

How does visual perception of the Singelpark Leiden affect psychological restorative processes?



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Abstract

Natural environments accelerate restoration processes and are therefore a contributing factor to the quality of urban life. With this knowledge in mind, the citizens of Leiden developed the Singelpark project. This project has as its goal to create one circular park following the canals around the city center of Leiden. This field study aimed to investigate visual perception of the Singelpark and its effect on psychological restoration. One hundred participants were instructed to walk for approximately one hour and fifteen minutes through the Singelpark and evaluate the environment on scenic beauty, naturalness, historical character, safety, familiarity, pleasantness to walk, noise and restorative potential. The following expectations were confirmed by this study: a natural environment is higher in appreciation and restoration compared to an urban environment (H1), segments that are appreciated more are higher in restorative potential (H2), an urban environment with historical elements is higher in appreciation than an environment without historical elements (H3) and an environment that is perceived as safe, is higher in appreciation (H4a). Results showed no significant unique effect of safety on restoration (H4b). However, a full mediating effect of appreciation is found within the effect of safety on restoration. This research is an important baseline-measure, taking into account that most Singelpark projects are not realized yet. Environmental changes, some of these suggested by the current study, that will take place in the next couple of years are expected to have a positive impact on well-being of the Singelpark visitors, which can be examined by a follow-up study.

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1. Introduction

The Netherlands is a highly urbanised country. With an average of 500 inhabitants per square kilometre, it is one of the most densely populated countries in the world. The current population of the Netherlands counts approximately 17 million people, and 90,9% of the people live in urban areas. This makes a total of 15,5 million people living in urban areas in 2017 (World population, 2017).

A city offers opportunities not found in rural areas. For example, cities provide a wider range of job- and career opportunities. Also, good health care is available and people can make use of public transport when needed. Schools and child development centres are nearby and emergency services like fire fighting or medical services will arrive quickly after being alarmed (Satterthwaite, 2000).

However, health of people in urban areas has changed as cities have evolved. Research has shown that living in a city negatively influences mental health. Findings of a meta-analysis found that mood- and anxiety disorders are more prevalent among inhabitants of urban areas compared to inhabitants of rural areas (Peen, Schoevers, Beekman, & Dekker, 2010). Also, another study found that the incidence of schizophrenia is increased among people who are born and raised in cities (Krabbendam & Van Os, 2005). Additionally, neural mechanisms are identified in specific brain areas that link living in cities to social stress processing in humans. Hence, there is an urban environmental risk for mental disorders and health (Lederbogen, et al., 2011). It is important that it is investigated how people can prevent this decrease in health and well-being from happening.

1.1 Singelpark

Findings of empirical research suggest that the presence of green areas within urban areas contributes to the quality of life. Besides many ecological and environmental services, urban nature provides social and psychological benefits to societies that enrich human life with meanings and emotions (Chiesura, 2004). Based on such findings, the idea of the Singelpark rose among the citizens of Leiden several years ago, and this idea has evolved into an intensive project. The Singelpark is a project that has as its goal to create one circular park of approximately six kilometres long, following the canals around the city-centre of Leiden. Eventually, this route will consist of green areas, parks and historical buildings with monumental value. This concept is developed by 'Vrienden van het Singelpark', a foundation that consists of citizens of Leiden. Those citizens aim to reach the highest level of quality

within designing, building and managing the park. Currently, the quality of the route is variable; some parts are mainly urban while other parts are mainly green. The Vrienden van het Singelpark based their vision on their conception of city parks, nature and society. With the idea of making the most out of the Singelpark project, this study is developed. By gaining more insights in the opinion and vision of the future user of the park, there is broader range of knowledge about the best possible design. This study aims to investigate and interpret the current quality of the Singelpark, using existing theories and findings about the environment and its positive and negative effect on humans (Veenstra, et al., 2012). It is important to know how people perceive the route in its entirety, but also how separate parts, ‘segments’, of the route are evaluated. Therefore, the Singelpark is split up into 19 segments presenting a predominant natural or urban environment, which were evaluated by the participants.

Findings of this study could lead to recommendations about the design of the park. Since it is expected that the Singelpark becomes a major touristic attraction and thus will contribute to the prosperity of Leiden, it is important that already existing future projects are perfected. In the next couple of years, parts of the route will change and contain more greenery. By establishing a baseline measure of the current perception of the Singelpark, a follow-up study is possible in order to measure the effect of the environmental changes of the park. Comparing the findings of the baseline measure with the findings of the follow-up study will provide more insights about the improvements or deteriorations of the Singelpark and its effect on restoration.

1.2 Health benefits of natural environment

Nature and its positive effect on health are researched in earlier studies. Two studies investigated the effect of nature on people who experienced a recovery process. The study of Ulrich (1984) compared the recovery process of surgical patients with a view on a natural setting with the recovery process of patients with a view on a brick wall. It is found that patients with a view on a natural setting needed a shorter period for recovery, received fewer negative evaluative comments in nurses’ notes and took fewer potent painkillers. Recently, this study of Ulrich (1984) was replicated by Raanaas, Patil and Hartig (2012). This research examined the health benefits of a bedroom window view with natural surroundings for patients who were undergoing a residential rehabilitation program. Again, it is found that a view with natural surroundings causes higher levels of improvement compared to a view that was either partially or entirely blocked by windows. Both studies give a clear insight of the importance of a natural environment for human health and well-being.

Hartig, Mitchell, de Vries and Frumkin (2014) reviewed the research of natural environment on health and identified four pathways that involve better air quality, physical activity, social cohesion and restoration. First, indoor- and outdoor vegetation positively affects surrounding air quality (Fowler, 2002). Second, natural environment affects physical activity. Outdoor environments offer suitable spaces for activities like walking, cycling or other sports. Third, research found that social cohesion is beneficial for human health and well-being (Nieminen, Martelin, Koskinen, Aro, Alanen, & Hyypää, 2010). Additionally, it is found that nature provides opportunities for social cohesion. For example, greenness in the neighbourhood or community gardens can elicit local social interaction (Van Den Berg, Van Winsum-Westra, De Vries, & Van Dillen, 2010). Fourth, a natural environment is beneficial for restoration. Hartig (2007) defines 'restoration' as "the process of recovering physiological, psychological and social resources that have become diminished in efforts to meet the demands of everyday life" (p. 164). Examples of physiological resources are working hard to meet a deadline or hurrying to catch the train. Psychological resources include concentration on a particular task while distractions like noise are making it harder to focus. Social resources include helping friends, family or someone else, with various activities. These resources deplete after a period of time and effort, and therefore regular restoration of those resources is needed (Hartig, 2007). In conclusion, there is a difference between health benefits as a result of contact with nature and restorative effects of nature itself.

1.3 Theory-based explanations

1.3.1 Attention Restoration Theory. In line with the process of restoration, Kaplan (1995) suggests the Attention Restoration Theory. According to this theory, attention has two modes. The first mode is voluntary or directed attention; the second mode is involuntary or spontaneous attention. Directed attention demands high concentration of the individual on a particular situation, behaviour or task. At the same time, it takes a lot of effort to keep concentrated and not get distracted by other influences. Directed attention is a resource that depletes after a period of time and needs to be restored by entering a situation that does not require this kind of intense attention. According to Kaplan (1995), four components can be integrated with the analysis of what makes an environment restorative. First, the feeling of *being away* is a restorative element of nature. The seaside, lakes, forests, mountains and idyllic places are the preferred destinations when someone feels the need for being away after having a busy or stressed day. Second, the component *fascination* attributes

to the restorative potential of an environment. There are two kinds of fascination: soft fascination and hard fascination. Soft fascination is comparable to effortless attention, which leaves room for reflection and enables one to think about other things in life. This allows a fully restorative experience. Within a natural environment, this could be moving clouds across the sky or water bubbling over the rocks in a stream. According to Kaplan (1995), settings that evoke hard fascination are settings that permit directed attention to rest, but do not leave room for reflection. This could be, for instance, watching auto racing, doing sports, watching television, shopping (Kaplan, 1995), going to amusement parks, concerts or parties (Herzog, Black, Fountaine, & Knotts, 1997). Hard fascination provides a certain level of restoration, but is less effective for the restoration process compared to soft fascination. Third, the component *extent* states that the environment should be rich enough and coherent enough in order to contribute to the feeling that someone is in a whole other world. This engages the mind and promotes exploration. Fourth, the component *compatibility* implies that a setting must fit with what one is trying to do and what one would like to do. According to Herzog, et al. (1997), settings that contain these four components in a sufficient degree are proposed as restorative environments. Within a study on restoration, participants rated the perceived restorative potential of three kinds of environment. They found that ordinary natural settings have the highest restorative effectiveness, everyday urban environment is rated as the least restorative and a sports- and entertainment environment is rated as in between (Herzog, Black, Fountaine, & Knotts, 1997). This theory and finding leads to the following hypotheses:

H1a: *A natural environment is preferred over an urban environment*

H1b: *A natural environment is higher in restorative potential than an urban environment*

1.3.2 Link between preferred environments and restorative potential. There is a strong connection between preferred natural environment and the restorative potential of that environment. In general, a natural environment is perceived as pleasant and satisfying to experience and therefore gives enjoyment and is preferred. Also, a preferred environment permits people to move around and explore with confidence and comfort, which supports human functioning. Last, preferred environments allow people to recover from mental fatigue and regain effective functioning (Kaplan & Kaplan, 1989). Additionally, the study of Simonič (2006) made a link between preferred environments and restoration by taking the desired activities and uses of an environment into account. People choose places within the environment for recreational use. The use could either be dynamic or static. Dynamic use of

the environment includes for example walking, jogging or taking care of plants. Static use of the environment includes solitude retreat, bird watching or meditation. All these activities are likely to contribute to restoration. Simonič (2006) explored this by using questionnaires about what kind of environment is preferred where particular attention was given to the experiential and restorative quality of the environments. Findings show that naturalistic and landscape style environments were preferred more compared to geometrical, clearly human-made landscapes. Because these environments allow people to use them for static or dynamic use, the landscapes are preferred and considered as higher in restorative potential. This finding leads to the following hypothesis:

H2: Segments of the route that are preferred, are more restorative than segments of the route that are considered less preferred.

1.3.3 Preference for historical buildings. Since the Singelpark contains a lot of historical elements that are distinctive for the route, it is important that the effect of historical elements on preference and restoration is examined. A study of Najd, Ismail, Maulan, Yunos and Niya (2015) examined visual preferences of the public for different kinds of urban scenery, including historical buildings and urban greenery. They found that environments with historical buildings and without visual chaos like traffic or other visual barriers were preferred the most. Also, they found a moderate level of appreciation for urban greenery, which is in line with previous findings about preference and nature. However, greenness in historic urban areas did not receive the highest preference score. Probably this is due to the fact that greenery stands alone and does not comply with historical features. These findings lead to the following hypothesis:

H3: An environment that contains historical elements is preferred over an urban environment without historical elements.

Given the expectation that an environment with historical elements is preferred and given the finding that a preferred environment has a higher restorative potential, an interesting yet not researched question rises here: *is an environment with historical elements higher in restorative potential than an urban environment without historical elements?*

1.3.4 Influence of safety. A safe environment gives someone a pleasant feeling because it allows relaxation, which will cause a preference for that environment. People will appreciate an environment the most when they are able to see everybody else, while nobody is able to see him or her. This refers to the prospect-refuge theory, which is based on human

survival (Appleton, 1975). The other way around, an environment that is perceived as unsafe will cause a feeling of stress. An acute stressor elicits higher cortisol levels and a higher heart rate and therefore, blood pressure will rise (Dickerson & Kemeny, 2004). This unsafe feeling demands one's directed attention, because one needs to be ready to deal with potential threat. This state interferes with the potential for restoration, because the depleted resource of directed attention cannot be restored. This theory and finding leads to the following hypotheses:

H4a: *An environment that is perceived as unsafe is not preferred.*

H4b: *An environment that is perceived as unsafe is not beneficial for restorative processes.*

1.4 Present study and hypotheses

This study aims to investigate and interpret the current quality of the Singelpark by focusing on the visual perception of environmental elements and their restorative potential. By dividing the Singelpark into segments, it is examined what the effect is of different environments on restorative processes. This leads to the following research question of this study: How does visual perception of Singelpark Leiden affect psychological restorative processes?

In order to investigate this research question, the following hypotheses are developed:

- H1: A natural environment is preferred over urban environment and is higher in restorative potential.
 - H1a: A natural environment is preferred over an urban environment.
 - H1b: A natural environment is higher in restorative potential than an urban environment.
- H2: Segments of the route that are preferred, are more restorative than segments of the route that are considered less preferred.
- H3: An environment that contains historical elements is preferred over an urban environment without historical elements.
- H4: An environment that is perceived as unsafe is not preferred and is not beneficial for restorative processes.
 - H4a: An environment that is perceived as unsafe is not preferred.
 - H4b: An environment that is perceived as unsafe is not beneficial for restorative processes.

2. Method

2.1 Participants

One hundred Dutch speaking participants (15-71 years of age, mean age = 34,6; 76% female) were recruited for this study. Participants were recruited by using a variety of means. First, the SONA website of Leiden University (<http://ul.sona-systems.com>) is used, where students' experiments are announced. Second, students at Leiden University were personally asked to participate. Third, an announcement was posted in an electronic newsletter of the Singelpark. Fourth, announcements were posted in multiple interest groups on Facebook. The participants participated voluntarily and received €8 in compensation.

