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Bachelor thesis

Playful affordances in Google Maps

An analysis to the playful affordances in Google Maps and its implementation in daily life.

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Abstract

Google Maps is the number one app used for online navigating. The extensions Google Maps offers, however, are not used for their designed purposes, but serve different functions. It can be stated that Google Maps designs its affordances for the user to interact with a certain, perhaps playful, attitude. James Gibson and Donald Norman both state that there is a difference between 'perceivable' affordances and 'real' affordances, meaning that perceivable affordances can, in fact, be designed. Furthermore, Miguel Sicart states that for play to happen, the context must appropriate play. Even more, he states that playfulness cannot be designed. Google Timeline, Google Local Guides and Google Earth thus contain affordances that allow for a certain interaction, in order for it to be used for a different purpose. Google Timeline could be seen as a take-over of an analogue diary, Google Local Guides serves as a social network and Google Earth shows similarities to a travel guide. The extensions of Google Maps thus take-over analogue tools, which suggests a shift from the real world towards the online world. However, this shift is only possible because Google Maps allows for a certain interaction. Moreover, because Google Maps is always ready to hand, there is an implementation of Google Maps in daily life. Nevertheless, Nicholas Negroponte states that the online world and the real world are interwoven, instead of one taking over the other. The inherence of Google Maps in daily life could be accused to Google Maps stimulating its users to use Google Maps with a certain attitude. However, it becomes unclear whether this attitude is specifically designed, colliding with both Norman's and Sicart's theory. In this analysis, it will be researched how play, playfulness and affordances interact with each other and how the playfulness leads to Google Maps being used for a different function. Afterwards, it can be understood how the online world is situated in the physical world.

Contents

Introduction

Today, more and more people use online apps to navigate. It can be stated that the most popular online mapping apps are Google Maps and Apple Maps.[1] The former was launched in 2005 and has been adapted and expanded ever since. Google Maps is not simply Google Maps anymore, it uses several extensions, such as Google Earth, Google Timeline and Google Local Guides. These extensions are interesting, because they are fully dependent on the user's contributions. Google Timeline shows the user's location history as a route on the map and Google Local Guides builds on these data, by enabling users to write reviews of locations they have visited. However, this does not mean that the apps are used for what they are designed. For example, on Google Timeline every visit can be specified to such an extent that users can adjust whether they have walked, driven a car of even used a kayak to get to their destination. It can be stated that Google Earth, Google Timeline and Google Local Guides are playful, as they possess affordances that afford a playful interaction. In his book *Play Matters*, Miguel Sicart cites Nietzsche on playfulness. He states that playfulness is "a way of engaging with particular contexts and objects that is similar to play but respects the purposes and goals of that object or context."[2] The example of changing the mode of transportation could be seen as a playful affordance, because it offers different ways to engage with the app.

Furthermore, it could be stated that because of the playful affordances, the app has become inherent in our daily lives. In fact, it could even be stated that we are shifting towards living in a virtual world. In *Playful Identities*, Huizinga's theory is built upon to state the following: "Social network sites are "serious games": the line between play and reality is inevitably blurred."[3] Even Google Maps could be seen as a social network, because in Local Guides users have profiles that can be visited by other users. The profiles show submitted reviews and photos of locations. Users can in this way show off about all the places they have visited. Added to the fact that Google Maps gathers all the user's GPS-data and Google Timeline shows similarities to an online diary, suggests the notion of an online world. In this research, the app Google Maps will be analyzed, with in particular its three main extensions: Google Earth, Google Timeline and Google Local Guides. The affordances in the app will be analyzed to show in what way they afford a playful interaction and what outcome this might

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[1] Michael P. Peterson, ed., *Online Maps with APIs and Webservices*, Lecture Notes in Geoinformation and Cartography (Berlin; New York: Springer, 2012), 71.
[2] Miguel Sicart et al., *Play Matters* (Cambridge, MA: MIT Press, 2014), 21.
[3] Jeroen Timmermans, "Playing with others: The identity paradoxes of the web as social network," in *Playful Identities: The Ludification of Digital Media Cultures*, ed. Valerie Frissen et al. (Amsterdam: Amsterdam University Press, 2015), 290.

have. By doing so, it can be concluded what role the playful affordances play in understanding how the online world is situated in relation to the real world.

Research question

For conducting this analysis, the following research question is formed: "How do the affordances of Google Maps allow for a playful interaction and how do they show that the real world and the online world are interwoven?" To support the main research question and offer more depth, the following supporting questions are formed: "What affordances does Google Maps have?", "How do the affordances afford a playful interaction?" and "How is Google Maps implemented in daily life?" In the former question, a true definition of the concept of affordances will be formed, and furthermore, the three extensions will be textually analyzed, to expose its affordances. In the penultimate question, these affordances will then be analyzed in relation to play and playfulness, to state how the affordances allow for a playful interaction. The latter question will function to show the intertwining between the online world and the real world, by analyzing how Google Maps is fitted and used in daily life. It furthermore functions to discover how the function of the app might change due to its playfulness. With the results these supporting questions will bring, the main research questions will then be answered properly.

Theoretical framework

Play and playfulness
Important in this research are the concepts of play and playfulness. In 1938, Johan Huizinga's book *Homo Ludens* stated that culture derives from play, although it is always kept separate from other cultural practices.[4] Before mentioned Miguel Sicart argues that "[…] playfulness is projecting some of the characteristics of play into nonplay activities. It is an attempt to engage with the world in the mode of being of play but not playing."[5] Even more, he states that "play is an *activity*, while playfulness is an *attitude*."[6] Huizinga and Sicart both suggest that play is

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[4] Johan Huizinga, *Homo Ludens: A Study of the Play-Element in Culture*, reprint of the edition 1949 (London: Routledge, 1998), 15.
[5] Miguel Sicart et al., *Play Matters* (Cambridge, MA: MIT Press, 2014), 23.
[6] Ibid., 22.

kept separate from other activities and that play can be interpreted as an activity. However, in *Playful Identities*, a contradictory statement is given:

> Play is an idea, not only an activity. The activity does not create play, but expresses the play spirit. The attitude of the player turns something into play. The playfulness of a game depends on a specific attitude of the player.[7]

Playfulness could thus be interpreted as an attitude while play on the other hand mostly happens in contexts designed for play.[8] "To be playful is to appropriate a context that is not created or intended for play."[9] It is important to make the distinction clear as they seem as two fundamentally different concepts. Play is an activity, a "set of actions performed for certain purposes", while playfulness is an attitude, or a "stance toward an activity – a psychological, physical, and emotional perspective we take on activities, people, and objects."[10] Both concepts can be applied to Google Maps. For example, Local Guides can be seen as play, especially by the way it is designed. Users are rewarded by points for every review submitted and one can level up. The context created appropriates play and thus makes the extension comparable to a game. Moreover, Google Timeline could also be seen as play and playful, because the interpretations and the ways of engaging are endless. This suggests a different, perhaps playful, attitude from the user. The notions of play and playfulness can thus certainly be applied to Google Maps, however it is important to analyze the distinction between the two concepts and whether there even is a distinction. By applying the concepts to Google Maps and its extensions, it becomes clear how the two concepts interact with each other in everyday life.

