert systems and in using them people trust the system to bring them home safely, but what happens when it doesn't bring us home and we get lost or stuck? Examples of these 'accidents' are surfacing in the media and so far most people I've talked to about route navigation systems could tell me at least one anecdote, or had heard stories from friends about the route navigation giving wrong directions.

When we were behind our desktop computer, we never suffered physical consequences when Windows showed us the infamous blue screen. But when the route navigation system sends us in the wrong direction or fails on us, this can have physical consequences for the user. When we don't arrive at our destination we can't just reboot, we have to find other ways to get to the destination. So our actions in the virtual, asking the route navigation system to guide us, has consequences for us in the physical sphere.

Unfortunately these consequences are not just for ourselves. The use of route navigation systems also turned out to have an, unwanted, effect on the location that the user navigates through. In The Netherlands<sup>1</sup> and also in England<sup>2</sup> there are villages that suffer from the new routes that the route navigation systems send the users on. Cars and truckdrivers are going through the villages, causing damage to roads, air pollution and unsafe situations for children.

This brings me to the main question of my thesis, because how can consequence and responsibility be understood in the use of route navigation systems? It seems that these two terms have taken a strange turn in the use of locative media. Our actions in the virtual have consequences for the physical world. Which also brings us to the responsibility for these actions.

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<sup>1</sup> Schaafsma, Evan. 'Navigatiesystemen plaag voor dorpskernen'. *Webwereld*. September 15th 2006. <http://www.webwereld.nl/articles/42885/-navigatiesystemen-plaag-voor-dorpskernen-.html>

<sup>2</sup> 'Sat-nav blamed for village jams'. *BBC News 24*. March 7th 2006. [http://news.bbc.co.uk/2/hi/uk\\_news/england/gloucestershire/4781350.stm](http://news.bbc.co.uk/2/hi/uk_news/england/gloucestershire/4781350.stm)

## 2. The GPS network

What are we actually dealing with here? To realize what the user of a route navigation system is working with we first have to examine what the history is of the network behind it: The Global Positioning System. To start the thesis with this background information gives the reader a sense of the system and structure that route navigation is embedded in.

When Bill Clinton stopped the intentional degradation of the Global Positioning System he allowed ‘civilian users of GPS [...] to pinpoint locations up to ten times more accurately than they do now’ and hoped to ‘encourage acceptance and integration of GPS into peaceful civil, commercial and scientific applications worldwide.’<sup>3</sup>

Stopping the degradation meant that users worldwide could make use of the highly advanced network for consumer purposes. As the website *Hacking GPS* says, ‘[h]ow many of us have the opportunity to play with multi-billion dollar, hi-tech military equipment?’<sup>4</sup> The GPS network is one of the most expensive networks available in the world and it is available to professional users in for example the military, but also in our own cars through the use of route navigation. This extension of the user in order for him to pinpoint locations very precisely is a very powerful tool. I emphasize that through the design and production of these route navigation systems users see their movements through the physical space in a whole new way when they look at the screen of their 200 euro route navigation system. Realization of the advanced GPS network that the user is working with is very important.

## 3. Corpus: Critical psychosocial narratives

Our use of an electronic product, our behavior, according to Anthony Dunne in his book *Hertzian Tales* is shaped through the ‘narrative experience arising from the interaction between our desire to act through products and the social and behavioral limitations imposed on us through the conceptual models they impose.’<sup>5</sup> So the route navigation system applies behavioral limitations on the navigator of the physical space because of its design, and the product lets the user experience a narrative as he puts his trust in the system.

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<sup>3</sup> White House Office of Press Secretary. ‘Statement by the President regarding the United States’ decision to stop degrading Global Positioning System system accuracy’. May 1st 2000. [http://clinton3.nara.gov/WH/EOP/OSTP/html/0053\\_2.html](http://clinton3.nara.gov/WH/EOP/OSTP/html/0053_2.html). Visited January 11th 2007.