2.2 Design

This field-study investigated different environmental settings of the Singelpark and its effect on restoration. The park has a total length of approximately 7 kilometers. A person with an average walking speed of 5 kilometers per hour would walk this route in approximately 1,4 hour. However, taking into account that a participant has to evaluate the environment and has to fill in multiple questionnaires, it would take a participant about 2 hours to finish the study. Because of the risk that this length would raise negative emotions or physical fatigue among the participants, which could negatively influence the study, the route was divided into two parts; route North and route South. Both routes were walked in each of the two possible directions in order to control for order-effects, which created the following four conditions: route South I, route South II, route North I and route North II. Participants were randomly assigned to one of the conditions. Participants who were assigned to route North I or South I walked counterclockwise and participants who were assigned to route North II or South II walked clockwise.

2.3 Environmental setting

As can be seen in Figure 1, route North is located north of the river De Rijn and route South is located mostly south of De Rijn. Both routes are approximately the same length: route South is about 3.3 kilometers and route North is about 3.8 kilometers.

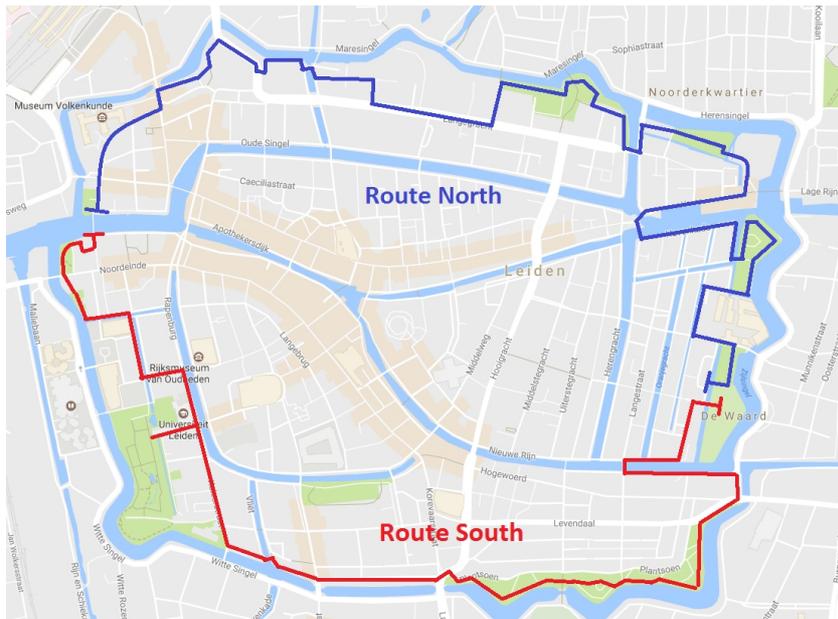


Figure 1. The division of the park in route South and route North.

In order to investigate how different parts of the park contribute to the overall perceived restorative potential, the park was divided into homogenous segments. These segments were chosen based on the environmental features that they contain. Some segments have a predominant natural character and some have a predominant urban character. Additionally, some segments contain historical elements as well. A landscape architect approved the division of the different segments and the allocation of the environmental features they contain. Route North was divided in 11 segments (Figure 2) and route South was divided into 8 segments (Figure 3).

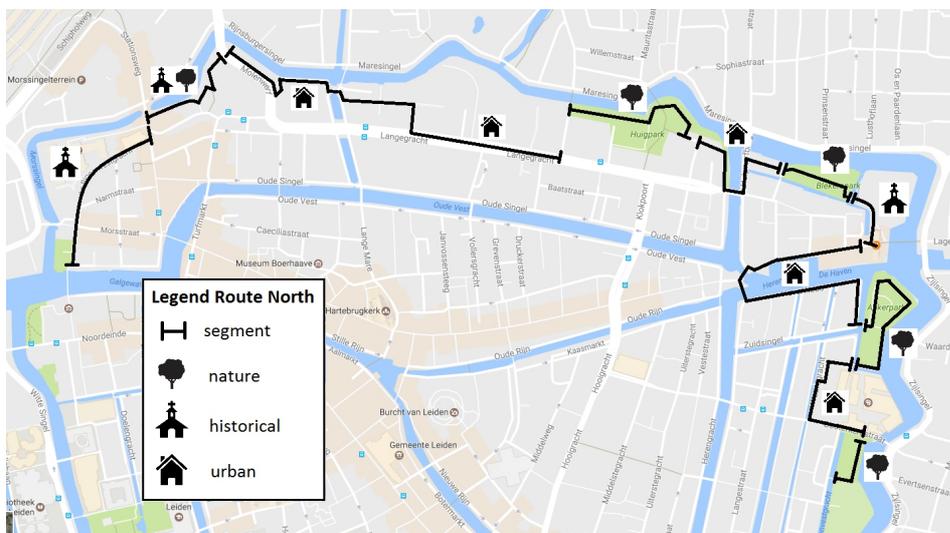


Figure 2. Segments of Route North.

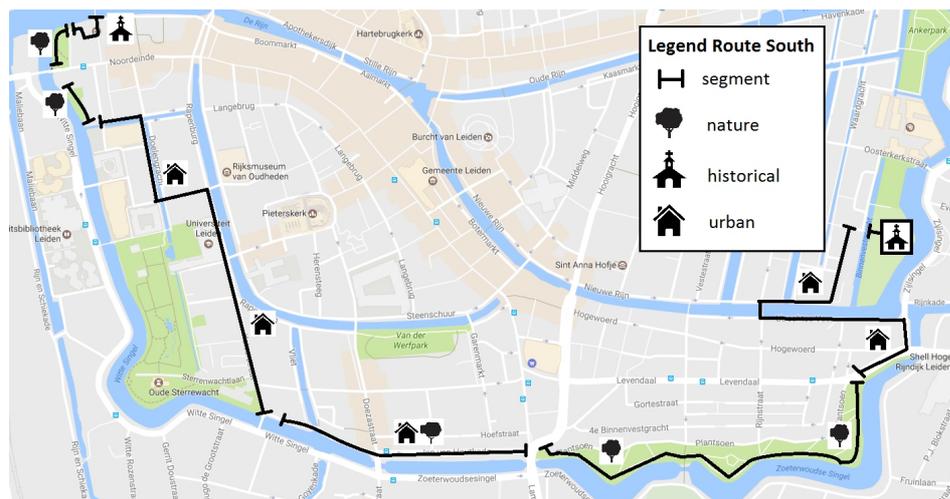


Figure 3. Segments of Route South.

Route North consisted of 23 measurement moments in which participants evaluated the environment on scenic beauty, naturalness, historical character, restorative potential, safety, pleasantness to walk and familiarity. Participants also evaluated the environment on traffic noise, but this data was only relevant for the data-analysis of Jenthe Furrer. These 23 measurement moments consisted of 11 homogenous segments and 12 specific points on the route that were evaluated. Only the data collection of the segments of the route was relevant for this research.

Route South consisted of 20 measurement moments in which participants evaluated the environment on scenic beauty, naturalness, historical character, restorative potential, safety, pleasantness to walk and familiarity. Again, participants evaluated the environment on traffic noise, but this data was only relevant for the data-analysis of Jenthe Furrer. These 20 measurement moments consisted of 8 homogenous segments and 12 specific points on the route that were evaluated. Again, only the data collection of the segments of the route was relevant for this research.

2.4 Measures

Within this research, 10 different psychological characteristics were assessed. Because the participants had to fill in 20 questionnaires during route South or 23 questionnaires during route North, the questionnaires were as short as possible. All the questionnaires were in Dutch. Attentional fatigue and current emotional state were measured before and after the walk. Scenic beauty, historical character, naturalness, pleasantness to walk, restorative potential, noise, familiarity and safety were included in every questionnaire of each evaluative point or segment on the route. Also, it was taken into account that different

kinds of weather and temperature could influence this research. Weather conditions were registered and the study was planned to be cancelled if these were bad.

Attentional fatigue

The more people are attentional fatigued, the more need there is for restoration. In order to measure the need for restoration, two scales containing items of attentional fatigue were used. One scale measured the emotional aspects of attentional fatigue and the other scale measured the behavioural aspect of attentional fatigue. These items are part of a larger questionnaire developed by Staats, Kieviet and Hartig (2003). Right before the walk, participants had to fill in eight items (four on emotional aspects and four on behavioural aspects) and after the walk, participants had to fill in four of these (two on emotional aspects and two on behavioural aspects). The set of post-test items was smaller than the set of pre-test items in order to make it less obvious to the participants that the same construct is measured. All the items were answered on a 7 point Likert scale from 1, not at all to 7, very much (Appendix A). The four items about behavioural aspects of attentional fatigue were re-pooled for the following reliability analysis. A reliability analysis was performed on the eight items of attentional fatigue. Because of a high internal consistency ($\alpha=.87$), a new variable was computed by calculating the mean of these eight items. This new variable is used in the data analysis.

Current emotional state

Individual differences could cause one person to be in more need for restoration than another. In order to examine this, the current emotional state is asked before and after the walk. This questionnaire is based on the circumplex model of Russell and Barrett, which state that emotions vary along the dimensions of pleasure and arousal (Russell & Barrett, 1999). In this questionnaire, six emotions are scored on a 7 point Likert Scale from 1, not at all to 7, very much at pre- and posttest (Appendix C). In order to reduce the six items to fewer variables, a principal component analysis (PCA) is performed with the six items at pre-test as factors. Bartlett's test of sphericity was significant ($X^2(15)=91.45, p<.001$) and the Kaiser-Meyer-Olkin measure had a value of .50, which suggests that this data has enough factor structure to perform this analysis. All the communalities are above .60, which means that the sample size of 99 is acceptable. Initially, three factors with an eigenvalue greater than one were extruded. This factor analysis indicated that two factors gave the most interpretable solution. The first component had an eigenvalue of 1.92, and accounted for 32.0% of the

variance in the data. The second component had an eigenvalue of 1.43, and accounted for 23.8% of the variance in the data. The new variable pleasure is computed by summing up the component loading on component 1 multiplied by the score of that variable. The other variable arousal is computed by summing up the component loading on component 2 multiplied by the score of that variable. The new variables are used in analysis.

Appreciation of the environment

Appreciation of the environment includes scenic beauty and functional appreciation of the environment. In order to measure the perceived scenic beauty of the environment on each evaluative point on the route, the following question was rated on a 7 point Likert Scale from 1, not at all to 7, very much: *'I think that it is beautiful here'*. In order to measure the functional appreciation of the different sections of the route, participants rated how enjoyable they found it to walk in that area, which was measured by the following question: *'I think that it is pleasant to walk here'*. This question was rated on a 7 point Likert Scale from 1, not at all to 7, very much (Appendix D). In order to check whether these two appreciation items were measuring the same construct, reliability analyses were performed on every segment of route South and route North. For almost every segment Cronbach's alpha was high ($\alpha > .80$). There were five segments where Cronbach's alpha was somewhat lower, but still high enough considering that this was computed from only two variables ($\alpha > .67$). For every segment, the two appreciation items were recalculated into one new appreciation variable, using the mean score of the two original items. The new restoration variables were used in the analyses.

Naturalness

In this research, "naturalness" means the more nature is present in an environment, the higher the level of naturalness. In order to examine if participants considered the environment as nature or urban, the following question was answered on a 7 point Likert Scale from 1, completely urban to 7, completely natural: *'To what extent would you rate this environment as urban or natural?'* (Appendix D).

Historical character

In this research, "historical character" refers to the amount of historical elements in the environment. The more historical elements are present in an environment, the higher the level of historical character. The level of historical character was examined by the following

question: *'I think this environment has a ... character'*, which was rated on a 7 point Likert Scale from 1, modern character to 7, historical character (Appendix D).

Restoration

In this research, "restoration" refers to the process in which people experience stress relief and a lower level of attentional fatigue. As literature suggests, a natural environment is an effective way of activating this process of restoration. In order to measure the perceived restorative potential of the environment, two self-rated scales were used (Staats, Kieviet, & Hartig, 2003). The following questions were rated on a 7 point Likert Scale from 1, not at all to 7, very much: *'In this environment I unwind'* and *'In this environment I get new energy'* (Appendix D). In order to check whether these two restoration items were measuring the same construct, reliability analyses were performed on every segment of route South and route North. Because for every segment Cronbach's alpha was high ($\alpha > .80$), the two restoration items were recalculated into one new restoration variable for each segment, using the mean score of the two original items. The new restoration variables were used in the analyses.

Safety

The feeling of safety is an important factor in perceived stress, which could influence the evaluation of the environment. This variable was examined as well. In order to do this, participants answered one item about safety during their evaluative points on the route: *'Within this environment I feel safe'*. This item is rated on a 7 point scale from 1, not at all to 7, very much (Appendix D).

Noise

Because the Singelpark is located within a city, traffic noise is present most of the time. Traffic noise could have a negative effect on the restorative potential of an environment. That is why this variable was taken into account within this research. Perceived noise was measured using 2 items. These items were extracted from a questionnaire that was used for measuring aircraft noise annoyance (Staats, 1991). The questions were rated on a 5 point Likert Scale from 1, not at all to 5, very much: *'Do you feel like there is a lot of traffic noise during your visit in this area'* and *'How annoying is this noise to you'* (Appendix D). This data concerning noise was only relevant for the master thesis of Jenthe Furrer.