Affordances

Another important concept to further explain first, is that of affordances. James Gibson defined the concept of affordance in 1979 as follows:

> Affordances relate the utility of things, events and places to the needs of animals and their actions in fulfilling them; not merely their immediate desires, but the needs that

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[7] Valerie Frissen et al., ed., *Playful Identities: The Ludification of Digital Media Cultures* (Amsterdam: Amsterdam University Press, 2015), 94.
[8] Miguel Sicart et al., *Play Matters* (Cambridge, MA: MIT Press, 2014), 8.
[9] Ibid., 27.
[10] Ibid., 22.

arise in keeping them in touch with their environment and taking from it (or giving back) what is essential for the kind of life they lead. Affordances themselves are perceived and, in fact, are the essence of what we perceive.[11]

Gibson thus explains affordances in terms of animals and their needs. Translated into humans, this would mean that affordances relate human's needs and their actions. Interpreted to Google Maps, the human's need would be an online navigation app. More explicitly, for Local Guides the apparent need is to read reviews of places by other people online. In this way, the extension is starting to function as an online travel guide. Thus, analyzing playfulness in affordances could uncover a different human need. Nevertheless, Gibson states that affordances have to be perceivable. Donald Norman builds on this by making a distinction between 'perceived' affordances' and 'real affordances':

> The term affordance refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used. […] Affordances provide strong clues to the operations of things.[12]

These perceived affordances are usually design elements and thus visible according to Norman. He describes that real affordances on the other hand do not always have to be visible.[13] An example of a perceivable affordance is a cursor, which is designed and perceivable on the screen. The purpose of a cursor is fixed. A real affordance is a non-designed element and completely open to every interpretation, moreover, it is not designed therefore the purpose cannot be fixed. However, it becomes clear that in relation to playfulness and playful affordances there is a thin line between the real and perceived affordances. That is, it is hard to determine whether Google Maps has designed certain elements for only that specific purpose, or has designed elements with the purpose to be interpreted playfully. Real affordances would then become perceived affordances, because they are designed to be interpreted playfully. In this analysis, I will critically analyze the different affordances of Google Maps to further emphasize or undermine Norman's theory. Nevertheless, I will interpret affordances as that

[11] James Gibson, *The Ecological Approach to Visual Perception* (Boston, Houghton Mifflin, 1979), 31.
[12] Valerie Frissen et al., ed., *Playful Identities: The Ludification of Digital Media Cultures* (Amsterdam: Amsterdam University Press, 2015), 21.
[13] Donald A Norman, "Affordance, Conventions and Design," 1999, 40.

what invites the user to use an app. Google Maps is thus used in a certain way, because of its affordances, both purposely designed and individually interpreted.

Academic relevance

Although Google Maps has been online since 2005, limited research in the media-related academic field exists. A lot of research exists on how to build online maps and what online maps mean for urban life, but it is important to analyze how the app is designed and how people make use of this design in order to understand how this app is implemented in daily life. In this way, the app and its affordances will make visible an intertwining between the real world and the online world, which is also a much discussed subject in all of the academic field. For example, Negroponte stated in 1995 that the physical world of atoms and the online world of bytes do not have to be characterized as opposites.[14] However, Heidegger states that humans are "enframed by technology" and that technology must always be ready to hand.[15] Heidegger offers a rather determinist view and it is therefore important to analyze how Google Maps is fitted within these discussions.

Furthermore, it becomes apparent that the concepts 'play' and 'playfulness' are subject to a lot of discussion in the academic field. As demonstrated in the theoretical framework and further elaborated in the analysis, comments can be made about Sicart's theory of play and playfulness. It is certain that the two have a specific interaction, that might reveal a different understanding of the concepts when analyzed. Moreover, it is important to analyze this in terms of affordances, as there might be a certain interaction with playfulness and affordances as well. This understanding might lead to Google Maps being used for different functions and a certain implementation in daily life.

Method

In this research I will use an affordance analysis as a method. An affordance analysis is in fact a textual analysis, conducted on affordances of a medium. I will use an article from Alan McKee in which he states that textual analysis is "an educated guess at some of the most likely

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[14] Nicholas Negroponte, *Being Digital* (New York: Knopf, 1995): 43.
[15] Martin Heidegger, "The Question Concerning Technology," in *Philosophy of Technology: The Technological Condition – an Anthology,* ed. Roberts C. Scharff and Val Dusek (Chichester, UK: Wiley Blackwell, 2014), 310.

interpretations that may be made of that text."[16] There is no "single, 'correct' interpretation of any text."[17] That means that there are more interpretations possible to my analysis. I want to make clear that the assumptions made in this analysis, will be based on my own interpretations and experiences. However, these interpretations will be partially based on the literature used. First, I will study literature about affordances and play and apply those to Google Maps. By using the correct definition, I will be able to research what the affordances are in the extensions. I will thus analyze the affordances designed in the three different extensions and how those affordances are used by using myself as an example. To support my hypotheses, I will include screenshots of the extensions and add these in the appendix, to demonstrate what is included in the analysis and what is not. By further applying the definition of play and playfulness, I can analyze what playfulness does to Google Maps and how this might change the implementation and use in daily life.

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[16] Alan McKee, "A Beginner's Guide to Textual analysis," *Metro Magazine: Media & Education Magazine* 127/128 (2001):140.
[17] Ibid., 141.

Analysis

What are the affordances of Google Maps?

First of all, it is important to understand that Google Maps is a gigantic app, with more than one billion active users per month[18] and new adaptations and extensions added every so often. Data of several researches show that Google Maps is the number one navigating app used globally.[19] This means the app is very powerful and must contain various affordances that make the app interesting to use. It is fundamental however to determine the true definition of affordances initially. In 1979, James Gibson defined affordances as a relationship between humans and animals and their needs. Affordances show the actions in fulfilling these needs.[20] Furthermore, Gibson stated that affordances are perceivable.[21] Applied to Google Maps, this would mean that the affordances represent human's needs and their actions in relation to a navigation app. Google Maps would thus be designed in a certain way because of these needs. Donald Norman builds on this theory, but states that there is a distinction between 'real' affordances and 'perceived' affordances:

> Real affordances do not always have to have a visible presence (and in some cases, it is best to hide the real affordance). And the presence of feedback can dramatically affect the usability and understandability of a system, but quite independently of the affordances or their visibility.[22]

Thus, Norman states that a perceivable affordance is a design element, for example a cursor. Because the purpose of a cursor is fixed, it does not function as a real affordance. This distinction is necessary in order to understand the difference between something that is designed for a purpose and something that is open to multiple, individually interpretable outcomes. For Norman affordances would thus mean the "actual and perceived properties of the thing".[23] Affordances can therefore be defined as elements that are interpreted and used in a certain way,

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[18] "Google Maps Platform," Google Maps Platform - Geolocation API's, Google Cloud, https://cloud.google.com/maps-platform.

[19] Riley Panko, "The Popularity of Google Maps: Trends in Navigation Apps in 2018," *The Manifest*, July 10, 2018, https://themanifest.com/app-development/popularity-google-maps-trends-navigation-apps-2018.

[20] James Gibson, *The Ecological Approach to Visual Perception* (Boston, Houghton Mifflin, 1979), 31.

[21] Ibid.

[22] Donald A. Norman, "Affordance, Conventions and Design," *Interactions* 6, no. 3 (May/June 1999): 40.

[23] Ibid., 39.

often not for its designed purpose. The definition used in this analysis contains both the perceivable and the real affordances.

When discussing Google Maps, the first thing that comes to mind is its navigational purpose. This would probably be the most used feature that Google Maps offers. Applying the definition that Norman gives to affordances, this would be a perceived affordance, because it is clear that is designed exactly for the purpose of navigating. However, there are more features that could be seen as affordances, where this distinction is less clear. For instance, Google Maps can be used for looking up certain addresses, but also for searching for a place to eat or to stay. Google Maps offers different settings on viewing the map. In the default map all the different roads, canals, railway tracks and public transport stops are visible.[24] These could also be seen as perceivable affordances, as they are designed elements. However, they are only visible once zoomed in on the default map. Zooming in and choosing the default map could then additionally be seen as affordances, because it is another way of engaging and personalizing the app. The perceivable affordances are designed in a way that users can make their own interpretations and participate to their own preferable extent. This makes participating very personal. The notion of using affordances to personalize becomes very interesting in analyzing playful affordances. This notion will thus be discussed in more detail in the next chapter.

It could then be stated that all the setting options are perceivable affordances, as they are designed with a certain purpose and in fact are perceivable, like a cursor.[25] It could moreover be linked to Gibson's definition of affordances; namely that the setting options translate the needs of humans and their actions.[26] The ability to personalize an app could be seen as a human need. A standard affordance of any app is thus the settings.

Google Timeline

In Google Timeline, there are also several affordances. A huge affordance is the function of Google Timeline. As interpreted here, Timeline functions as a diary, a way to remember one's past online. One can visit its traces, look up locations one has been to and in this way relive one's past. All the footsteps are collected to the last detail, it even shows at what time one exactly left the building and how long it took one to get to their destination, as shown in image 1.1. The app functions to give people a broader insight in their lives and especially their past.