<sup>4</sup> *Hacking GPS*. Visited January 19th 2007. <http://www.hacking-gps.com/>

<sup>5</sup> Dunne, Anthony. *Hertzian Tales: Electronic Products, Aesthetic Experience, and Critical Design*. Massachusetts: MIT Press, 2005. p.69

Dunne calls this ‘unique narrative potential of electronic products’<sup>6</sup> the psychosocial narrative. In the use of route navigation many of these psychosocial narratives surfaced in various news media, giving a critical view on the route navigation systems. From these stories two different consequences can be abstracted. In the first place there are consequences for the user himself and secondly for the surroundings through which the user navigates. In my thesis I mainly intend to use examples from The Netherlands and to exemplify that these two consequences can be seen in more narratives on different locations around the world I will add these examples as footnotes or in the text itself when it serves the example given.

In the first case Anja Holmes from The Netherlands instructed her TomTom route navigation system to compute the shortest route from her hometown to a certain destination. First she was sent up a dead end street and had to maneuver back to the main road. Some time after this incident the route navigation system sent Mrs. Holmes on an unpaved, muddy, forest road. The whole time she had been following the instructions of the system and didn’t turn it off. While on the forest road the route navigation map suddenly disappears, only leaving the GPS marker in place. She was lost and stranded in the forest and besides that the circumstances were not good: It was snowing and therefore the road became very muddy. This caused her car to get stuck in the mud, and there was literally no way back. In this moment Mrs. Holmes could only use what her surroundings could provide her, and that is what she did. She went to search for help and found a farm nearby. Fortunately the farmer was willing to help her out. When she told the story to the farmer, it turned out that she hadn’t been the first. In the past week three people already sought help from the farmer. He offered her his services, but at a cost: 50 euro.<sup>7</sup>

The two different consequences can be seen in this single psychosocial narrative. First the consequence for the self, the user gets stuck in the mud, and secondly the consequence for the surroundings because at this location a whole new phenomenon appeared for the inhabitants. Namely a new route and even a new –although maybe a bit shady– business arose. New meaning was brought to the location due to the users of the route navigation systems.

But for the surroundings route navigation systems can also turn out to be not so profitable. It can create annoyance and even dangerous situations for the location. For example in the Dutch municipality of Delfzijl where the smaller villages filed a complaint about truck drivers, mostly new to the region and lacking any emotional ties, using their route

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<sup>6</sup> Ibid., p.69.

<sup>7</sup> ‘TomTom ziet ze vliegen’. *Radar*. TROS. October 10th 2006. Available from <http://www.trosradar.nl/?url=PHP/news/19/2703>. Visited January 10th 2007.

navigation systems and causing dangerous speeding situations. The shortest route according to the systems led the truck drivers through villages with speeding limits of forty kilometres an hour. According to Theo Nijland, an inhabitant of the region, truck drivers ‘usually drove eighty kilometres an hour and started to hit the breaks just before a turn.’<sup>8</sup> These alternative or shorter routes are giving new meaning to the locations through which the user is being led. Massively used alternative routes can create new main routes.

#### **4. The modern and postmodern map**

This creation of new routes means that there were old routes. These routes were constructed by the institution of Rijkswaterstaat who takes care of the Dutch infrastructure. Either through traffic signs or the way roadmaps are constructed there has been, and still is, an influence on the route navigation of a person. For example on the lesser detailed maps only the main routes can be seen, the rest of the routes appear not to be there according to the map.

Let me give an example of a recent personal experience with a route navigation system. When me and my girlfriend went to an amusement parc in The Netherlands last summer, the road signs directed us to go straight ahead on the highway. But the route navigation system told us to take the next exit, stating that this was definitely the shortest route. The duality in this example is obvious. Because of the availability of a route navigation system in the car it is as if we are constantly questioning the information of the traffic signs. New (main) routes are being formed and the routes constructed by Rijkswaterstaat are being questioned by the systems.