Familiarity

Appreciation of the environment is affected by familiarity. Because of repetition, there is an increase of preference for an environment, which is referred to as the mere-exposure paradigm (Leder, Belke, Oeberst, & Augustin, 2004). Part of our participants is citizen of Leiden and probably familiar with the Singelpark. Another part of our participants is not from Leiden and probably not or less familiar with the Singelpark. This could influence our data and is therefore examined in this research. To measure how familiar the participants were with a particular segment, participants had to answer the following question on a 5 point Likert Scale from 1, totally unfamiliar to 5, very familiar: '*How familiar is this place to you*' (Appendix D).

Weather conditions

The data for this study was collected within a period of three weeks in March and April, during working days between nine and six pm. Because of spring, temperature was varying between 8 and 20 degrees Celsius. In almost all cases, the sun was shining and it was lightly to rather cloudy. Due to cold weather and slight rainfall, two appointments had to be rescheduled.

2.5 Procedure

After participants signed up for participation in this study, they were instructed to meet one of the experimenters at either Molen de Put (address: Park de Put 11, 2312 BR, Leiden) or at the cemetery Groenesteeg (address: Groenesteeg 126, 2312 SR, Leiden), depending on the assigned condition. After agreeing with the informed consent, the experimenter gave a brief explanation of the study and what was expected from the participants. When there were no further questions, participants were given a clipboard with the questionnaires and a pen. Also, a colour-printed map of the route (Appendix E-H) was given to ensure that participants not got lost. The precise route directions were verbally described between each evaluative point and segment (Appendix E-H). Last, the cell phone numbers of the experimenters were given to the participants in case there was an emergency or there were other important questions.

First, participants had to fill in a questionnaire about attentional fatigue and current emotional state. After completing these questionnaires, they were directed to the first evaluative segment. It took participants approximately one minute to fill out each questionnaire. After completing a questionnaire, participants were directed to the next

evaluative point or segment by following the instructions of the route description. This continued until they reached their end point. The end point was also either Molen de Put or cemetery Groenesteeg, depending on the assigned condition. Here, participants had to fill in the last questionnaires about their level of attentional fatigue, current emotional state and a questionnaire measuring their demographic profile. When participants had completed the whole questionnaire, the experimenter collected the clipboard, pen, colour-printed map and questionnaires and gave the participants €8 in compensation and debriefed them.

3. Results

Twenty-five participants per condition participated in this study ($N=100$). One participant from the condition Route South II was excluded from the data analyses due to abnormal data. The final sample was formed by 99 participants who were between 15 and 71 years old (M age=34.75, $SD=16.78$), 75.8% of them were female.

3.1 Checks

3.1.1 Age

In order to check if there was no significant difference of age between the conditions, a two-sided independent-samples t test was performed with age as the dependent variable. No significant difference in age was found between route South ($M=36.22$, $SD=18.32$) and route North ($M=33.3$, $SD=15.17$); $t(93.01)=-.86$, $p=.390$. Equal variances were not assumed because of a significant Levene's test ($p=.029$).

3.1.2 Order effects

Walking the route in a certain direction could cause some differences in the experienced restorative potential and appreciation of the segments of the route. In order to eliminate as much order effects as possible, a counterbalanced design was used where conditions were created in a way that each route is walked in the two possible directions by the same amount of participants ($N=25$). Route South I and route North II both started at Molen de Put and ended at cemetery Groenesteeg. Route South II and route North I both started at cemetery Groenesteeg and ended at Molen de Put. However, differences in scores on restorative potential and appreciation can still occur due to order effects. Thus, order effects have to be checked. Here, a distinction is made between 'real time scores' and 'post hoc scores'. During the route, participants had to score each segment on restorative potential

and appreciation. Real time scores refer to the scores on restoration and appreciation of each segment. At the end of the route, participants had to fill in a questionnaire about the total route, including questions about the perceived total restoration and appreciation of the route. Post hoc scores refer to the scores on the questionnaire of the total route, these scores are post hoc or so-called retrospective because participants had to evaluate an average score on restoration and appreciation, based on all the different segments they evaluated.

Difference in real time restoration scores of the total routes due to order effects

Two total restoration score variables were computed for route South and route North by summing up the means of every restoration score per segment and calculate a new restoration mean score for both routes. These two new restoration means are used in the following analysis. To test whether there was a significant difference in restorative potential due to order within route South, a two-sided independent samples t test is performed with the total restoration score of route South as the test variable and the order of route South as grouping variable. Equal variances were assumed because the Levene's test was not significant ($p=.154$). No significant difference in restoration was found between South I ($M=4.06$, $SD=.91$) and South II ($M=4.38$, $SD=.63$), $t(47)=-1.44$, $p=.158$.

The same is carried out for route North. Within this two-sided independent t test, equal variances were assumed because the Levene's test was not significant ($p=.099$). No significant difference in restoration was found between North I ($M=3.88$, $SD=.62$) and North II ($M=3.98$, $SD=.81$), $t(48)=-.46$, $p=.650$. These findings suggest that the order of the route did not matter for the total real time score on restorative potential.

Difference in post hoc restoration scores of the total routes due to order effects

For this analysis, the restoration score on the total route questionnaire is used for route South and route North. To test whether there was a significant difference in post hoc restoration due to order within route South, a two-sided independent samples t test is performed with the total restoration score on route South as the test variable and order of route South as the grouping variable. Equal variances were not assumed because the Levene's test was significant ($p=.003$). No significant difference in restoration was found between South I ($M=4.92$, $SD=1.35$) and South II ($M=5.50$, $SD=.61$), $t(47)=-1.95$, $p=.060$. Findings suggest that the order of the route did not matter for the post hoc restoration score on route South.

The same is carried out for route North. Within this two-sided independent samples t test, equal variances were assumed because the Levene's test was not significant ($p=.312$). No significant difference in restoration was found between North I ($M=4.52, SD=1.03$) and North II ($M=4.27, SD=1.21$), $t(46)=.77, p=.443$. These findings suggest that the order of the route did not matter for the post hoc restoration score on route North.

Difference in restorative potential of each segment due to order effects

The order effects on restoration score for each separate segment are checked for both routes. Again, a two-sided independent samples t test is performed with the restoration scores of segment 1 to segment 8 as the test variables and the order of route South as the grouping variable. Equal variances are assumed because the Levene's test was not significant in any case ($p>.149$). Results show that there are four segments where there is a significant difference in restoration due to order effects. First, a significant difference is found in segment 1 between South I ($M=4.70, SD=1.02$) and South II ($M=3.98, SD=1.24$); $t(47)=2.23, p=.031$. This finding suggests that the restoration score on segment 1 is significantly higher when participants walked route South I, compared to route South II. Second, a significant difference is found in segment 5 between South I ($M=3.42, SD=1.22$) and South II ($M=4.48, SD=.93$); $t(47)=-3.41, p=.001$. This finding suggests that the restoration score on segment 5 is significantly higher when participants walked route South II, compared to route South I. Third, a significant difference is found in segment 6 between South I ($M=5.18, SD=1.04$) and South II ($M=5.98, SD=.81$); $t(47)=-2.99, p=.004$. This finding suggests that the restoration score on segment 6 is significantly higher when participants walked route South II, compared to route South I. Fourth, a significant difference is found in segment 8 between South I ($M=3.96, SD=1.44$) and South II ($M=4.90, SD=1.19$); $t(47)=-2.47, p=.017$. This finding suggests that the restoration score on segment 8 is significantly higher when participants walked route South II, compared to route South I.

The same is performed for route North. Again, a two-sided independent samples t test is performed with the restoration scores of segment 1 to segment 11 as the test variables and the order of route North as the grouping variable. In two cases, equal variances were not assumed due to a significant Levene's test ($p=.007; p=.048$). However, no significant order effect on restoration score is found for each segment of route North.

Difference in real time appreciation scores of the total routes due to order effects

Two total appreciation score variables were computed for route South and route North by summing up the means of every appreciation score per segment and calculate a new mean of appreciation for both routes. These two new appreciation means are used in the following analysis.

To test whether there was a significant difference in appreciation due to order within route South, a two-sided independent samples t test is performed with the mean appreciation score as the test variable and the order of route South as the grouping variable. Equal variances were assumed because the Levene's test was not significant ($p=.633$). No significant difference in appreciation was found between South I ($M=5.06$, $SD=.58$) and South II ($M=5.19$, $SD=.52$); $t(47)=-.85$, $p=.403$. The same is performed for route North. Within this two-sided independent t test, equal variances were assumed because the Levene's test was not significant ($p=.932$). No significant difference in appreciation was found between North I ($M=4.46$, $SD=.54$) and North II ($M=4.69$, $SD=.54$); $t(48)=-1.50$, $p=.141$. These findings suggest that the order of the route did not matter for the level of appreciation.

Difference in post hoc appreciation scores of the total routes due to order effects

For this analysis, the appreciation score on the total route questionnaire is used for route South and route North. To test whether there was a significant difference in post hoc appreciation due to order within route South, a two-sided independent samples t test is performed with the total appreciation score on route South as the test variable and order of route South as the grouping variable. Equal variances were assumed because the Levene's test was not significant ($p=.326$). A significant difference in appreciation was found between South I ($M=5.76$, $SD=.68$) and South II ($M=6.17$, $SD=.56$), $t(47)=-2.28$, $p=.028$. Findings suggest that the post hoc score on appreciation is significantly higher when participants walked route South II, compared to route South I.

The same is carried out for route North. Within this two-sided independent samples t test, equal variances were assumed because the Levene's test was not significant ($p=.211$). No significant difference in appreciation was found between North I ($M=5.15$, $SD=.80$) and North II ($M=4.98$, $SD=1.11$), $t(46)=.60$, $p=.553$. These findings suggest that the order of the route did not matter for the post hoc appreciation score on route North.

Difference in appreciation scores of each segment due to order effects

The order effects on appreciation score per segment are checked for both routes. Again, a two-sided independent samples t test is performed with appreciation scores of segment 1 to segment 8 as the test variables and the order of route South as the grouping variable. For segment 1, equal variances were not assumed because the Levene's test was significant ($p=.033$). Results show that there is one segment where there is a significant difference in appreciation due to order effects. A significant difference is found in segment 1 between South I ($M=5.60$, $SD=.71$) and South II ($M=5.08$, $SD=1.04$); $t(47)=2.04$, $p=.049$. This finding suggests that the appreciation score on segment 1 is significantly higher when participants walked route South I, compared to route South II.

The same is performed for route North. Again, a two-sided independent samples t test is performed with the appreciation scores of segment 1 to segment 11 as the test variables and the order of route North as the grouping variable. Due to a significant Levene's test for segment 5 ($p=.024$), segment 6 ($p=.050$) and segment 9 ($p=.050$), equal variances were not assumed in these segments. Results show that there are two segments where there is a significant difference in appreciation due to order effects in route North. First, a significant difference is found in segment 5 between North I ($M=4.78$, $SD=1.71$) and North II ($M=5.94$, $SD=1.18$); $t(48)=-2.78$, $p=.008$. This finding suggests that the appreciation score on segment 5 is significantly higher when participants walked route North II, compared to route North I. Second, a significant difference is found in segment 7 between North I ($M=2.44$, $SD=1.01$) and North II ($M=3.50$, $SD=1.36$); $t(48)=-3.12$, $p=.003$. This finding suggests that the appreciation score on segment 7 is significantly higher when participants walked route North II, compared to route North I.

3.1.3 Attentional fatigue

In order to investigate whether attentional fatigue at pre-test had a significant influence on the scores of restoration, a multiple regression analysis (MRA) per route was performed with the total restoration score of that route (sum of means of every segment of the route) as the dependent variable and the mean of attentional fatigue at pre-test as the independent variable. No violation of the assumptions occurred in both regression analyses. First, violation of the linearity assumption is checked, which is shown by the plot of residuals against predicted values. An equally scattered cloud of dots was shown in both plots, which means that linearity is assumed. Second, the same plot is checked for the assumption of

homoscedasticity. Again, there was an equally scattered cloud of dots without a specific form, which means that the assumption of homoscedasticity is not violated here. Third, the assumption of normality was checked by performing an Kolmogorov-Smirnov test, which showed no significant outcome for route South, $D(49)=.11$, $p=.200$, and no significant outcome for route North, $D(50)=.09$, $p=.200$. This suggests that the sample does not significantly deviate from normality. Fourth, the assumption of independent errors is a design matter and this is taken care of within the research design. Also, no outliers were present in this analysis. Using the enter method it was found that mean of attentional fatigue on pre-test did not explain a significant amount of the variance in restoration for route South, $F(1,47)=.99$, $p=.324$, $R^2=.021$, and route North, $F(1,48)=1.80$, $p=.186$, $R^2=.360$. The analyses show that pre-test on attentional fatigue had no significant effect on the restoration score for route South, $\beta=-.14$, $t(48)=-1.0$, $p=.324$, and route North, $\beta=-.19$, $t(49)=-1.34$, $p=.186$. These findings suggest that the attentional fatigue score at pre-test did not affect the restorative potential of both routes.

Next, it is investigated whether attentional fatigue at pre-test significantly differed from attentional fatigue at post-test. This was investigated by performing a two-sided paired samples t test with pre-test and post-test score of attentional fatigue as the variables. Results show a significant average difference between attentional fatigue at pre-test ($M=2.38$, $SD=.95$) and attentional fatigue at post-test ($M=2.78$, $SD=1.11$); $t(97)=-3.86$, $p<.001$. Findings suggest that walking for approximately one hour and fifteen minutes in the Singelpark will increase one's level of attentional fatigue.