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[24] These settings are shown in the appendix in image 1.1.1 to 1.1.3

[25] Donald A. Norman, "Affordance, Conventions and Design," *Interactions* 6, no. 3 (May/June 1999): 39.

[26] James Gibson, *The Ecological Approach to Visual Perception* (Boston, Houghton Mifflin, 1979), 31.
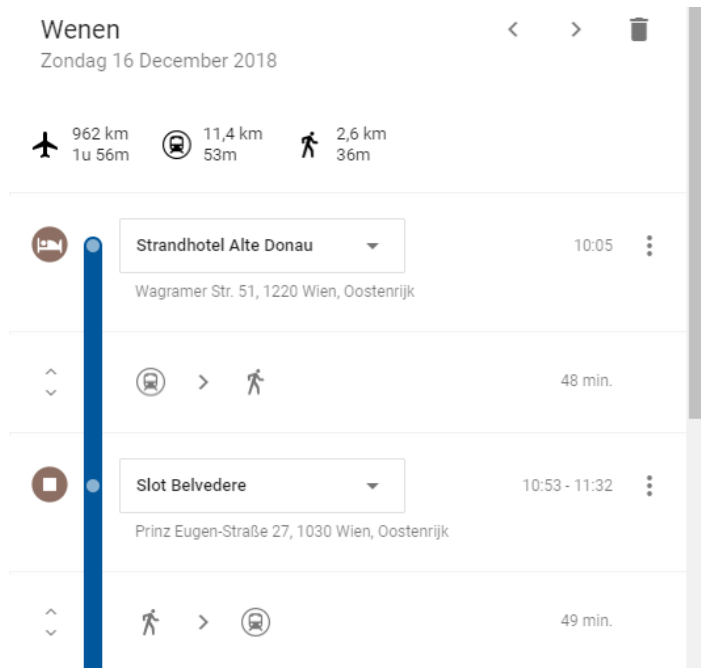
Image 1.1: Google Timeline shows statistics about trips, at what time exactly the user left the building and how long it took the user to get to their destination.

Another affordance in this extension is that all the locations, routes and even times can be altered. For instance, Google Timeline says I have been at home all day, I can alter this information and state that I was in New York for instance. I will go into more detail about the consequences of altering the information on Google Timeline in the following chapter.

Google Local Guides

An affordance of Google Local Guides is that one can leave reviews of places they have visited. On Local Guides, one has a profile where the submitted reviews can be found. However, leaving reviews is not the only affordance Local Guides offers; people can upload their photos and videos of a location and moreover answer questions asked by the community. This information will then appear on a detail page about a location on Google Maps. In this way, the Local Guides help to improve Google Maps. Google Maps also acknowledges this aspect and advertises Local Guides by the slogan 'helping the community'.[27] Another important feature of Local Guides is that it is designed as a game. Because it is a designed element, it means that it is a perceivable affordance. How it is used then, is what makes it a real affordance. Because Local Guides is equipped with profiles and accounts, one can earn points once one has left a review of a location. The higher the points, the higher the level. In this way, it does not only function

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[27] Google Maps, "Jouw review maakt het verschil,", email to author, December 19, 2018.

as a game, but it could also function as a social network. I will also go into more detail about this in the next chapter, as it suggests a specific kind of, perhaps playful, interaction with the app.

Google Earth

Lastly, the affordances in Google Earth are that one can walk around in any environment around the world. The distinction between the perceived and the real affordances are most clear here. The perceivable affordance is the option to walk around in any location, because this a designed element. Moreover, the zooming in function is also available in Google Maps, but it plays a much bigger role in this extension. It is almost necessary to zoom in and the user is also invited to do so. Once zoomed in, buildings will appear in 3D. Furthermore, one is able to choose to click on a dice and be put anywhere in the world (the so called "I am guessing" option), or one could press the 'voyager' button and is shown an online travel guide.[28] In this travel guide option, there are several articles varying from 'Castles Around the World'[29] recommended by Local Guides to articles about a specific country written by an unknown source or even the option to play games. These are all still perceivable affordances. The real affordance, however, is how the perceivable affordances are interpreted. One can 'follow the rules' and walk around in the streets, but one can also walk around on the highway, or in the mountains. How the given element is used is then a demonstration of real affordances and possible outcomes. This will also be further analyzed in the next chapter.

Conclusion

It is clear that a lot of the affordances mentioned are designed, thus perceived affordances as Norman would suggest.[30] I would suggest there is a huge resemblance between real and playful affordances, as these type of affordances both invite for a certain, perhaps playful, interaction and that in both cases the "presence of feedback can dramatically change the usability and understandability of a system".[31] In other words, both real and playful affordances can change the function of an app. How this resemblance becomes visible will be explained in the next chapter.

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[28] Shown in image 1.1.4 and 1.1.5 in the appendix
[29] "Castles Around the World," Google Earth, https://earth.google.com/.
[30] Donald A. Norman, "Affordance, Conventions and Design," *Interactions* 6, no. 3 (May/June 1999): 40.
[31] Ibid.

How are these affordances used?

In the former chapter, it became clear that Norman tries to make a distinction between perceivable affordances and real affordances. In the conclusion, I suggested that there is a huge resemblance between real affordances and playful affordances as they both call for a certain interaction from the user. This interaction might change the outcome and even the function of an app. It is already mentioned in the introduction that playfulness is "a way of engaging with particular contexts and objects that is similar to play but respects the purposes and goals of that object or context."[32] This could also be applied to the notion of real affordances, as they imply a certain interaction with a medium, but respect the purposes of that medium. Both types of affordances suggest a certain kind of engagement with an app other than its designed purposes. In this chapter, I will analyze to what extent real and playful affordances could be understood as the same concept and how play and playfulness are implemented in Google Maps. By doing so, the interaction between play and playfulness will become visible.

A first interaction that could be seen as playful is the 'save places'-setting on Google Maps. Users can save places as 'home' or 'work' as their favorites or places they wish to visit. Subsequently, Google Maps shows these locations on the map and offers information for a quick navigation.[33] The affordance here offered is thus a way to personalize the app. As I stated before, the ability to personalize an app is a human need[34], in terms of Gibson's theory about affordances, and moreover, Sicart states that:

> Through playfulness we personalize the world; we make it ours while still acknowledging that it has a purpose other than playing. Through playfulness, we bring the creative and free personal expression that play affords to a world outside play, and therefore we make the world personal.[35]

Thus, playfulness is a way of personalizing the world, possibly through affordances. Personalizing seems to be an important aspect in interacting with the extensions, as all extensions offer possibilities to personalize.

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[32] Miguel Sicart et al., *Play Matters* (Cambridge, MA: MIT Press, 2014), 21.
[33] As shown in image 2.1.1 in the appendix
[34] James Gibson, *The Ecological Approach to Visual Perception* (Boston, Houghton Mifflin, 1979), 31.
[35] Miguel Sicart et al., *Play Matters* (Cambridge, MA: MIT Press, 2014), 30.