Jean Baudrillard notes in *Simulacra & Simulations*, when talking about the hyperreal, the importance of the map by saying that ‘[t]he territory no longer precedes the map, nor survives it. Henceforth, it is the map that precedes the territory - precession of simulacra - it is the map that engenders the territory [...]’.<sup>9</sup>

We are moving from a top-down controlled modernist map toward a postmodern map where every direction is questioned by the user through the use of the route navigation system. The consumers of the route navigation system are creating the new maps and infrastructures by their usage of the product. Building meaning from the grassroots.

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<sup>8</sup> Schaafsma, Evan. ‘Navigatiesystemen plaag voor dorpskernen’. *Webwereld*. September 15th 2006. <http://www.webwereld.nl/articles/42885/-navigatiesystemen-plaag-voor-dorpskernen-.html>

<sup>9</sup> Baudrillard, Jean. ‘Simulacra and Simulations’. Mark Poster ed. *Selected Writings*. Stanford: Stanford University Press, 1988. p.166-184. Available online from <http://www.lcc.gatech.edu/~xinwei/classes/readings/Baudrillard/Simulacra+Simulations.pdf>. Visited January 10th 2007.

## 5. The designer and the user

But the author (designer) of the product, as I stated earlier by quoting Anthony Dunne, limits the psychosocial narrative for the user. Limitations are imposed on us through the way a product is designed, so the designer can simply limit the software of the route navigation system and we would still have a top-down controlled modernist view of the map. Meaning of all locations stays as it once was back in the day of picturesque villages, is it just the institution that changes? And can't the designer also make sure that we don't get lost and stuck in the first place? Probably not. Dunne also mentions the desire of the user to act through a product and sees 'the user as a protagonist and co-producer of narrative experience rather than a passive consumer of a product's meaning.'<sup>10</sup>

In discussing a communication model for media Jean Baudrillard in *Requiem for the Media* says something similar: 'The receiver (who in fact isn't really one) intervenes here at the most essential level – he opposes his own code to that of the transmitter, he invents a true response by escaping the trap of controlled communication.'<sup>11</sup> The designer does not completely control the meaning of the product, it is a combination of various factors: The advanced multi-billion dollar GPS networks; the designer of the route navigation system; and the user. All are equal in the creation of the psychosocial narrative and with that also the meaning given to location, or subjective map which overlays the bare physical locations. Technology, designer and user can be compared to canvas, artist and viewer. The canvas limits the infinite space and gives meaning by limiting; the artist interprets the limited canvas and gives meaning to it by limiting it again by creating a specific image; the viewer limits the image again by interpreting it. Although I use the term limiting, I don't mean this in a decaying fashion. It is to show that all factors are equally important in the creation of meaning (psychosocial narrative), and all execute the same action. It could also have been 'broadening' instead of 'limiting'. The canvas in this case creating a new space instead of limiting it.

New meaning, and change, raises ethical remarks in the case of route navigation systems. Responsibility in the use of the system is a returning remark.<sup>12</sup> For example when a user gives

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<sup>10</sup> Dunne. *Hertzian Tales*: 69.

<sup>11</sup> Baudrillard, Jean. 'Requiem for the Media'. Wardrip-Fruin, Noah, Nick Montfort, eds. *The New Media Reader*. Massachusetts: MIT Press, 2003. p.287.

<sup>12</sup> Two examples of these remarks can be found at the following sources. Schaafsma, Evan. 'Navigatiesystemen plaag voor dorpskernen'. *Webwereld*. September 15th 2006. <http://www.webwereld.nl/articles/42885/-navigatiesystemen-plaag-voor-dorpskernen-.html>. And 'TomTom ziet ze vliegen'. *Radar*. TROS. October 10th

new meaning to a location where he doesn't have to face the consequences, such as broken pavement and dangerous situations because of an increase in traffic which cannot be supported by the existing roads.

When using a route navigation system the consequence should be that the user arrives at his destination, but instead he gives new meaning to a physical location by navigating through the surroundings. The consequence is not what the initial action of the user intends. So how is responsibility in this case possible if the user's intent is a simple wish to go home? Where does the responsibility for the decay of the physical location lie?