3.1.4 Emotional State

In order to examine whether the current emotional state at pre-test had a significant influence on the scores of restoration, a MRA per route was performed with the total restoration score of that route (sum of means of every segment of the route) as the dependent variable and pleasure and arousal as the independent variables.

First, the MRA for route South is carried out and violations of the assumptions are checked. There is no violation of linearity, normality (Kolmogorov-Smirnov test showed no significant outcome, $D(49)=.11$, $p=.156$), homoscedasticity and independent errors. Also, no outliers are present in this analysis. Using the enter method it was found that pleasure and arousal explained a significant amount of the variance in restoration for route South, $F(2,46)=3.77$, $p=.030$, $R^2=.141$. The analysis shows a significant effect of pleasure on the

restoration score of route South, $\beta=.35$, $t(48)=2.56$, $p=.014$. No significant effect was found of arousal on the restoration score for route North. Findings suggest that the level of pleasure of the participant had a significant effect on the scores on restoration. In other words, the higher one's level of pleasure, the higher one's score on restoration. It is important that this is finding is taking into account when interpreting further analyses.

Second, the MRA for route North is carried out. Also, no violations of the assumptions were found here (Kolmogorov-Smirnov test showed no significant outcome, $D(49)=.07$, $p=.200$). Using the enter method it was found that pleasure and arousal did not explain a significant amount of the variance in restoration for route North, $F(2,46)=.47$, $p=.625$, $R^2=.020$.

3.2 Hypotheses

In order to check if the hypotheses of this research can be confirmed, multiple regression analyses were performed. To be able to do this, a new data set was created with calculated mean scores for the variables historical character, naturalness, safety, familiarity, restoration and appreciation on each segment. Now, each segment of route South and route North have one mean score per variable.

First, a MRA was carried out with mean appreciation as the dependent variable and mean historical character, mean naturalness, mean safety, and mean familiarity as predictors (Table 1). There was no violation of the assumptions linearity, normality (Kolmogorov-Smirnov test showed no significant outcome, $D(19)=.11$, $p=.200$), homoscedasticity and independent errors in this MRA. Also, no outliers were present in this analysis. Using the enter method it was found that the means of historical character, naturalness, safety and familiarity explained a significant amount of the variance in restoration, $F(4,14)=57.74$, $p<.001$, $R^2=.943$. As can be seen in Table 1, naturalness has a significant effect on appreciation. This suggests that the higher the level of nature, the higher the level of appreciation (confirming hypothesis 1a). Also, the analysis shows that historical character has a significant effect on appreciation. Findings suggest that the more an environment is experienced as historic, the more preferred this environment is (confirming hypothesis 3). Next, the analysis shows that safety has a significant effect on appreciation. Findings suggest that the more an environment is perceived as safe, the more it is preferred (confirming hypothesis 4a).

Table 1. Multiple Regression Analyses with appreciation as dependent variable and naturalness, historical character, safety and familiarity as predictors

Variables	β	t	Sig.
Safety	.50	4.89	.000
Familiarity	.05	.67	.516
Naturalness	.35	3.64	.003
Historical character	.28	2.83	.013

Dependent variable: Appreciation

Second, a MRA was performed with mean restoration as the dependent variable and mean historical character, mean naturalness, mean safety, mean familiarity and mean appreciation as predictors. Again, no violation of the assumptions linearity, normality (Kolmogorov-Smirnov test showed no significant outcome, $D(19)=.15$, $p=.200$), homoscedasticity and independent errors occurred in this MRA. Again, no outliers were present in this analysis. However, tests for multicollinearity indicate that there was a high level of multicollinearity present of the variables appreciation ($VIF=17.50$) and safety ($VIF=7.01$). Since it is important to keep both variables in the model, it is taken into account that this multicollinearity could lower the unique contribution of the predictors. In order to check the effect on restoration if one of these variables are removed from the analysis, a MRA is carried out using the enter method where appreciation is added in de second model (Table 2). It is found that model 2 explained a higher significant amount of variance in restoration, $F(5,13)=129.59$, $p<.001$, $R^2=.980$ compared to model 1 $F(4,14)=67.87$, $p<.001$, $R^2=.951$. Focussing on model 2, the analysis shows that naturalness has a significant effect on restoration. These findings suggest that a natural environment is higher in restorative potential than urban environment (confirming hypothesis 1b). Also, the analysis shows that appreciation has a significant effect on restoration. Findings suggest that an environment that is appreciated more, is higher in restorative potential (confirming hypothesis 2). Next, the analysis shows that safety has no significant effect on restoration in model 2. It can be concluded that there is no direct effect of safety on restorative processes (rejecting hypothesis 4b). However, this analysis shows that in model 1, safety has a significant effect on restoration. When appreciation is added in this analysis, safety is not significant anymore. The level of multicollinearity suggests that safety is a factor included in the appreciation variable.

Table 2. Multiple Regression Analyses with restoration as dependent variable and naturalness, historical character, safety, familiarity and appreciation as predictors

Variables	Model 1			Model 2		
	β	t	Sig.	β	t	Sig.
Safety	.51	5.39	.000	.15	1.48	.162
Familiarity	-.03	-.37	.716	-.07	-1.33	.207
Naturalness	.52	5.82	.000	.27	3.27	.006
Historical character	.10	1.09	.295	-.10	-1.34	.204
Appreciation	-	-	-	.72	4.41	.001

Dependent variable: Restoration

Appreciation is added in model 2

In order to explore this presumably mediating effect of safety on restoration, three steps, developed by Baron & Kenny (1986), are carried out. The first step was carrying out a regression analysis with restoration as dependent variable and safety as independent variable, in order to confirm the correlation between the causal variable safety and the outcome restoration. There was no violation of the assumptions linearity, normality (Kolmogorov-Smirnov test showed no significant outcome, $D(21)=.09$, $p=.200$), homoscedasticity and independent errors in this MRA. Also, no outliers were present in this analysis. It was found that safety explained a significant amount of the variance in restoration, $F(1,19)=52.02$, $p<.001$, $R^2=.856$. Findings suggest that safety has a significant effect on restoration, $\beta=.86$, $t(20)=7.21$, $p<.001$. The second step was carrying out a regression analysis with appreciation as dependent variable and safety as independent variable, in order to confirm the correlation between the causal variable safety and the mediating variable appreciation. Again, there were no violations of the assumptions (Kolmogorov-Smirnov test showed no significant outcome, $D(21)=.10$, $p=.200$) and there were no outliers. It was found that safety explained a significant amount of the variance in appreciation, $F(1,19)=78.98$, $p<.001$, $R^2=.898$. Findings suggest that safety has a significant effect on appreciation, $\beta=.90$, $t(20)=8.89$, $p<.001$. The third step was carrying out a multiple regression analysis with restoration as dependent variable and safety and appreciation as independent variables, in order to check whether the mediator appreciation affects the relationship between safety and restoration. Again, there were no violations of the assumptions (Kolmogorov-Smirnov test showed no significant outcome, $D(21)=.12$, $p=.200$) and there were no outliers. It was found that safety and appreciation explained a significant amount of the variance in appreciation, $F(2,18)=140.66$, $p<.001$, $R^2=.969$. Findings suggest that appreciation has a significant effect on restoration, $\beta=1.03$, $t(20)=7.88$, $p<.001$. However, there was no significant effect of safety on

restoration. This suggests that there is a full mediation effect of appreciation, because safety no longer affects restoration when there is controlled for appreciation (Baron & Kenny, 1986).

In order to give a clear overview of the effects of naturalness, historical character, and safety on appreciation and restoration, a new model is created based on both MRA's (Table 1 and Table 2), excluding the three regression analyses which were carried out for investigating the mediation effect of appreciation on safety. Also, the variable familiarity is not included in this model, because the MRA's showed no significant effect of familiarity on appreciation and restoration. The dotted line of safety to restoration shows the mediating effect of appreciation. With this model, one is able to have a clear view of the relationships between the variables (Figure 4).

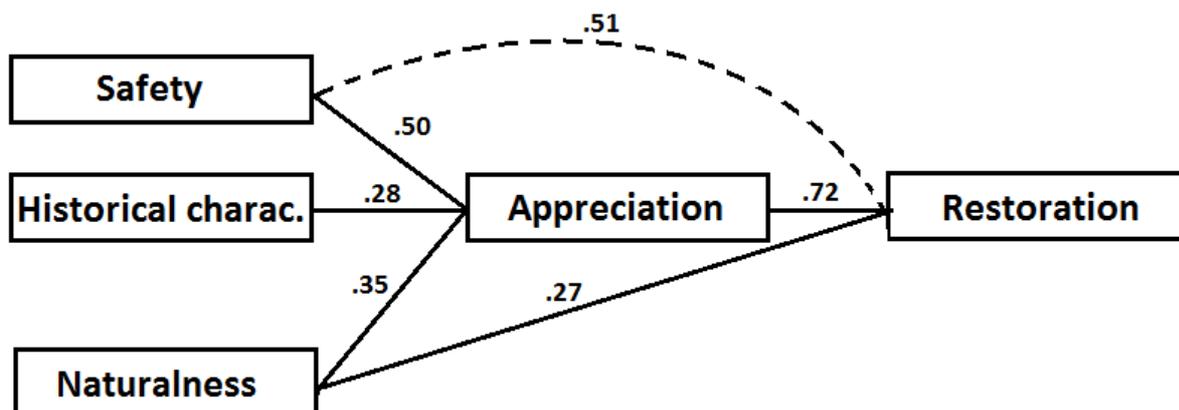


Figure 4. A model based on two MRA's with appreciation and restoration as dependent variables. The numbers in the model match the β 's of the MRA's. The dotted line shows that appreciation has a mediating effect of safety on restoration.

3.3 Explorative findings

3.3.1 The influence of historical character on restorative potential

Due to limited literature on historical elements in the environment and its effect on restorative potential, it was researched in this study if there was a direct effect of historical character on restoration. The same multiple regression analysis with restoration as dependent variable and appreciation, historical character, naturalness, familiarity and safety was used (Table 2). Results show that there is no significant effect of historical character on restoration. However, historical character shows a significant effect on appreciation (Table 1). Findings suggest that an environment with historical elements will cause more

appreciation for that environment and this, in turn, has a positive effect on restorative processes. Findings also suggest that appreciation has no mediating effect of historical character on restoration.

3.3.2 The contribution of each segment on the total appreciation score

People are not very rational when evaluating events retrospectively. The peak-and-end rule is a common heuristic among people, which is applicable when people are recalling an event. Instead of being able to evaluate a complete event based on a weighted average of every sub-event, people remember the peak and the end. Based upon the memories about the peak and the end, a total evaluation is formed (Kahneman, Fredrickson, Schreiber, & Redelmeier, 1993). This theory is applicable in this research, where participants had to evaluate the complete route after they finished the walk. Instead of rationally taking into account every level of appreciation per segment, just a few segments may significantly contribute to the overall evaluation of the route. For the Singelpark project, it is important that the segments with a significant contribution are investigated thoroughly in order to achieve the best possible outcome on appreciation and restoration in the future. The following MRA is carried out for route South and route North in order to investigate which segments significantly contribute to the total evaluation.

First, a MRA is carried out with the mean appreciation score of the total route South (note: this is not the sum of all the means per segment, but the post hoc mean of the appreciation scores that participants filled in on the questionnaire about the total evaluation of the route). In this analysis, the eight predictors are the real time mean appreciation scores of each segment. Violations of the assumptions of MRA are checked. No violations of the assumption linearity, normality (Kolmogorov-Smirnov test showed no significant outcome, $D(48)=.12, p=.077$), homoscedasticity and independent errors occurred. The centered leverage value should not be higher than $.06 (3(1+8)/49)$, but in this analysis the centered leverage value is $.61$, which suggests that there is an outlier on one of the independent variables. However, Cook's distance is smaller than 1, which means that this outlier is not an influential case. Using the enter method it was found that the appreciation score on each segment explained a significant amount of the variance in the appreciation of the total route South, $F(8,40)=6.98, p<.001, R^2=.583$. The analysis shows that there is a significant effect of segment 3, 6 and 7 on the appreciation score of the total route South (Table 4). Hence, findings suggest that the park the Plantsoen (segment 6), the urban segment including the busy intersection at Utrechtse Veer (segment 7) and the gardens of the houses at

Rembrandtstraat, close to Noordeinde (segment 3) contribute significantly to the post-hoc evaluation of the total appreciation score. The peak-and-end rule applies to segment 6, since segment 6 scores the highest in appreciation ($M=6.44$, $SD=.52$), which both could be interpreted as a peak. More research is needed in order to explain why segment 3 and segment 7 significantly contribute to the post-hoc appreciation score.

Table 4. Multiple Regression Analyses with post-hoc appreciation score of route South as the dependent variable and the appreciation score of each segment as independent variables.

Segments	β	t	Sig.
South 1	.05	.41	.681
South 2	-.12	-1.07	.292
South 3	.25	2.12	.040
South 4	.21	1.75	.089
South 5	.16	1.36	.181
South 6	.27	2.40	.021
South 7	.32	2.99	.005
South 8	.13	1.04	.305

Second, this was also carried out for route North (Table 5). No violation of the assumptions linearity, normality (Kolmogorov-Smirnov test showed no significant outcome, $D(49)=.07$, $p=.200$), homoscedasticity and independent errors occurred. Also, no outliers were present in this analysis. Using the enter method it was found that the means of appreciation on every segment explained a significant amount of the variance in the mean of appreciation of the total route North, $F(11,36)=3.62$, $p=.002$, $R^2=.525$. The analysis shows that there is a significant effect of segment 4 and 8 on the post-hoc appreciation score of the total route North. Findings suggest that the urban segment next to the haven (segment 4) and the Huigpark contribute significantly to the appreciation score of the total route North. More research is needed in order to explain why these segments significantly contribute to the post-hoc appreciation score of route North.