Google Timeline

That playfulness can be understood as a way of personalizing the world, becomes very evident in Google Timeline for example. Every location, mode of transport, or timetable can be altered. This could be to make the location history as accurate as possible, or to play with different locations and create a very different kind of narrative. Both interactions are playful and it becomes clear that the aspect of altering calls for a playful interaction, as it is open to a creative and personal attitude. This could then be linked to Sicart's opinion of playfulness being an "*attitude*" rather than an activity.[36] Furthermore, there is an interaction between Google Maps and the user in that Google Maps reacts to the personalization of the user. This is evident because Google Timeline occasionally makes 'trips' out of location history. An example is illustrated in image 2.1 and 2.2.
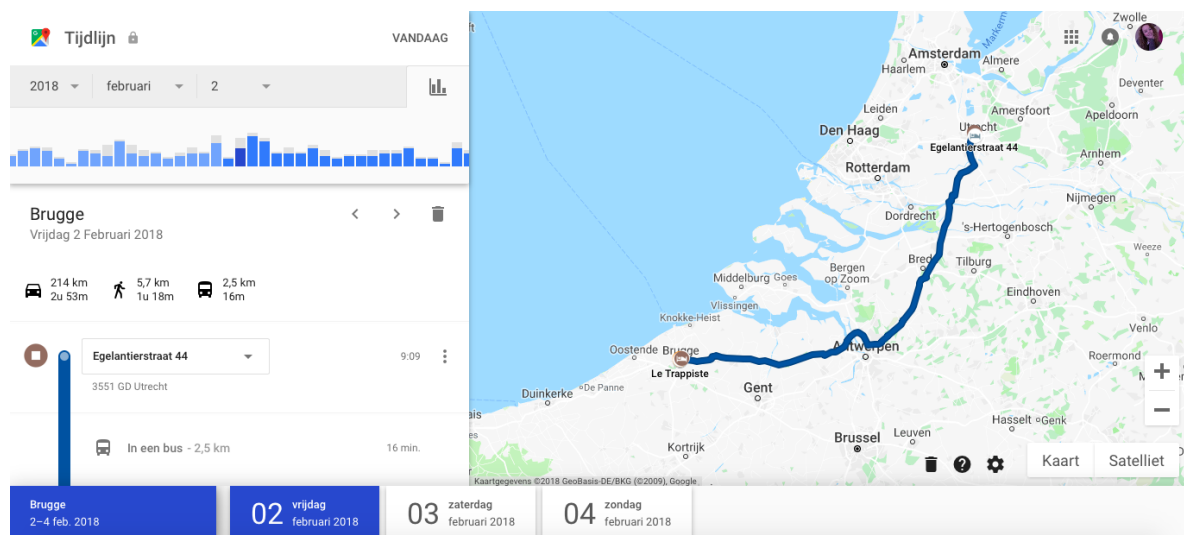

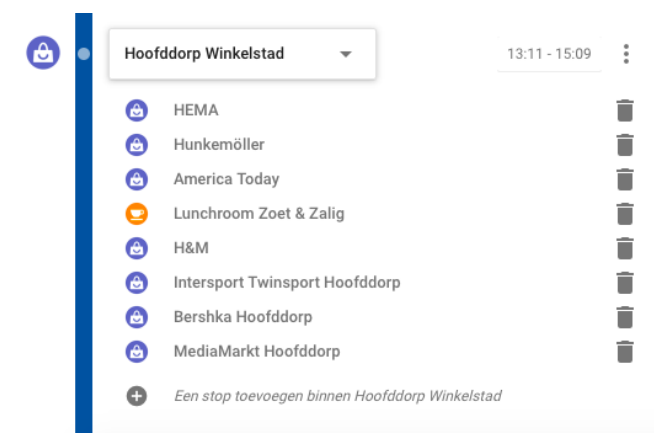Image 2.1: Google Timeline shows a three-day trip to Bruges.

Image 2.2: Google Timeline recognizes a shopping trip and visited stores to a very accurate extent.

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[36] Ibid., 22.

Google Timeline then becomes not only a diary, but a photo album that one would show friends after a holiday, but without the photos. Even more, Google Timeline sends users an email every month, presenting an overview of the location history of the previous month. This email is all about statistics, showing how many new locations the user has visited, how many kilometers the user has walked or driven, how many countries and cities the user in total has visited and, the most interesting, how many kilometers the user still has left to the moon.[37,38] The latter suggests a rather playful attitude from Google Maps itself, perhaps to keep the user continuing to use the app, or maybe to provoke a playful attitude from the user? Nevertheless, Sicart states that playfulness cannot be designed, it is only play that can be designed, as playfulness exists in contexts that appropriate playfulness.[39] It is clear that Google Maps does provoke an interaction from the user, because the email ends with a button that directs the user to their timeline and invites the user to "explore their timeline".[40] Furthermore, the notion of playfulness being a way of personalizing the world[41], also contradicts with Sicart's statement about playfulness not being designed.[42] Google Maps does offer settings, or affordances, to personalize the app, meaning that personalization is a designed element. However, Sicart states that playfulness happens while the user still acknowledges that the purpose is not playing[43] and that some contexts are more prone to playfulness.[44] The purpose of Google Maps remains navigating. For both the personalization settings and the email it might seem that Google Maps designed playfulness, however they could be interpreted as both only invitations to engage, but therefore call for a specific attitude and certain interpretations. If playfulness cannot be designed, then how can Google Maps send emails providing designed affordances inviting the user to be playful? Perhaps there is no such clear distinction between play and playfulness and Sicart's theory about playfulness not being designed is obsolete. The line between play and playful thus becomes blurred.

Another interesting notion in Google Timeline is the notion of 'self-tracking'. Self-tracking, or "the quantified self" refers to "regularly monitoring and recording, and often measuring, elements of individual's behaviours or bodily functions."[45] This could function for people to collect data about themselves or to remember aspects of their lives, but it could also

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[37] Google Maps, "Je overzicht van november," email to author, December 14, 2018.
[38] As is shown in image 2.1.2
[39] Miguel Sicart et al., *Play Matters* (Cambridge, MA: MIT Press, 2014), 7, 25.
[40] Google Maps, "Je overzicht van november," email to author, December 14, 2018.
[41] Miguel Sicart et al., *Play Matters* (Cambridge, MA: MIT Press, 2014), 30.
[42] Ibid., 25.
[43] Ibid., 21.
[44] Ibid., 24.
[45] Deborah Lupton, *The Quantified Self* (Cambridge, UK: Polity Press, 2016), 8.

be used for people to use the data to improve a certain aspect of their lives.[46] Keeping a diary online is thus also a form of self-tracking. Although the concept is originative to the social sciences, it is a concept that is well-fitted for online media and in particular Google Timeline. It could be stated that Google Timeline is a form of online diary, as it keeps track of day-to-day practices, which can be revisited at any time. Deborah Lupton, specialized in digital sociology, offers a rather interesting insight in self-tracking:

> In many cases self-tracking is a purely voluntary personal enterprise initiated by the person who is engaging in it. However, there are various ways in which self-tracking is being encouraged, or even forced on people, predominantly so that the objectives of others are met; and such ways raise the question of exactly how voluntary self-tracking may be in these contexts.[47]

Initially, a self-tracking app such as Google Timeline may seem a completely voluntary practice. However, after analyzing its affordances it becomes clear that the practice may not be that voluntary at all. As abovementioned citation suggests, there are several elements which encourage self-tracking. These elements are the affordances. The affordances encourage one to use an app such as Google Timeline. For example, it is aforementioned that Google Maps sends its users an email every month showing statistics of the month before. This is an invitation to visit one's timeline, thus meaning encouraging the user to keep track of oneself. It could then be stated that self-tracking is a form of playfulness, as they both depend on affordances that invite them, but they appear as completely self-voluntary and non-designed for that specific purpose. The notion of self-tracking furthermore undermines Sicart's theory on not being able to design playfulness.[48] It seems that in this case, some sort of play is designed, whether that is play or playfulness.

Moreover, Google Timeline shows a list of thirty of a user's most visited places. These locations all appear as red dots in the default map. Each location in the list shows how many days in total the user has visited a specific location.[49] However, the accuracy is not always on point and these data are based on the days spent with a GPS-tracking device logged in on the unaltered Google account. If one chooses to turn off its GPS-tracking system, there is no data

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[46] Ibid.
[47] Ibid., 9.
[48] Miguel Sicart et al., *Play Matters* (Cambridge, MA: MIT Press, 2014), 25.
[49] See image 2.1.3 in the appendix

for Google Timeline. This could be done on purpose or with a function and can be understood as a playful interaction as well. For example, I never bring my phone with me whenever I go to the gym, which means there is no data of me whatsoever going to any gym and mostly, an inaccurate location history. This also shows the interaction and in how far Google Timeline and the user are both dependent on each other. Moreover, it demonstrates that it is rewarding for one to turn on its GPS-tracking system to be able to revisit and even relive one's past, in different forms, that is, if one would want an accurate location history. It could also be stated that one has a playful attitude when its GPS-tracking system is turned on, because the user is aware that the GPS-tracking could lead to a detailed location history, or, the user might want to take a different route, because that will also appear on the location history. The latter notion will be further analyzed in the next chapter.