Although this might be an unorthodox example, the next quote is one that might prove of value here. 'With great power comes great responsibility' is a remark made by Peter Parker's uncle when he was augmented by his superpowers and became the superhero Spiderman.<sup>13</sup>

For the user who is augmented through the use of the route navigation system it also means that there lies great responsibility in using the advanced GPS network and we often cannot comprehend how we are augmented. As user you cannot see the new meaning that was projected onto yourself through the designer and the network. You only become aware of the consequences of the use of the route navigation system/augmentation when you get stuck yourself on a location. When the consequence applies directly to the goal of not reaching the destination, the user becomes dependent of the location he is currently at. These critical psychosocial narratives that show the failure of the route navigation, show us in the impact on the surroundings and also the responsibility.

Can the designer, the author, or the technology itself, the canvas, in any way make sure that this doesn't happen? Is it possible to create a perfect database? As Arthur Kuflik says in his essay *Computers in Control*: 'Testing only exercises a small proportion of the possible situations that the program may have to handle . . . For even small amounts of software the number of possible paths far exceeds the number which could realistically be tested.'<sup>14</sup>

So errors will always be a part of route navigation, and the consequences will remain unpredictable for the designer and the user. What rests is the realization the both learn from

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2006. Available from <http://www.trosradar.nl/?url=PHP/news/19/2703>. Visited January 10th 2007.

<sup>13</sup> Computer ethics philosopher Luciano Floridi also used the analogy with the superhero when he used the term augmented ethics in the following presentation. Floridi, Luciano. *Some Ethical Consequences of Global Information Presentation*. Oxford Faculty of Philosophy and IEG. February 24th 2006. <http://web.comlab.ox.ac.uk/oucl/courses/topics05-06/cis/floridi.pdf>

<sup>14</sup> Kuflik, Arthur. 'Computers in control: Rational transfer of authority or irresponsible abdication of autonomy?' *Ethics and Information Technology Journal*, vol. 1 nr. 3 (September 1999). p.173–184.

these critical psychosocial narratives that show the strange consequences (some might call them failures) of route navigation. But this is a very valuable conclusion, because from these narratives we can learn.

Anthony Dunne notes that '[not working objects] challenge how we think about extensions to our "selves" in ways that do not simply magnify but, rather, transform our perception and consciousness of our relation to our environment.'<sup>15</sup> This answers our question how consequence can be understood in the route navigation system.

The initial action of the user is to arrive at his destination. The consequence can be that he has an impact on the location he navigates, because through the use of the product new meaning can be applied to locations. When the user arrives at his destination and the route navigation system actually works, he does not see the consequences of his actions. The user was constantly immersed in a hyperreal state. He is an augmented 'superhero' but does not see the responsibility he obtains when using an advanced network such as the Global Positioning System.

For the user this responsibility can only be seen and experienced through the critical psychological narrative that surfaces when the product design does not work in the way the user wants it to work. The immersion in the hyperreal state is broken. This is the moment when the user himself experiences the strange consequences of his actions and suddenly has to depend on the location, where he is stranded in the mud and has to look for help at a local farm and hears the story that he wasn't the first this week. In this experience the non working object challenges how we think about extensions and become aware of them through the psychosocial narrative. We learn.

## **6. Way forward**

User awareness of the technology can be created by the designer by interpreting the technology, the canvas, in new and opposite ways.. It requires the creation for example of a non working object. For example by playing games that incorporate the Global Positioning System and the physical consequences can be experienced by the user. In the most extreme case the designer could create not a route navigation system, but a 'getting you lost system'.

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<sup>15</sup> Dunne. *Hertzian Tales*: 67.

Simply because in such as example the consequences are always for the user. For my thesis I am still looking for locative narratives that create user awareness and I have found some examples such as the locative narratives, or games, created by Blast Theory.<sup>16</sup>

Perhaps these games that create user awareness should also be included in the route navigation system. Where do you not want to go?

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<sup>16</sup> More information on Blast Theory's projects can be found at <http://www.blasttheory.co.uk>. Visited November 20th 2006.

## Initial core research literature

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