Table 5. Multiple Regression Analyses with post-hoc appreciation score of route North as the dependent variable and the appreciation score of each segment as independent variables.

Segments	β	t	Sig.
North 1	.26	1.70	.098
North 2	.03	.18	.856
North 3	.21	1.35	.186
North 4	.42	2.79	.008
North 5	-.11	-.76	.455
North 6	-.11	-.79	.435
North 7	.22	1.56	.128
North 8	.37	2.51	.017
North 9	.04	.25	.802
North 10	.08	.59	.558
North 11	-.02	-.16	.877

3.3.3 A closer look at the separate segments

In order to take a look at each segment more closely, two regression analysis per segment are carried out. One regression analysis per segment was carried out with appreciation as dependent variable and naturalness, historical character, safety, familiarity, weather and temperature as the independent variables. The other regression analysis per segment was carried out with restoration as dependent variable and naturalness, historical character, safety, familiarity, weather, temperature and appreciation as the predictors. The findings of these regression analyses can be found in Table 6 and Table 7. Overall, it can be seen in Table 6 that naturalness, historical character and safety have a significant effect on appreciation in most of the segments, which is in line with previous findings (section 3.2). Also, it can be seen in Table 7 that appreciation has a significant effect on restoration in almost every segment, which is also in line with previous findings (section 3.2).

Table 6. Regression Analyses with restoration as dependent variable and appreciation, naturalness, historical character, weather, temperature, safety and familiarity as predictors

Segments	Appreciation			Naturalness			Historical Character			Weather			Temperature			Safety			Familiarity			Model		
	β	t	Sig.	β	t	Sig.	β	t	Sig.	β	t	Sig.	β	t	Sig.	β	t	Sig.	β	t	Sig.	R ²	F	
South 1	.68	5.43	***	.25	2.35	*	.04	.38	.708	.22	1.08	.287	.06	.31	.760	.02	.17	.865	.01	.09	.928	.62	9.67	***
South 2	.54	3.75	**	.11	.94	.352	.17	1.43	.161	-.06	-.32	.750	-.09	-.47	.640	.18	1.55	.130	.00	-.00	.998	.66	11.12	***
South 3	.60	3.52	**	-.01	-.05	.958	.17	1.32	.196	-.05	-.18	.855	-.08	-.33	.740	.04	.28	.783	-.07	-.60	.552	.48	5.50	***
South 4	.91	5.70	***	.12	1.25	.218	-.21	-1.30	.201	-.04	-.23	.818	-.14	-.76	.541	.22	1.78	.083	-.19	-1.76	.086	.67	12.05	***
South 5	.57	3.81	***	.21	1.74	.089	-.04	-.28	.781	.34	1.41	.167	.20	.82	.418	.07	.50	.621	.01	.11	.915	.52	6.38	***
South 6	.41	3.74	**	.32	3.05	**	-.03	-.31	.757	.48	2.64	*	.33	1.83	.074	.17	1.65	.106	.04	.38	.705	.70	13.34	***
South 7	.52	2.30	**	.15	1.22	.230	.11	.73	.472	.33	1.48	.148	.30	1.38	.176	.18	1.51	.140	-.08	-.69	.495	.56	7.28	***
South 8	.62	4.98	***	.18	2.06	*	.10	1.01	.320	.41	2.32	*	.14	.71	.483	.14	1.10	.276	-.07	-.57	.574	.74	16.24	***
South Total	.46	3.37	**	-	-	-	.28	2.07	*	.44	2.09	*	.42	1.89	.066	-.10	-.74	.466	.20	1.80	.079	.57	9.13	***
North 1	.79	7.17	***	.23	1.86	.070	-.25	-2.24	*	.47	3.29	**	.36	2.52	*	.08	.75	.459	.01	.06	.950	.70	13.81	***
North 2	.65	4.68	***	.24	1.88	.068	-.05	-.37	.711	.02	.17	.869	.04	.23	.820	-.01	-.12	.904	.01	.13	.901	.64	10.32	***
North 3	.48	3.78	***	.19	1.83	.075	.03	.25	.806	.27	1.82	.075	.14	.95	.347	.31	2.60	*	-.02	-.16	.874	.64	10.48	***
North 4	.68	4.76	***	-.03	-.26	.797	-.01	-.09	.930	.41	2.62	*	.33	2.22	*	.17	1.43	.159	-.05	-.49	.630	.67	12.24	***
North 5	.76	5.57	***	.07	.83	.412	-.14	-1.15	.258	.23	1.83	.076	.17	1.38	.176	.21	1.96	.057	-.06	-.64	.524	.74	16.38	***
North 6	1.04	8.16	***	-.00	-.02	.984	-.21	-1.58	.123	-.03	-.20	.845	-.00	-.03	.979	-.10	-.98	.331	-.17	-1.61	.115	.70	13.05	***
North 7	.85	7.01	***	-.01	-.08	.937	-.08	-.77	.444	.09	.74	.463	.09	.77	.446	-.01	-.15	.885	-.30	-3.56	**	.73	16.32	***
North 8	.67	5.48	***	.13	1.05	.300	-.26	-2.26	*	.22	1.27	.210	.21	1.22	.229	.06	.52	.605	.00	.02	.981	.52	6.47	***
North 9	.52	3.22	**	.19	1.28	.210	.01	.10	.925	.25	1.32	.195	.11	.57	.575	.16	1.39	.171	-.15	-1.11	.272	.53	6.54	***
North 10	.76	5.94	***	.11	.94	.354	-.35	-2.87	**	.00	.00	.998	-.06	-.33	.741	.30	2.78	**	.01	.07	.946	.63	9.97	***
North 11	.62	5.36	***	.09	.83	.413	.14	1.39	.173	.17	1.19	.241	.12	.82	.416	.15	1.62	.113	.08	.76	.450	.69	13.08	***
North Total	.72	5.27	***	-	-	-	.11	.77	.445	.39	2.69	*	.17	1.14	.261	.02	.21	.838	-.12	-1.21	.235	.68	14.19	***

Dependent variable: restoration
* P <.05; ** p <.01; *** p <.001

Table 7. Regression Analyses with appreciation as dependent variable and naturalness, historical character, weather, temperature, safety and familiarity as predictors

Segments	Naturalness			Historical Character			Weather			Temperature			Safety			Familiarity			Model		
	β	t	Sig.	β	t	Sig.	β	t	Sig.	β	t	Sig.	β	t	Sig.	β	t	Sig.	F	Sig.	
South 1	.35	2.84	**	.17	1.33	.190	-.37	-1.46	.152	-.30	-1.18	.244	.45	3.39	**	-.14	-1.12	.268	.41	4.82	**
South 2	.40	3.65	**	.31	2.71	*	.35	1.72	.094	.27	1.34	.188	.31	2.65	*	.00	.03	.980	.60	10.47	***
South 3	.40	3.55	**	.32	2.94	**	.44	1.94	.059	.32	1.45	.153	.31	2.60	*	-.07	-.62	.542	.57	9.25	***
South 4	.04	.40	.690	.72	6.95	***	-.10	-.54	.593	-.14	-.75	.460	.15	1.29	.205	.11	1.09	.284	.69	15.30	***
South 5	.16	1.30	.201	.43	3.52	**	-.46	-1.98	.054	-.69	-3.08	**	.26	1.86	.070	.07	.53	.598	.49	6.64	***
South 6	.29	2.08	*	.09	.69	.495	.01	.03	.979	-.16	-.63	.530	.33	2.35	*	.14	1.07	.289	.38	4.30	**
South 7	.30	3.08	**	.62	6.21	***	-.27	-1.37	.178	-.33	-1.73	.091	.28	2.79	**	-.06	-.57	.571	.64	11.88	***
South 8	-.02	-.16	.877	.33	3.01	**	.04	.19	.848	.23	.97	.336	.32	2.17	*	.32	2.38	*	.59	9.67	***
South Total	-	-	-	.60	4.88	***	.17	.71	.480	.06	.23	.821	.08	.57	.574	.14	1.13	.266	.44	6.80	***
North 1	.13	.80	.429	.31	2.09	*	-.03	-.13	.894	-.03	-.16	.873	.41	3.01	**	.06	.47	.642	.41	5.02	**
North 2	.37	3.02	**	.37	3.05	**	.18	1.12	.267	.30	1.92	.062	-.09	-.82	.414	.19	1.67	.101	.56	9.04	***
North 3	.27	2.25	**	.12	.92	.365	.27	1.56	.126	.32	1.96	.057	.52	4.45	***	.01	.05	.959	.46	6.17	***
North 4	.19	1.76	.085	.44	3.89	***	.31	1.89	.065	.32	2.11	*	.44	4.02	***	-.14	-1.23	.224	.62	11.60	***
North 5	.00	.03	.979	.56	5.22	***	.27	1.64	.108	.22	1.64	.110	.44	4.31	***	-.04	-.34	.739	.66	13.07	***
North 6	.16	1.15	.255	.43	2.89	**	.17	1.04	.303	.12	.70	.486	.23	1.93	.061	.22	1.83	.075	.54	7.86	***
North 7	.46	3.78	***	.31	2.53	*	-.03	-.20	.846	-.07	-.46	.650	.18	1.70	.097	-.03	-.31	.761	.57	9.31	***
North 8	.27	1.87	.068	.25	1.78	.082	.08	.36	.724	-.03	-.12	.904	.15	1.03	.308	.08	.59	.560	.24	2.21	.061
North 9	.46	3.82	***	.27	2.34	*	.34	1.98	.055	.35	2.05	*	.08	.74	.467	.12	.97	.336	.56	8.80	***
North 10	.33	2.43	*	.32	2.31	*	.49	2.54	*	.44	2.37	*	.16	1.22	.230	-.14	-1.05	.298	.45	5.72	***
North 11	.39	3.06	**	.37	2.99	**	.24	1.32	.194	.12	.67	.508	.23	1.94	.059	-.05	-.39	.702	.44	5.53	***
North Total	-	-	-	.72	6.55	***	.15	.90	.371	.17	1.05	.301	.01	.08	.933	.10	.94	.353	.57	11.04	***

Dependent variable: appreciation
 * p < .05; ** p < .01; *** p < .001

3.3.4 An overview of the mean appreciation score on each segment

Since it is desirable to create more insights in the perception of future users of the Singelpark, an overview is shown of the most appreciated segments of route South to the least appreciated segments of route South in Table 8. This is also carried out for route North, which is shown in Table 9. On the basis of these numbers, multiple recommendations for the Singelpark are created (section 4.2).

Table 8. Mean appreciation scores for each segment on route South

Mean*	SD	Segment	Designation	Characteristic
6.44	.52	6	Plantsoen	Very natural; big park with a lot of grass, green, trees and fountain
5.35	.91	1	Rembrandtplaats	Urban, historical; small square with statue
5.30	.97	2	Rembrandtpark	Natural; small park with several trees
5.15	.88	5	Boisotkade/Jan van Houtkade	Natural and urban; on one side houses, on other side grass and water
5.15	1.15	4	Innercity, along the Hortus	Completely urban; inner city
5.02	1.29	8	Cemetery Groenesteeg	Natural and historical; an old cemetery with lots of trees and grass
4.86	1.12	3	Gardens of houses Rembrandtstraat	Natural and urban; on one side houses, other side grass and water
3.37	1.04	7	Busy intersection at Utrechtse Veer	Very urban; busy crossroads, no green
5.96	.65	Total	Total route South	

*ordered from high to low, based on answers on a 7 point Likert Scale

Table 9. Mean appreciation scores for each segment on route North

Mean*	SD	Segment	Designation	Characteristic
5.82	.70	3	Ankerpark	Very natural; moderate size park, a lot of trees and grass, playing field
5.46	.97	10	Molen Museum De Valk	Little bit natural, historical; small park with a mill, grass and water
5.39	1.10	4	Haven	Urban (port)
5.37	1.18	11	Morspoort/Molen de Put	Natural and historical; a little park with grass, historical arch and mill
5.36	1.57	5	Zijlpoort	Urban, historical; arch and small cemetery
5.25	.72	8	Huigpark	Natural; 'modern' park with grass, playing field
4.54	1.37	6	Blekerspark	Natural; small park with grass and several trees, playing field
4.53	1.15	1	Katoenpark	Natural; small park with grass and trees
3.16	1.28	2	Waardgracht/Meelfabriek	Urban; inner city with small streets and houses
2.97	1.30	7	Houtmarkt/Oude Herengracht	Urban; inner city with busy street including lots of traffic
2.44	1.03	9	Langegracht/3 ^e Binnenvestgracht	Urban; inner city with busy street including lots of traffic
5.06	.96	Total	Total route North	

*ordered from high to low, based on answers on a 7 point Likert Scale

3.3.5 An overview of the mean scores of naturalness, familiarity, historical character, safety and restoration on each segment

Table 10 shows the mean scores on the variables naturalness, familiarity, historical character, safety and restoration on each segment. The following findings are worth mentioning. Focusing on naturalness, one can conclude that the Plantsoen (segment 6) is evaluated as the environment containing most nature and the innercity along the Hortus (segment 4) is evaluated as the most urban environment of route South. For route North, the segment that is evaluated as most natural is the Ankerpark (segment 3) and the segment that is evaluated as most urban is Langegracht/3e Binnenvestgracht (segment 9). The innercity along the Hortus (segment 4) is most familiar among the participants of route South and Molen Museum de Valk (segment 10) is most familiar for participants of route North. Also, according to the participants, the segment containing most historical elements is cemetery Groenesteeg (segment 8) of route South and the Zijlpoort (segment 5) of route North. The busy intersection at Utrechtse Veer (segment 7) is considered as most unsafe of route South and Langegracht/3e Binnenvestgracht (segment 9) as the most unsafe segment of route North. Within route South, people feel that the Plantsoen (segment 6) has the most restorative potential and that the intersection at Utrechtse Veer has the least restorative potential. Within route North, people consider the Ankerpark as most restorative and the Langegracht/3e Binnenvestgracht as least restorative.