Google Local Guides

The GPS-tracking system also becomes important in Local Guides. Local Guides is based on the visited locations and offers users the possibility to write reviews about those locations. It could be stated that Local Guides is designed as a social network, because it has profiles where all reviews are collected. Users can then view each other's profile and submitted reviews.[50] Jeroen Timmermans states the following in *Playful Identities* about play and social networks:

> Their affordance is their playfulness. They invite users to playfully interact with each other and with the medium, while knowing the serious social mechanisms that are play. Social network sites are "serious games": the line between play and reality is inevitably blurred.[51]

This would mean that the affordance of Local Guides, or any extension of Google Maps, is their playfulness. Interesting in this statement is that Timmermans addresses the playful interaction between not only the users and the medium, but also with the users jointly. This becomes evident in Local Guides, as aforementioned aspect of profiles being public and users being able to visit each other's profiles demonstrates. Another aspect of Local Guides becomes important here, namely that of Local Guides being a game. This aspect is first of all important in terms of

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[50] See image 2.2.1 in the appendix for more
[51] Jeroen Timmermans, "Playing with others: The identity paradoxes of the web as social network," in *Playful Identities: The Ludification of Digital Media Cultures*, ed. Valerie Frissen et al. (Amsterdam: Amsterdam University Press, 2015), 290.

the social network, because users can view each other's high score. This is demonstrated in the latter sentence in Timmermans' statement; that of social network being games. Users may feel like Local Guides is a competition between themselves and other users and thus they will try their best to earn as many points. This is again helpful for Google Maps, as they rely on the user generated content.

The aspect of gamification in Local Guides is interesting, because it goes beyond playfulness. An important aspect here is that is designed as a game, which means it is inherently designed for play. That contradicts with Sicart's statement about play being designed and playfulness being an attitude.[52] It furthermore coherences with Norman's statement about perceived affordances as a design element.[53] This would mean that Local Guides is play, instead of playful, because it is clear that the designed elements long for certain purposes and the user is aware of playing. However, the aspect of Local Guide as a social network could be seen as playful, as this is not an intended design from Google Maps itself. Because each review and photo can be liked by others, a sort of race or competition arises on the platform, as one would want the most shares, likes or views. Furthermore, one can 'show off' by leaving reviews, photos or videos. Local Guides thus also functions as a social network in that way that users can brag about all the locations they have visited and perhaps how well-travelled they are. Both play and playfulness come together in Local Guides and reveal a very thin line between the two.

Google Earth

Additionally, Google Earth could also be seen as a social network, for it shows recommendations, partially based on Local Guides' contributions. Of course, these contributions could also suggest a social prestige[54] and a show-off to how well-travelled one is. However, different than Local Guides, Google Earth has no personal profiles. It becomes clear that Google Earth functions largely as a travel guide. There are several functions in which information is shown about a certain location, that is by clicking on the location, or clicking on the steering wheel (Voyager). The travel guide shows several articles, partially based on Local Guides' recommendations. There are also headings presenting several topics such as nature and

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[52] Miguel Sicart et al., *Play Matters* (Cambridge, MA: MIT Press, 2014), 22.
[53] Donald A. Norman, "Affordance, Conventions and Design," *Interactions* 6, no. 3 (May/June 1999): 40.
[54] Sybille Lammes, "Digital cartographies as playful practices," in *Playful Identities*, ed. Valerie Frissen et al. (Amsterdam: Amsterdam University Press, 2015), 207.

culture. These affordances are designed and thus perceivable.[55] The real affordances are the options that make play possible. Even in this app, there are plenty of options to personalize the app. As stated before, playfulness is a way of personalizing.[56] For example, one can choose the option to show photos on the map, which would mean that one could become more easily attracted to that location. Furthermore, not only personalizing is an example of a playful interaction in Google Earth, also the notion of virtual reality is important here. Google Earth could be seen as a virtual reality, as one can walk around in streets in any location, but it continues to be virtual. This is at the same time a playful aspect, as one can choose to walk around somewhere against the norms. For example, it is normal to 'walk' around in streets but one could have a playful attitude and walk around on the highway, in the opposite direction. The perceivable affordance is Street View, comparable to a virtual reality, but the real and playful affordance is using Street View against the norms. However, Google Earth offering this function could also mean that is designed for that specific purpose. This would mean it fits within the definition of play, rather than playful.

Conclusion

It becomes clear that all the extensions contain some sort of play or playfulness. Moreover, the extensions demonstrate that it is hard to determine a distinction between play and playfulness, as a lot of aspects undermine the theory of Sicart. The distinction thus becomes blurry and so does the distinction of real and perceived affordances. The line between specifically designed affordances and individual interpretations disappears and thus leaves questions about the theory. In the next chapter, I will continue analyzing how Google Maps and its extensions are implemented in daily life in relation to playfulness.

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[55] Donald A. Norman, "Affordance, Conventions and Design," *Interactions* 6, no. 3 (May/June 1999): 40.
[56] Miguel Sicart et al., *Play Matters* (Cambridge, MA: MIT Press, 2014), 30.

How is Google Maps implemented in daily life?

Preparatory to answering this question, it is important to first analyze the separate extensions of Google Maps in order to be able to state anything about Google Maps as a whole. Thereafter, all results will be combined to answer the question stated above properly.

Aforementioned notion of the Google Timeline-email is interesting, as it invites the user to relive their location history. It is furthermore interesting, as it might invite the user to a whole other level to participate. It is briefly mentioned that Google Timeline shows an overview and, more important, statistics. These statistics vary from countries visited to kilometers walked in a month. Showing these statistics could mean that the user is challenged to visit more countries, or to go out more. The important question is indeed what the function of this email is. Undoubtedly, it means that Google Timeline wants its users to go back and explore their location history and alter it to an extent in which it is accurate. The more accurate the users make it, the more accurate data Google Maps has. But, does Google Maps also want its users to go out more, to explore more, to walk more kilometers? The consequence could be that the user does not just walk anymore, one walks with Google Timeline in its head, meaning taking a different route could be more interesting to look back on later, or resulting in better bike ride statistics. In this way, Google Timeline could encourage health or a certain lifestyle, but most of all an awareness of being tracked and delivering data. If there is no underlying meaning for Google Maps to send these emails, meaning they do not have the purpose for their users to engage or to live their lives differently because of Google Timeline, then why would Google Maps send these emails? It becomes clear that Google Maps sends these emails to stimulate a certain participation. That is, they provide a context for play.

Moreover, it could be stated that the "ability to remember could be enhanced by technology."[57] This could mean that one can choose to not keep a diary at all, but to give this function away to Google Maps. Self-tracking also demonstrates a shift from analogue diaries towards an online diary, because the data is gathered and consulted online, all in one place. Google Maps thus demonstrates that there is a shift from analogue towards online documentation.

This shift is also very evident in Local Guides and Google Earth. Because they both function as travel guides also means that normal, analogue, travel guides are not consulted anymore. One could go on a holiday and only bring Google Maps and be fully equipped. Google

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[57] Deborah Lupton, *The Quantified Self* (Cambridge, UK: Polity Press, 2016), 13.

Maps shows the route information, but also offers an 'explore' function that is connected to Local Guides. Local Guides does not necessarily recommend locations, but shows honest reviews and popularity of a location, based on locals' or visitors' opinions. Furthermore, Google Earth does recommend locations and functions as a real travel guide, also partially based on input from Local Guides. It thus becomes clear the analogue world and the online world are interwoven and that Google Maps adopts the analogue world. This could mean that technology alienates us from real life. As Heidegger argued in 1977, we are "enframed by technologies"[58] and that "everywhere everything is ordered to stand by, to be immediately on hand, indeed to stand there just so that it may be on call for a further ordering.".[59] This is what Heidegger calls a "standing-reserve" and he suggests that modern technology submits everything to "standing-reserve".[60] In a way, because Google Maps is always active in the background, especially Google Timeline, this could be applied to Heidegger's theory. Google Maps in itself is also ordered to stand by, as it tracks location and is ready to be called upon for an immediate route information, based on the location of that exact time. However, Heidegger offers a rather determinist view and he essentially argues that technology enframes human beings.[61] Instead of placing both worlds against each other, he suggests that the online world takes over the physical world. Negroponte, on the other hand, states that our world exists of the physical world of atoms and the digital world of bytes. These are often characterized as being opposites, but they do not have to be. Cyberspace is not less real than the real world.[62] This means that both the physical, or analogue world, and the real world are interwoven, instead of one taking over the other. Even more, the online world is part of the real world. Google Earth shows that this is correct, as images of the real world also exist in the online world. Thus, Heidegger's theory of a "standing-reserve"[63] can easily be applied to Google Maps, however, there is no such distinction between a real world and a technological world, there is only a real world in which the technological world is existent.

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[58] Robert C. Scharff, and Val Dusek, "Heidegger on Technology," in *Philosophy of Technology: The Technological Condition – an Anthology,* ed. Robert C. Scharff and Val Dusek (Chichester, UK: Wiley Blackwell, 2014), 300.

[59] Martin Heidegger, "The Question Concerning Technology," in *Philosophy of Technology: The Technological Condition – an Anthology,* ed. Roberts C. Scharff and Val Dusek (Chichester, UK: Wiley Blackwell, 2014), 310.

[60] Robert C. Scharff, and Val Dusek, "Heidegger on Technology," in *Philosophy of Technology: The Technological Condition – an Anthology,* ed. Robert C. Scharff and Val Dusek (Chichester, UK: Wiley Blackwell, 2014), 300.

[61] Ibid.

[62] Nicholas Negroponte, *Being Digital* (New York: Knopf, 1995): 43.

[63] Robert C. Scharff, and Val Dusek, "Heidegger on Technology," in *Philosophy of Technology: The Technological Condition – an Anthology,* ed. Robert C. Scharff and Val Dusek (Chichester, UK: Wiley Blackwell, 2014), 300.

Conclusion

Concluding, it could be stated that because the affordances allow for a playful interaction, the functions of the extensions become different than originally designed. Users make use of the app playfully, meaning using Google Timeline as an online diary, Local Guides as a social network and Google Earth as a travel guide. There is thus a shift visible in that Google Maps takes over the function of analogue tools, but this shift is inherent to the playful affordances and furthermore the context that Google Maps offers that appropriates play. In this way, Google Maps becomes a heavily consulted app in daily life. It could be stated that because of the way Google Maps appropriates play and designs affordances inviting playfulness, play becomes part of daily life, because Google Maps is part of daily life. That is, everyday life becomes play. Through the internalized 'everydayness' of playfulness, everyday life becomes a form of play and the line between play and playfulness disappears.

Functioning both as a travel guide, social network and quick route information, Google Maps is a "standing-reserve", meaning it is always stand-by and ready to hand.[64] Google Maps is thereby implemented in daily life, which means it is existent in the online world that is part of the real world. The notion of self-tracking is an example; it does not take over a human's life, it enhances it. Thus, Google Maps is definitely implemented in daily life, but complements to the physical world and answers to human's needs.[65]

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[64] Martin Heidegger, "The Question Concerning Technology," in *Philosophy of Technology: The Technological Condition – an Anthology,* ed. Roberts C. Scharff and Val Dusek (Chichester, UK: Wiley Blackwell, 2014), 310.
[65] James Gibson, *The Ecological Approach to Visual Perception* (Boston, Houghton Mifflin, 1979), 31.

Conclusion

The main research question in this analysis is: How do affordances of Google Maps allow for a playful interaction and how do they show that the real world and the online world are interwoven? In this analysis, it became clear that there are several definitions on the concept of affordances. Both Gibson's and Norman's definitions were used, as they were both applicable to the subject of Google Maps. Norman stated that there is a distinction between 'real' and 'perceived' affordances.[66] However, after analyzing Google Maps' affordances, it becomes clear that there is a very thin distinction between the two. More specifically, the distinction becomes hazy in relation to playfulness. It could be stated that a playful affordance and a 'real' affordance are in reality the same. It is hard to determine whether Google Maps has designed certain elements for that specific purpose, or has designed elements with the purpose of it being interpreted playfully. This becomes evident for example in the notion of altering the location history in Google Timeline. Google Maps gives its users the possibility to change the mode of transportation to playful options, such as paragliding.[67] If Google Maps did not want its users to be playful, it would not provide the opportunities to be playful. This conflicts with Sicart's statement on playfulness not being designed.[68] It is very clear that Google Maps provides a context for play by using and designing perceivable affordances. Google Maps thus creates play by provoking a playful attitude embedded in the designed affordances. It becomes evident that play, playfulness and affordances have a very specific interaction. In this way, the interaction itself also becomes a form of play. I would say that Google Maps uses affordances to provoke playfulness, which eventually leads to play. By providing a context appropriate for play, play will ultimately take place. Sicart stated that "to be playful is to appropriate a context that is not created or intended for play."[69]. However, Sicart is incorrect because in this very particular case playfulness takes place in a context Google Maps has created for play. To be playful is thus eventually to play. The results in this analysis thus collide with Sicart's theory about playfulness and play and it becomes evident that this theory is obsolete and needs further research. Play and playfulness do thus not have to be regarded as opposites, as Sicart describes it, but are intertwined, as the concepts both inherently include each other.

Furthermore, it can be stated that because the affordances are playful, Google Maps leads to being used for a different function. In this way, it also leads to being implemented in

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[66] Donald A. Norman, "Affordance, Conventions and Design," *Interactions* 6, no. 3 (May/June 1999): 40.
[67] See image 4.4.1 and 4.4.2 in the appendix
[68] Miguel Sicart et al., *Play Matters* (Cambridge, MA: MIT Press, 2014), 22, 25.
[69] Ibid., 25.

daily life more, because it takes over some of the functions of everyday tools. It is furthermore clear that although Google Maps does take over the function of already existing analogue tools and an apparent shift from the physical world towards the online world seems to appear, Negroponte makes clear that these are not two separate worlds. He states that the real world and the physical world do not have to be opposites, because cyberspace is not less or more real than the real world.[70] The online world is also part of the real world. That makes Google Maps so perfectly fitted in daily life. Street View, an option in Google Earth, is a very good example of this. It combines the real world and the online world and shows that the real world adapts the online world. The real world and the online world are thus interwoven in that the real world also contains the online world. This is emphasized by the way Google Maps designed its affordances and provides a context that provokes playfulness and eventually leads to play. Because of its embeddedness in everyday life, play inevitably also becomes part of everyday life. Everyday life becomes a form of play.

It is clear that the theory offered in the framework is not airtight. The results in this analysis demonstrate that both Norman's theory about affordances and Sicart's theory about playfulness can be contested. It is therefore important that further research investigates these theories, in order to make a true meaning out of the theories. What is offered in this analysis, is a minor step to uncovering the true definitions of these concepts and perhaps the start of an academic discussion. It is however important to further analyze, in order to truly understand the concepts.

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[70] Nicholas Negroponte, *Being Digital* (New York: Knopf, 1995): 43.

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Appendix

Image 1.1.1: A user can look for a restaurant in a certain area, simply by clicking on the button.