Table 10. Mean scores and standard deviation scores of the variables naturalness, familiarity, historical character, safety and restoration on each segment

Segments	Naturalness		Familiarity		Historical Character		Safety		Restoration	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
South 1 Rembrandtplaats	3.55	1.37	2.78	1.67	5.78	.92	5.67	.97	4.35	1.18
South 2 Rembrandtpark	4.55	1.02	2.55	1.58	5.18	1.15	5.35	1.05	4.52	1.16
South 3 Gardens of houses Rembrandtstraat	3.78	1.12	2.55	1.47	4.41	1.10	5.47	.94	4.17	1.41
South 4 Innercity, along the Hortus	2.35	1.15	3.16	1.65	5.55	1.34	5.55	1.16	3.99	1.17
South 5 Boisotkade/Jan van Houtkade	3.33	1.14	2.80	1.57	5.16	1.14	5.59	1.00	3.94	1.20
South 6 Plantsoen	5.37	.88	2.55	1.51	5.69	.87	5.84	.99	5.57	1.01
South 7 Busy intersection at Utrechtse Veer	2.73	1.28	2.39	1.41	4.10	1.29	4.69	1.21	2.79	1.29
South 8 Cemetery Groenesteeg	5.02	1.22	1.92	1.24	5.85	.92	5.08	1.43	4.42	1.40
Total South	-	-	2.69	1.39	5.78	.74	5.81	.70	5.20	1.08
North 1 Katoenpark	4.04	1.34	2.24	1.25	4.38	1.26	4.90	1.04	3.94	1.39
North 2 Waardgracht/Meelfabriek	2.30	1.04	2.14	1.25	3.30	1.45	4.84	1.08	2.79	1.24
North 3 Ankerpark	5.24	1.02	2.02	1.20	4.76	1.15	5.70	.91	5.40	1.02
North 4 Haven	3.08	1.31	2.66	1.41	5.14	1.28	5.60	1.09	4.55	1.33
North 5 Zijlpoort	4.52	1.34	2.00	1.31	6.10	.89	5.44	1.20	4.59	1.47
North 6 Blekerspark	4.34	1.35	2.02	1.29	4.40	1.25	5.42	1.13	4.14	1.57
North 7 Houtmarkt/Oude Herengracht	2.50	1.05	2.56	1.53	3.34	1.33	4.68	1.36	2.40	1.23
North 8 Huigpark	4.14	1.25	2.68	1.48	4.26	1.17	5.48	1.15	4.43	1.12
North 9 Langegracht/3e Binnenvestgracht	1.98	1.00	3.32	1.56	3.12	1.33	4.67	1.30	2.17	1.02
North 10 Molen Museum de Valk	4.36	1.32	3.50	1.57	5.10	1.16	5.47	1.08	4.54	1.28
North 11 Morspoort/Molen de Put	3.44	1.47	3.12	1.45	5.14	1.32	5.82	.96	4.27	1.34
Total North	-	-	2.75	1.26	4.71	1.17	5.53	.91	4.40	1.12

4. Discussion

This research aims to investigate and interpret the current quality of the Singelpark in Leiden. This is examined by focusing on the visual perception of the environment of the Singelpark and its effect on restoration. How different environments affect the restorative processes is researched by answering the following hypotheses. Participants were instructed to walk for approximately one hour in the Singelpark in Leiden and evaluate multiple environments by answering questions about scenic beauty, historical character, pleasantness to walk, restoration, safety, familiarity and noise.

The first hypothesis examined the expectation that a natural environment is more appreciated and higher in restorative potential than an urban environment. Results supported these expectations and showed a significant effect of the amount of nature on appreciation and restorative potential of the environment. These findings are in line with previously published knowledge about the positive effect of nature on appreciation and restoration. The Attentional Restoration Theory states that depleted mental resources need to be refilled, and this process is most effective when spending time in nature (Kaplan, 1995). Additionally, these findings are in line with the finding that walking in the Singelpark decreases one's level of attentional fatigue.

The second hypothesis examined the effect of general appreciation of an environment on restoration. In this research, general appreciation referred to scenic beauty and enjoyable walking. It was expected that the more an environment is appreciated, the higher the level of restorative potential. Strong results were found in line with this expectation. Results showed a significant effect of appreciation on restoration for each segment of the route. These findings are consistent with previously published theories, which state that the more an environment is appreciated, the higher the level of restoration (Kaplan & Kaplan, 1989).

The third hypothesis examined the positive influence of historical elements on appreciation. Results also supported this expectation, which was also in line with previously published knowledge about this topic (Najd, Ismail, Maulan, Yunus, & Niya, 2015). However, another question was raised along with this hypothesis; is there a direct link between an environment containing historical elements and its positive effect on restoration? No significant effect was found of historical character on restoration. However, it is plausible to assume that, in order to investigate this topic more thoroughly and draw the right conclusions, more items about historical character and restoration were needed. According to

Kaplan (1995), an environment is restorative when it leaves room for thought. This happens when someone is fascinated by the visual elements of the environment. Presumably, an environment with historical elements is fascinating for one, which leaves room for thought and allows people to restore from stress. However, this was not found within this research. Characteristics of historical elements could be a decisive factor in evaluating the environment. For example, the year of origin or the personality of historical elements could be of influence here. Due to limited time and capacity, it was not possible to research this topic in more details. More research is needed.

The fourth hypothesis investigated the influence of safety on restoration. It was expected that an environment that is perceived as safe is more appreciated than an environment that is perceived as unsafe. Also, it was expected that safety had a direct positive effect on restorative processes. Results showed that an environment, which is perceived as safe, is appreciated more. This was in line with the prospect-refuge theory (Appleton, 1975). No direct significant effect was found of safety on restoration. However, findings showed that appreciation has a full mediating effect of safety on restoration.

During the data collection of this research, there was a lot of ongoing construction along the route of the Singelpark. These construction activities may have had an influence on our data analysis. However, a city is always under construction and it is never finished. For the follow-up study, it is suggested to keep this in mind and if possible, conduct the study when the amount of construction low.

Another point to acknowledge is that some parts of the route that participants walked will eventually not be a part of the Singelpark. Future plans for the Singelpark consist the building of more bridges, which will make the complete circular route possible. It is important to note that participants had to evaluate the route in total within this study, but these evaluations could have been influenced by environments that are not officially a part of the Singelpark like Utrechtse Veer or the Langegracht. For the follow-up study, this has to be kept in mind.

4.1 Interpretation of the order-effects

When interpreting the order-effects that were found in the analyses, the Adaption Level Theory (ALT) is used. This theory states that every judgment about stimuli is adjusted to earlier experiences (Helson, 1948). Participants had to evaluate multiple environments, in which they used reference points like previous segments in order to determine their judgment about the current segment. Also, the Availability Heuristic is an important psychological

finding that is applicable in this situation. The Availability Heuristic is a mental shortcut that relies on immediate examples that come to one's mind when evaluating a specific topic (Tversky & Kahneman, 1973). It could be stated that, when evaluating a specific segment, the previous segment is most fresh in mind and therefore will weigh heavily in the judgment of the current segment.

First, according to section 3.1.2, four significant order-effects were found within restoration scores per segment of route South. First, it was found that, in segment 1 (Rembrandtplaats), mean score restoration of South I was significantly higher compared to South II. A reason for this could be that the Rembrandtplaats in South I is the first segment a participant evaluates. The participant cannot use other segments as reference point for this evaluation. Contrary, the Rembrandtplaats in route South II is the last evaluating point for the participants. In this case, a participant has evaluated seven other segments already, which they use in their judgment about the last segment. For example, a participant has seen segment 6 (The Plantsoen), which contains a lot of nature and thus scores high on restoration. Comparing segment 1 with other segments including segment 6, will result in lower scores on appreciation for segment 1 (ALT). Another reason could be that, within route South II, the Rembrandtpark is evaluated just before the Rembrandtplaats. As can be seen in Table 10, Rembrandtpark scores higher in naturalness compared to Rembrandtplaats. Because naturalness causes higher levels of restoration, and this segment is still fresh in one's mind, participants of South II will score Rembrandtplaats relatively lower on restoration compared to participants who see Rembrandtplaats as the first evaluative segment (Availability Heuristic). The Availability Heuristic is also applicable for the significant order-effect of segment 5 and segment 6, where the level of restoration is significantly lower for route South I compared to route South II. In segment 8, the ALT is applicable since this is the first evaluative segment for participants of route South II and the last evaluative segment for participants of route South I. Also, the Availability Heuristic could be of influence here.

Second, a significant order-effect was found in the post-hoc evaluation of the total score on appreciation of route South. The score on appreciation was higher within route South II, compared to route South I. The Availability Heuristic could be of influence here because segment 6 is fresher in mind for the participants of route South II during the end evaluation, compared to participants of route South I. Segment 6 scores highest on appreciation, which could lead to a higher end evaluation for participants of route South II.

Third, one significant order-effects was found within appreciation scores per segment of route South and two significant order-effects of route North. Again, an order-effect was found in segment 1 of route South, where both theories could be an explanation for this finding. Also, segment 5 and segment 7 of route North had significant order-effects. In both segments, participants of route North II evaluated the segment higher compared to participants of route North I. Again, the availability heuristic could be of influence here.

4.2 Recommendations for the Singelpark

According to the appreciation scores of route South, there is only one segment that has a strikingly low appreciation score (Table 3). Segment 7 is characterized by a busy intersection nearby Utrechtse Veer. One of the future plans of the Singelpark is to build a bridge at Veerplein. Once this bridge is built, Utrechtse Veer will not be a part of the Singelpark route anymore. One thing that will remain is a 50 km/h speed limit road that one has to cross to continue one's walk in the Singelpark. A recommendation for this part of the Singelpark is to implement a 30 km/h speed limit for two reasons. The first reason is that people can pass the pedestrian crossing without fear. The second reason is that this road is not that appealing anymore for people to use it. This may lower the quantity of cars passing there.

One remarkable finding is that cemetery Groenesteeg is lower in appreciation than, for example, a route through the inner city of Leiden (segment 4). This is in contrast with already existing theories and present findings. One would expect that a natural environment containing historical elements would be more appreciated than an urban environment. One of the Singelpark projects was to renovate this cemetery. However, this plan is already realized which means that no further plans are present for this segment. Badly maintained environment has a negative influence on appreciation (Tyrväinen & Väänänen, 1998). This might be one of the reasons why this cemetery is lower in appreciation than expected. It is recommended that new plans are created for this segment, which implement this knowledge about poorly maintained natural environments.

According to the appreciation scores of route North, there are three segments that have an outstanding low appreciation score (Table 4). Segment 2 is characterized by a lot of construction at the Meelfabriek. One of the future plans of the Singelpark is to build one big green square at the square, which is now in construction. No further point of critic here. It is expected that, when future plans of the Singelpark are realized, this part will be much more

appreciated than it is appreciated now. Segment 7 is also characterized by a busy road with passing cars. This part of the route will not be a part of the Singelpark anymore, once the bridge is built that connects De Bleek with the Huigpark. Again, the only thing that remains is crossing a busy road (Oude Herengracht). Hopefully, this will be taken care of the same way as segment 7 of route South.

Recommendations for this part of the Singelpark are to implement a pedestrian crossing and a speed-limit of 30 km/h. Last, segment 9 is a segment that has the lowest score on appreciation. This is a problematic part of the Singelpark. This segment is characterized by a relative long route along a busy street (Langegracht) and through the inner city of Leiden. A walking route along the canal is not possible at this moment and no clear future plans are made for this segment yet. It is recommended that improvements come here. An idea might be that a new small path is build right next to the canal, in order to create water on the one hand and a small hill with grass, trees and benches on the other hand. By doing this, there is no sight on the shelter for the homeless, on parking areas and old factories.

Final, it is recommended that, within every future project of the Singelpark, it is taken into account that segments like the Plantsoen and Ankerpark are most appreciated. People highly value a natural environment, where an extensive landscape of grass and trees is present. Also, historical elements positively affect appreciation. Historical elements can be revived and by doing this, historical value can be emphasized. Currently, this is already happening at the Meelfabriek. It is suggested that this finding is also taken into account within every historical element present in the Singelpark.