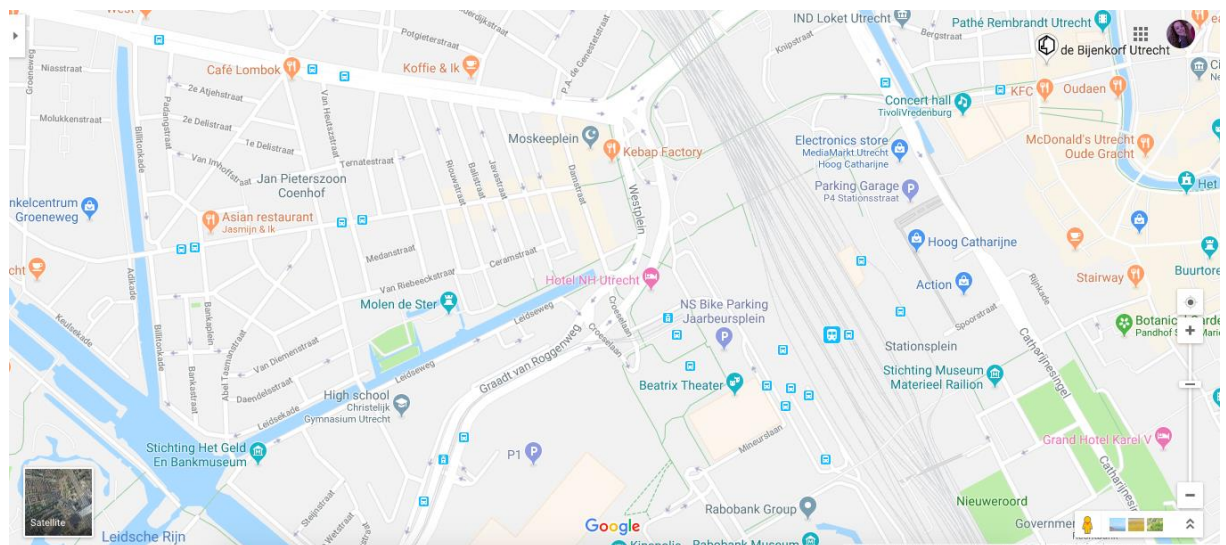Image 1.1.2: The city of Utrecht zoomed out. Only the train stations and big roads are visible.

Image 1.1.3: Once zoomed in, smaller streets and bus stops become visible. In the lower right-hand corner, one can choose the map-type, e.g. satellite.
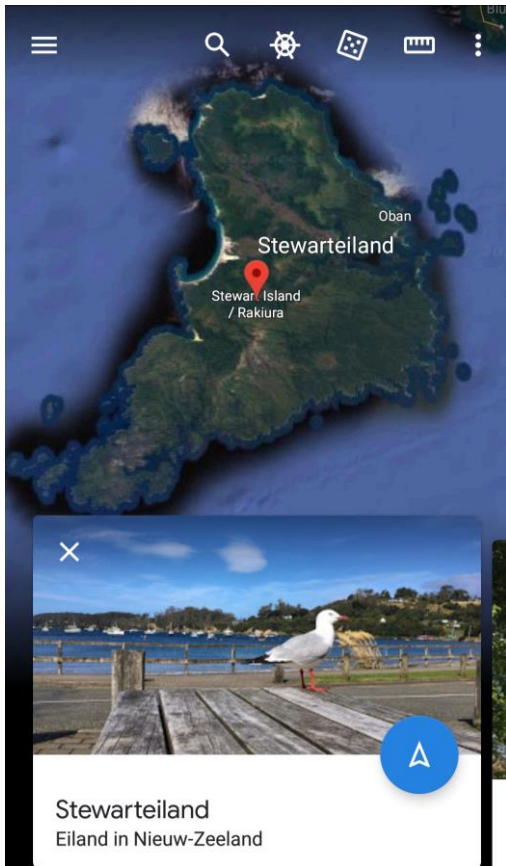
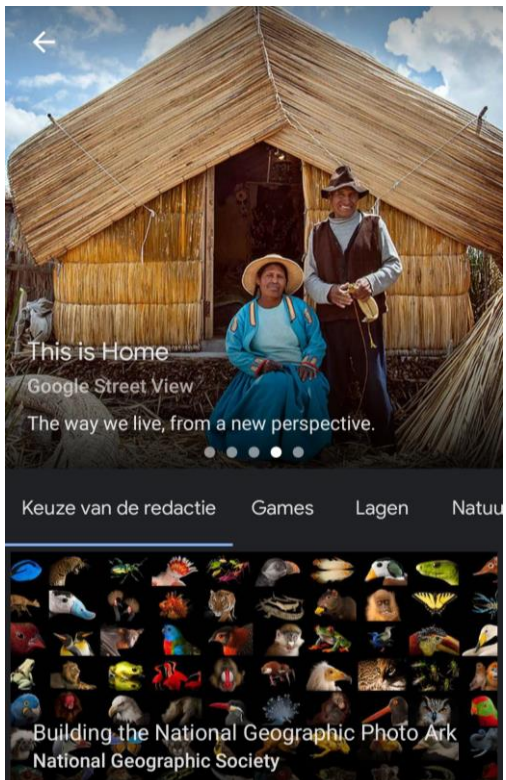Image 1.1.4: Once clicked on the dice in the upper right-hand corner, Google Earth 'travels' to a random location.