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6. Appendixes

Appendix A: Questionnaire pre-test attentional fatigue

Voel je je in deze gemoedstoestand

			geïrriteerd					
	1	2	3	4	5	6	7	
helemaal niet							in zeer hoge mate	
				moe				
	1	2	3	4	5	6	7	
helemaal niet							in zeer hoge mate	
				afgemat				
	1	2	3	4	5	6	7	
helemaal niet							in zeer hoge mate	
				geestelijk uitgeput				
	1	2	3	4	5	6	7	
helemaal niet							in zeer hoge mate	

Zou je in deze gemoedstoestand

			een weloverwogen beslissing kunnen nemen					
	1	2	3	4	5	6	7	
helemaal niet							in zeer hoge mate	
				ergens op kunnen concentreren				
	1	2	3	4	5	6	7	
helemaal niet							in zeer hoge mate	
				een moeilijke situatie kunnen overzien				
	1	2	3	4	5	6	7	
helemaal niet							in zeer hoge mate	
				aandachtig een lang college kunnen volgen				
	1	2	3	4	5	6	7	
helemaal niet							in zeer hoge mate	

Appendix B: Questionnaire post-test attentional fatigue**Vragen over je gemoedstoestand:****Voel je je in deze gemoedstoestand:**

moe

1	2	3	4	5	6	7
helemaal niet						in zeer hoge mate

geestelijk uitgeput

1	2	3	4	5	6	7
helemaal niet						in zeer hoge mate

**Zou je in deze gemoedstoestand:
ergens op kunnen concentreren**

1	2	3	4	5	6	7
helemaal niet						in zeer hoge mate

aandachtig een lang college kunnen volgen

1	2	3	4	5	6	7
helemaal niet						in zeer hoge mate

Appendix C: Questionnaire current emotional state pre- and post-test

Hieronder zie je een aantal woorden die verschillende gevoelens en emoties beschrijven. Lees elk woord en geef dan aan in welke mate jij je **op dit moment** zo voelt. Dit doe op de schaal van 1 (helemaal niet) tot en met 7 (in zeer hoge mate).

Plezierig

1	2	3	4	5	6	7
helemaal niet						in zeer hoge mate

Opgewonden

1	2	3	4	5	6	7
helemaal niet						in zeer hoge mate

Verveeld

1	2	3	4	5	6	7
helemaal niet						in zeer hoge mate

Opgetogen

1	2	3	4	5	6	7
helemaal niet						in zeer hoge mate

Kalm

1	2	3	4	5	6	7
helemaal niet						in zeer hoge mate

Gespannen

1	2	3	4	5	6	7
helemaal niet						in zeer hoge mate

Appendix D: Questionnaire of every segment

1. Ik vind dit segment mooi

1	2	3	4	5	6	7
helemaal niet						in zeer hoge mate

2. Ik vind het karakter van deze omgeving...

1	2	3	4	5	6	7
modern						historisch

3. In hoeverre zou je dit segment beschrijven als bebouwd of natuurlijk?

1	2	3	4	5	6	7
helemaal bebouwd						helemaal natuurlijk

4. Ik vind het prettig om door dit segment te wandelen

1	2	3	4	5	6	7
helemaal niet						in zeer hoge mate

5. Als ik me langere tijd in dit segment zou bevinden...

	1	2	3	4	5	6	7
kom ik tot rust			erg onwaarschijnlijk				erg waarschijnlijk
krijg ik nieuwe energie							

6. In deze omgeving voel ik me veilig

1	2	3	4	5	6	7
	helemaal niet					in zeer hoge mate

7. Vind je dat er tijdens jouw bezoek vandaag in dit segment veel verkeersgeluiden zijn?

1	2	3	4	5
heel weinig	weinig	niet zoveel	veel	heel veel

8. Hoe hinderlijk zijn deze verkeersgeluiden voor jou?

1	2	3	4	5
niet hinderlijk hinderlijk	een beetje hinderlijk	hinderlijk	erg hinderlijk	heel erg

9. Hoe bekend is dit segment voor jou?

1	2	3	4	5
Totaal onbekend	Onbekend	Een beetje bekend	Bekend	Zeer goed bekend

Appendix E: Description of route South I, including a map of the route

Ga de brug over. Bij de paaltjes aan het einde van de brug **begint segment 1**. Sla meteen na het witte huis rechtsaf, het pleintje op. Het standbeeld van Rembrandt is aan je linkerhand. Loop rechtdoor. Bij het witte paaltje **eindigt segment 1**. Vul hier de vragenlijst over segment 1 in.

Aan het begin van het park, bij het bord over de Middeleeuwen aan je rechterhand, **begint segment 2**. Vervolg het pad en neem plaats bij de drie bankjes in het midden van het park. Dit is **punt 1**. Vul hier de vragenlijst over punt 1 in.

Vervolg hierna je weg over het pad en buig met het pad mee af naar links. **Segment 2 eindigt** bij het hek. Ga met je rug naar het hek staan en vul de vragenlijst over segment 2 in.
Herinnering: het beginpunt van segment 2 was bij het 'Middeleeuwen' bord.

Draai je daarna om, zodat je met je gezicht naar de weg staat. Dit is **punt 2**. Vul hier de vragenlijst over punt 2 in.

Steek daarna de weg over en ga via de tunnel onder het gebouw door. Bij het ijzeren hek met de struiken **begint segment 3**. Vervolg het pad tot het restaurant op de hoek: hier **eindigt segment 3**. Vul hier de vragenlijst over segment 3 in.

Sla bij het restaurant linksaf. Bij de eerste brug aan je rechterhand **begint segment 4**. Loop door naar de tweede brug en ga hier rechtsaf, onder de poort door. Stop bij de (ondergrondse) container aan je rechterhand: hier is **punt 3**. Ga met je rug naar de container staan en vul de vragenlijst over punt 3 in.

Loop hierna verder en ga bij de eerste brug links, onder de poort door. Ga vervolgens de eerste afslag rechts. Loop nu rechtdoor tot je Café Babbels aan je linkerhand hebt, dit is een vrij lang stuk. Bij Café Babbels **eindigt segment 4**. Vul hier de vragenlijst over segment 4 in.
Herinnering: segment 4 begon bij de brug na het restaurantje op de hoek aan het water.

Ga links bij Café Babbels, zodat je het water aan je rechterhand hebt. Hier **begint segment 5** meteen. Loop door tot aan de brug. Ga stilstaan op de brug en kijk de binnenstad in (linkerkant op kijken). Dit is **punt 4**. Vul nu de vragenlijst over punt 4 in.

Loop vervolgens rechtdoor. Je passeert eetcafé De Vriend steekt de weg over en blijft het water aan je rechterhand volgen tot je bij een groot kruispunt komt met Café van Hout aan je linkerhand. Hier **eindigt segment 5**. Vul hier de vragenlijst over segment 5 in.
Herinnering: segment 5 begon bij Café Babbels.

Steek hierna over naar "Scooterhome Leiden". Draai je om zodat je zicht hebt op het kruispunt. Dit is **punt 5**, vul hier de vragenlijst in van punt 5 in.

Steek vervolgens over en loop het park in. Hier **begint segment 6**. Hou het water aan je rechterhand en loop naar het pad vlak langs het water. Neem plaats op het eerste bankje aan je linkerhand. Dit is **punt 6**. Vul hier de vragenlijst in over punt 6.
Vervolg hierna je weg over het pad langs het water. Stop bij de vogelkooi. Zorg dat je goed zicht hebt op de rest van het park en het water. Dit is **punt 7**. Vul hier de vragenlijst over punt 7 in.

Loop hierna rechtdoor over het pad langs het water tot de ronde vijver met fontein. Neem plaats op het bankje dat uitkijkt op de fontein, met daarachter het water van de singel. Dit is **punt 8**. Vul hier de vragenlijst over punt 8 in.

Loop door tot de grote weg je pad kruist. Hier staat een bankje. Neem plaats op het bankje, je zit met je rug naar de weg. Dit is **punt 9**. Vul hier de vragenlijst in over punt 9.

Hier **eindigt tevens segment 6**. Vul nu de vragenlijst over segment 6 in.

Herinnering: segment 6 begon op het moment dat je het park inliep.

Hierna **begint segment 7**. Vervolg je weg langs het water: de drukke weg loopt nu aan je linkerhand en het water aan je rechterhand. Steek over bij de het tweede zebrapad aan je linkerhand. Dit is bij de brug met groene spijlen. Steek nogmaals links het zebrapad over. Dit is **punt 10**. Zorg dat je zicht hebt op het kruispunt. Vul hier de vragenlijst in over punt 10.

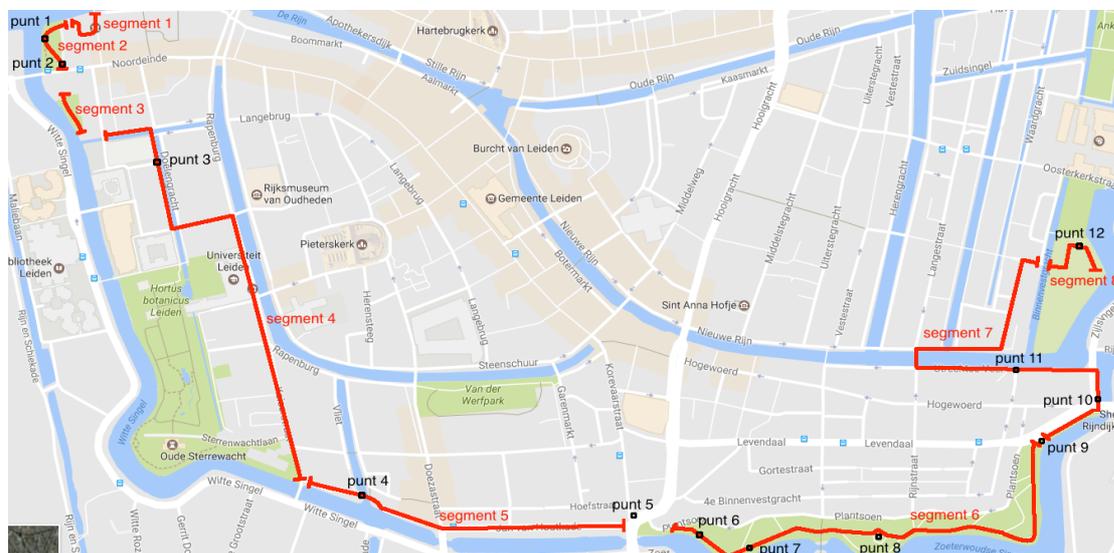
Vervolg je weg naar rechts, richting de groene ophaalbrug. Sla de eerste linksaf, de Utrechtse Veer in. Loop door tot je aan je linkerhand een pleintje ziet. Bij dit pleintje is **punt 11**. Ga op een van de bankjes zitten zodat je met je rug naar het water zit. Vul hier de vragenlijst over punt 11 in.

Vervolg je weg en ga bij de eerste brug rechts. Ga na de brug meteen weer rechts. Loop nu rechtdoor tot je niet verder kunt en ga daar links. Ga daarna de eerste rechts. Bij de rood/witte paaltjes naast het sportbedrijf (nr. 107) **eindigt segment 7**. Vul hier de vragenlijst over segment 7 in.

Herinnering: segment 7 begon na het grote park, net voor dat drukke kruispunt met die zebrapaden en de brug met de groene spijlen.

Loop rechtdoor tot aan het hek. Hier **begint segment 8**. Loop de begraafplaats op (voorbij het huis) en ga het eerste witte grindpad links (bij de grote boom). Neem plaats op het bankje aan het eind. Dit is **punt 12**. Vul hier de vragenlijst over punt 12 in.

Sta op van het bankje en vervolg je weg over het grindpad naar links. Je komt op een pleintje van grind met bankjes. Hier **eindigt segment 8**. Vul de vragenlijsten over segment 8 in. Vul vervolgens ook de vragenlijsten over de totale route en je gemoedstoestand in.



Appendix F: Description of route South II, including a map of the route

Het moment dat je weg loopt bij de onderzoeker **begint segment 1**. Loop rechts over het grindpaadje en neem plaats op het bankje. Dit is **punt 1**. Vul nu de vragenlijst over punt 1 in.

Vervolg je weg verder over het grindpad (vanaf het bankje rechtdoor, niet naar rechts) en sla bij de eerste mogelijkheid rechtsaf. Bij het hek (oprit begraafplaats) **eindigt segment 1**. Vul nu de vragenlijst over segment 1 in.

Loop richting de rood/witte paaltjes aan de linkerkant naast het sportbedrijf (nr. 107). Hier **begint segment 2**. Sla de eerste linksaf. Ga rechtdoor tot je niet meer verder kunt en sla dan rechtsaf. Ga de eerste brug aan je linkerhand het water over en sla meteen weer linksaf (de Utrechtse Veer in). Aan je rechterhand zal je een pleintje tegenkomen. Dit pleintje is **punt 2**. Neem plaats op een bankje met je rug naar het water en vul nu de vragenlijst over punt 2 in.

Vervolg je weg rechtdoor met aan je linkerhand het water totdat je bij een kruispunt komt met aan je linkerhand een groene ophaalbrug. Ga hier rechtsaf. Nu volgt een druk kruispunt met stoplichten. Bij dit kruispunt ligt **punt 3**. Zorg dat je zicht hebt op dit kruispunt. Vul nu de vragenlijst over punt 3 in.

Sla nu rechtsaf en steek het eerste zebrapad aan je linkerhand over. Loop over de stoep totdat je aan je linkerhand een bankje ziet staan dat richting het park (Het Plantsoen) kijkt. Net voor het bankje **eindigt segment 2**. Vul nu de vragenlijst over segment 2 in.

Herinnering: segment 2 begon vlak na de begraafplaats.

Neem plaats op het bankje met je rug naar de weg en je gezicht naar het park. Hier **begint segment 3**. Tevens is dit **punt 4**. Vul nu de vragenlijst over punt 4 in.