Image 1.1.5: The function 'Voyager' on Google Earth leads to a travel guide, where Google Earth shows different stories and possibilities to discover globally, as well as the possibility to discover nature or play games.
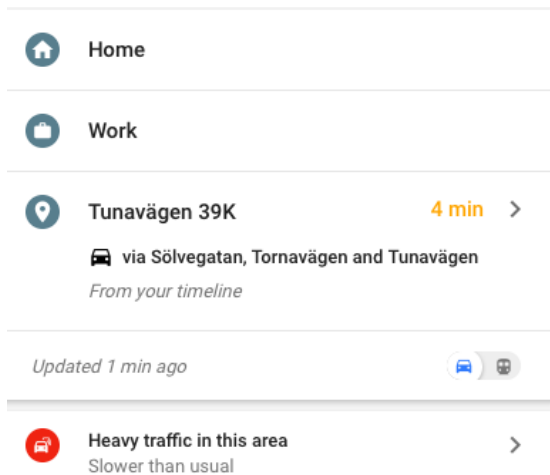
Image 2.1.1: A user can save a location as 'home' and will be able to click on the location for a quick route information and navigation.
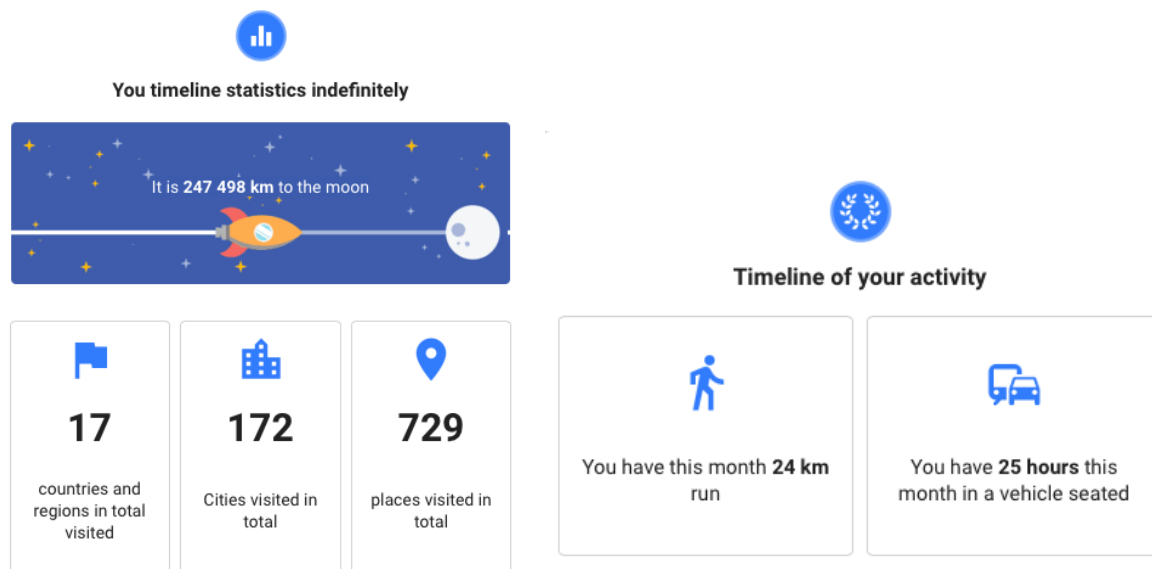
Image 2.1.2: The monthly email Google Maps sends with information about one's Timeline; stating statistics based on the month and based in total.
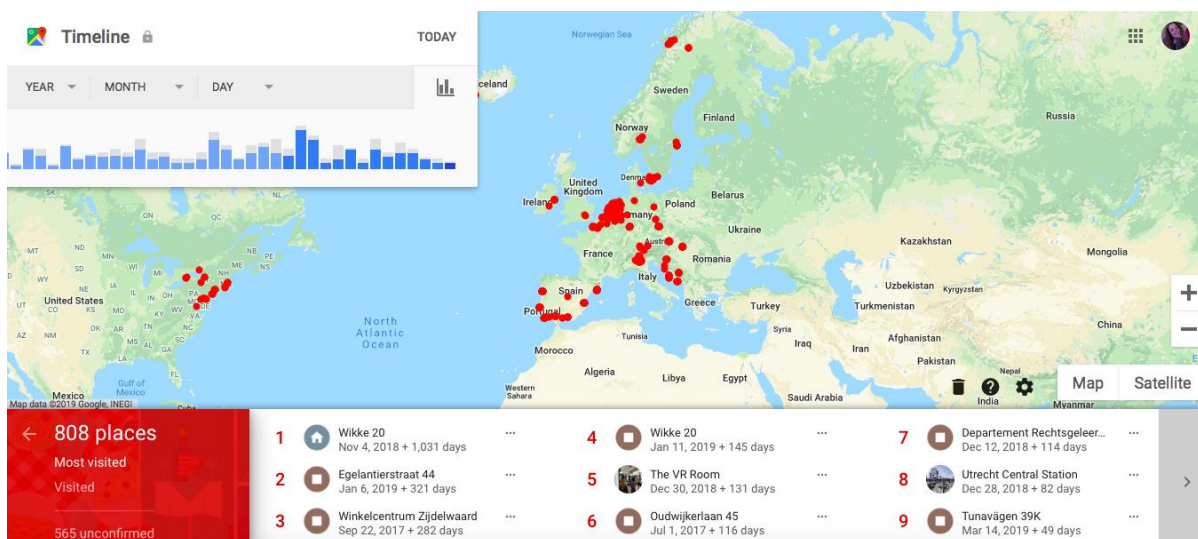
Image 2.1.3: Timeline statistics on most visited places. The red dots are all the visited places.
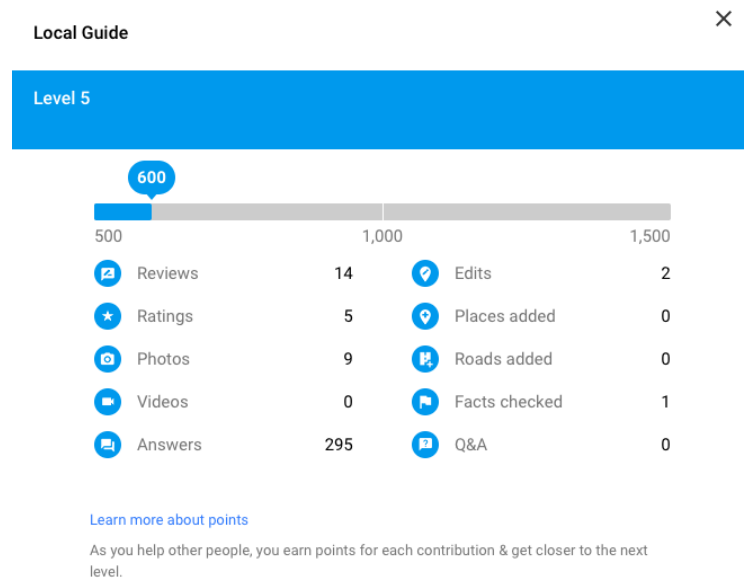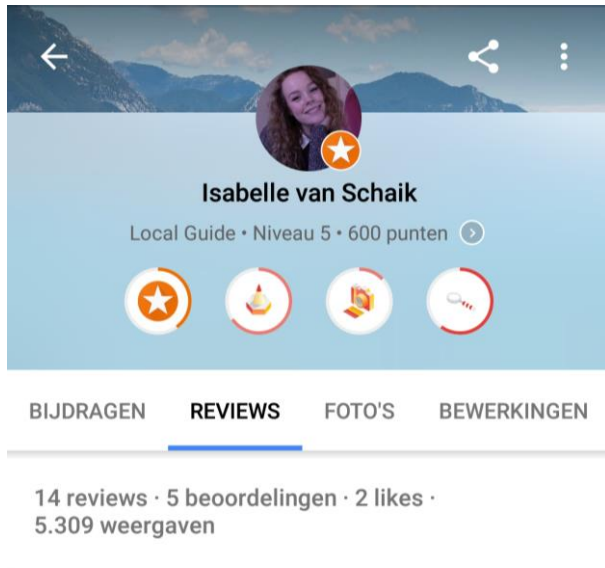
Image 2.2.1: Local Guides is designed as a game, because it shows levels and statistics on how gain points. Moreover, users are able to gain badges, as is shown beneath the profile picture. On Local Guides, people create profiles by leaving reviews, all the submitted reviews and photos are posted onto one's profile.
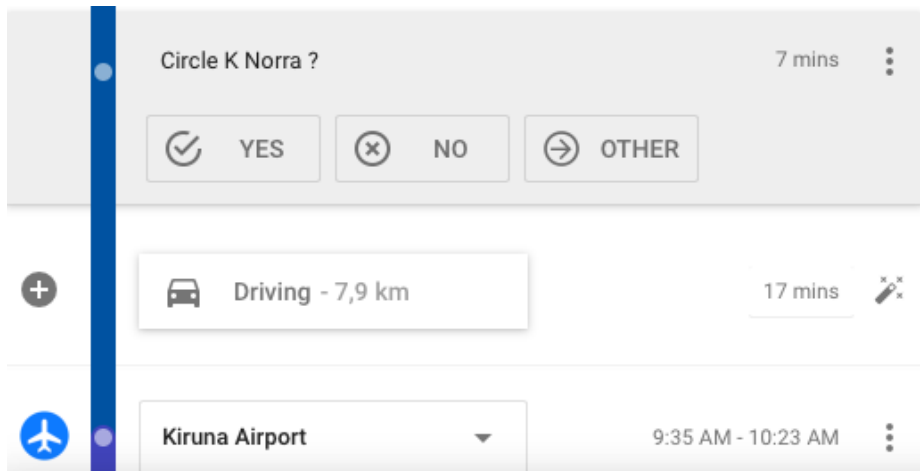

Image 4.1.1: Google Timeline suggest a location the user has might been to but cannot fully decide independently, so asks the user if that was the correct location. It also gives the user the ability to alter. On the left hand-side, there is a plus-button, meaning the user can add any location or 'stop' they want.
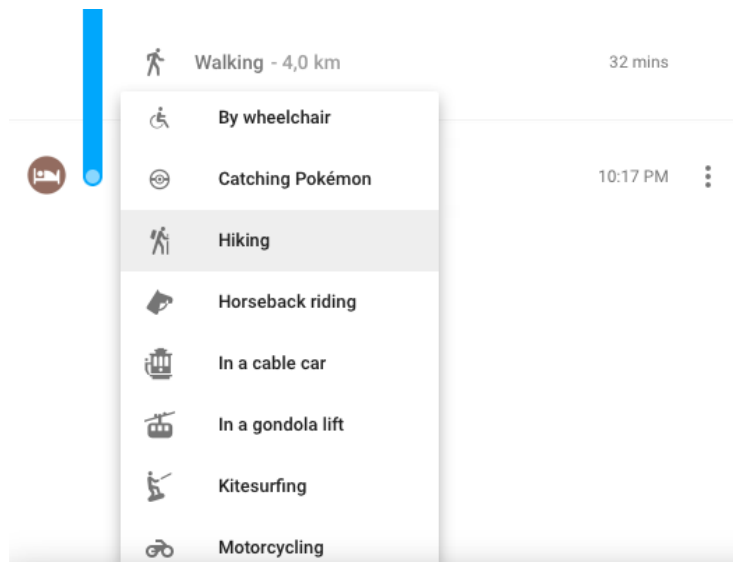
Image 4.1.2: On Google Timeline, one could alter the mode of transportation to for example 'Catching Pokémon'.