Vervolg je weg door het park. Houd het water zo dicht mogelijk aan je linkerhand. Op een gegeven moment kom je een ronde vijver tegen met een fontein en bankjes hier omheen. Dit is **punt 5**. Neem plaats op een van deze bankjes die zicht heeft op de fontein met daarachter het water van de singel en vul de vragenlijst in over punt 5.

Vervolg je weg met het water aan je linkerhand. Op een gegeven moment kom je een vogelkooi tegen. Draai je hier om richting het pad waar je net vandaan komt. Je hebt nu zicht op het park en het water aan de rechterkant. Dit is **punt 6**. Vul nu de vragenlijst in over punt 6.

Draai je weer om en loop verder langs de vogelkooi en ga met de bocht mee naar rechts. Net voordat je uit het park loopt en zicht hebt op een fietsbrug recht voor je, heb je een bankje aan je rechterhand. Neem plaats op dit bankje. Dit is **punt 7**. Vul hier de vragenlijst in over punt 7.

Vervolg je weg over het pad en loop door tot je bij een kruispunt komt. Net voordat je het park uitloopt **eindigt segment 3**. Vul nu de vragenlijst in over segment 3.

Herinnering: segment 3 begon bij het bankje aan het begin van het Plantsoen.

Steek nu over en loop richting “Scooterhome Leiden”. Draai je om zodat je zicht hebt op het kruispunt. Dit is **punt 8**. Vul nu de vragenlijst over punt 8 in.

Steek nu nogmaals over en loop richting Café van Hout. Bij dit café **begint segment 4**. Loop rechtdoor de straat in (Jan van Houtkade). Loop voorbij café De Vriend aan je rechterhand en vervolg je weg rechtdoor. Loop door tot je op een bruggetje met witte railing staat (De Korte Vlietbrug). Dit is **punt 9**. Ga met je gezicht richting de binnenstad staan en vul de vragenlijst in over punt 9.

Vervolg je weg totdat je Café Babbels aan je rechterhand hebt. Hier **eindigt segment 4**. Vul nu de vragenlijst over segment 4 in.

Herinnering: segment 4 begon bij Café van Hout.

Sla nu rechtsaf. Hier **begint segment 5**. Loop rechtdoor, nog voorbij de Hortus Botanicus Leiden. Sla linksaf de Doelensteeg in en loop de brug over (onder de poort door). Sta nu meteen af naar rechts en vervolg je weg rechtdoor. Aan je linkerhand zal je op een gegeven moment een (ondergrondse) container tegenkomen. Ga met je rug naar de container staan. Dit is **punt 10**. Vul nu de vragenlijst over punt 10 in.

Vervolg je weg rechtdoor. Je loopt nu weer een brug over en onder een poort door. Sla meteen linksaf. Loop rechtdoor tot je aan je linkerhand de eerstvolgende brug hebt. Hier **eindigt segment 5**. Vul nu de vragenlijst over segment 5 in.

Herinnering: segment 5 begon nadat je afsloeg bij Café Babbels.

Loop nu rechtdoor naar het restaurant op de hoek. Loop verder (het terras op) tot je alleen nog maar af kunt slaan naar rechts. Hier **begint segment 6**. Loop rechtdoor en stop bij een haag van struiken, aan het einde van het grasveld (vlak voor een parkeerplaatsje). Hier **eindigt segment 6**. Vul nu de vragenlijst over segment 6 in.

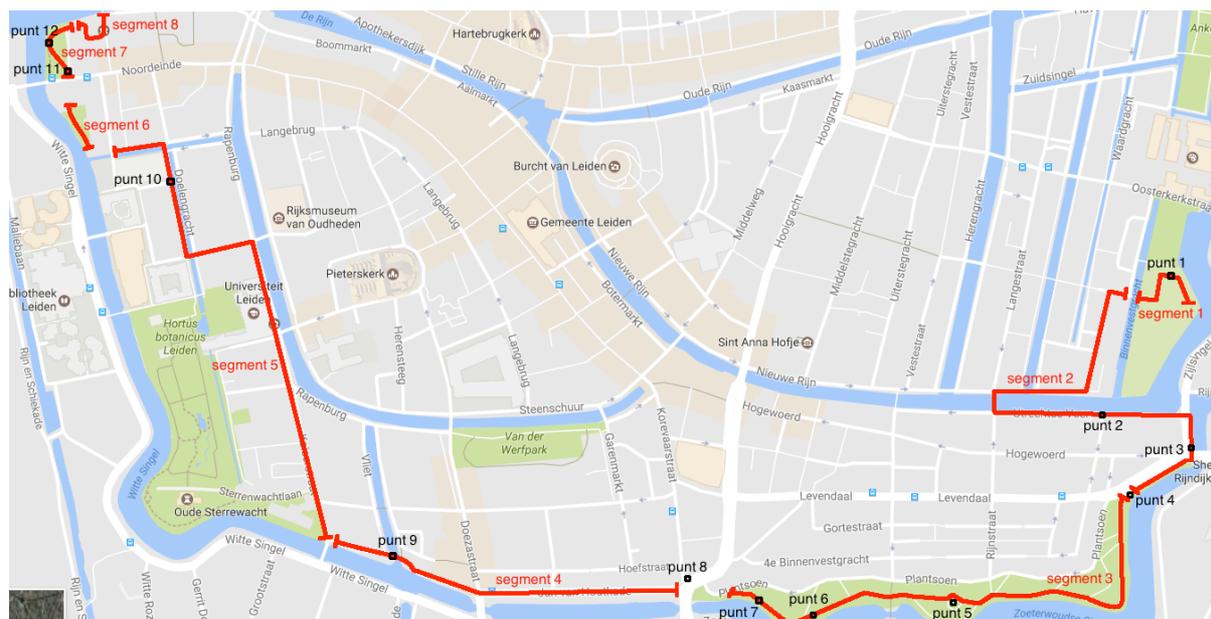
Loop rechtdoor onder de tunnel door en steek de weg (schuin rechts) over. Je staat nu bij een hek met zicht op een parkje. Draai je even om zodat je op de drukke weg kijkt en je rug naar het park gekeerd is. Dit is **punt 11**. Vul nu de vragenlijst over punt 11 in.

Draai je weer om richting het park. Hier **begint segment 7**. In het midden van het parkje zie je op het grasveld drie bankjes staan. Neem plaats op een van deze bankjes. Je bent nu op **punt 12**. Vul nu de vragenlijst over punt 12 in.

Loop verder over het pad met het water aan je linkerhand. Buig met het pad mee naar rechts. Hier stopt het gras en heb je een bord over “Middeleeuwen” aan je linkerhand. Hier **eindigt segment 7**. Vul nu de vragenlijst in over segment 7.

Herinnering: segment 7 begon aan het begin van het parkje, vlak nadat je was overgestoken.

Vervolg je weg richting het Rembrandt plein. Je komt al snel langs een wit paaltje. Hier **begint segment 8**. Loop rechtdoor met aan je rechterhand het standbeeld van Rembrandt. Sta linksaf. Je ziet nu een brug voor je en je hebt nu het Rembrandthuis aan je linkerhand. Hier **eindigt segment 8**. Vul nu de vragenlijst over segment 8 in.



Appendix G: Description of route North I, including a map of the route

Loop de begraafplaats af en ga na de brug meteen rechtsaf. Bij de eerstvolgende brug aan je rechterhand **begint segment 1**. Ga deze brug over en volg het pad. Stop bij de bankjes aan je linkerhand: dit is **punt 1**. Neem plaats op de bankjes en vul hier de vragenlijst over punt 1 in.

Vervolg je weg over het pad. Aan het einde van dit pad (voor de meelfabriek) **eindigt segment 1**. Vul hier de vragenlijst over segment 1 in.

Steek de weg over. Hier **begint segment 2**. Ga voor de meelfabriek naar links. **Punt 2** bevindt zich ter hoogte van het zebrapad. Kijk recht voor je de straat in. Vul hier de vragenlijst over punt 2 in.

Vervolg je weg en ga de eerste rechts. Het water is nu aan je rechterhand (Waardgracht) en aan je linkerhand zijn huizen. Loop door tot de tweede brug aan je rechterhand. Dit is **punt 3**. Ga op deze brug staan en kijk in de richting van waar je vandaan kwam. Vul hier de vragenlijst over punt 3 in.

Ga de brug over. Loop rechtdoor en ga aan het einde van de weg naar rechts. Bij de eerste brug aan je linkerhand **eindigt segment 2**. Vul hier de vragenlijst in.
Herinnering: segment 2 begon bij de Meelfabriek.

Ga de brug over. Loop het pad op en ga met de bocht mee naar links. Bij de eerst volgende splitsing van de paadjes **begint segment 3**. Volg het pad langs het water. Loop voorbij de kanonnen. Hierna kom je bij een stuk grasveld met goals erop, een soort voetbalveldje. Dit is **punt 4**. Ga met je gezicht richting het voetbalveldje staan en vul hier de vragenlijst over punt 4 in.

Vervolg je weg. Net voor de eerste brug aan je rechterhand **eindigt segment 3**. Vul hier de vragenlijst over segment 3 in.
Herinnering: segment 3 begon bij de splitsing van de grindpaadjes.

Ga de brug over en ga rechtsaf (de Binnenoostsingel). Hier **begint segment 4**. Vervolg je weg met de haven aan je rechterhand. Ga bij de eerste brug rechtsaf het water over. Ga na de brug meteen weer rechts. Het water/de haven bevindt zich nu aan je rechterhand. Ter hoogte van het restaurant Lot & De Walvis is **punt 5**. Draai je om zodat je met je gezicht richting de haven staan. Vul hier de vragenlijst over punt 5 in.

Hier **eindigt ook segment 4**. Vul de vragenlijst over segment 4 in.

Herinnering: segment 4 begon nadat je de brug over was gelopen, na het parkje met het voetbalveldje.

Draai je nu weer om en loop door richting de poort. Vlak voor de poort **begint segment 5**. Sla vlak voor de poort linksaf, het grindpad op. Volg het pad, het water is aan je linkerhand. **Segment 5 eindigt** bij de rode/bruine brug. Vul voor deze brug de vragenlijst over segment 5 in.

Na de brug **begint segment 6**. Volg het pad. **Segment 6 eindigt** bij het basketbal pleintje. Vul hier de vragenlijst over segment 6 in.

Volg het pad, het water is rechts van je. **Segment 7 begint** bij de autoweg. Sla zodra je bij deze weg komt af naar links. Ga bij de eerste brug rechts. Op deze brug is **punt 6**. Ga op zo'n manier staan dat je richting de weg kijkt waar je net vandaan komt. Vul hier de vragenlijst over punt 6 in.

Ga meteen na de brug naar rechts, de Houtmarkt in. Ga aan het einde met de bocht mee naar links. Dit is het **eind van segment 7**. Vul hier de vragenlijst over segment 7 in.

Herinnering: segment 7 begon bij de autoweg, net nadat je het basketbal veldje bent gepasseerd.

Ga rechts het voetpad/paadje langs het water op. Dit is het **begin van segment 8**. Bij de picknicktafel is **punt 7**. Neem plaats op deze picknicktafel met zicht op het water en het park en vul hier de vragenlijst over punt 7 in.

Ga hierna het grindpad op met het water aan je rechterhand. Je komt bij een fietspad met aan je rechterkant een brug (met sleutels erop). Ga hier naar links. Je ziet nu een soort grote stenen/rotsblokken op het grasveld schuin links voor je. Bij deze blokken ligt **punt 8**. Ga op zo'n manier staan/zitten dat je het park in kijkt (richting de hoge toren). Vul nu de vragenlijst over punt 8 in.

Loop nu verder, over het voetpad, richting de grote schoorsteen in de verte. **Segment 8 eindigt** bij de witte brug aan de rechterkant en SmallSteps aan je linkerkant. Dit is tevens het einde van het voetpad. Vul hier de vragenlijst over segment 8 in.

Herinnering: segment 8 begon net voor de picknicktafel.

Loop langs SmallSteps en ga naar rechts. De grote weg is aan je linkerhand nu. Hier **begint segment 9**. Loop rechtdoor tot je blauwe hekken aan je rechterhand hebt. Hier is **punt 9**. Ga met je gezicht richting de grote weg staan en vul hier de vragenlijsten over punt 9 in.

Vervolg je weg. Ga bij de Reinevestesteeg naar rechts. Ga de eerste links en daarna de eerste rechts. Voor Café Re-Spons bevindt zich **punt 10**. Zorg dat je met je gezicht richting de twee

bruggen staat ('heen' en 'weer' borden) en vul hier de vragenlijst over punt 10 in.

Ga links, de brug over (niét de brug met "heen" en "weer" erboven). Ga na de brug meteen naar rechts en daarna meteen naar links. Het water is nu weer aan je rechterhand. Vervolg je weg met het water aan je rechterhand en op gegeven moment de molen aan je linkerhand. Net voor de eerstvolgende brug **eiidigt segment 9**. Vul hier de vragenlijst over segment 9 in.

Herinnering: segment 9 begon bij Smallsteps, aan het einde van het park met de rotsblokken in het gras.

Steek over bij het zebrapad (dus niet de brug over). Je loopt nu een park in met de molen aan je linkerhand. Hier **beginnt segment 10**. Hier is tevens **punt 11**. Vul de vragenlijst over punt 11 in terwijl je met je gezicht naar het park staat (met je rug naar de weg).

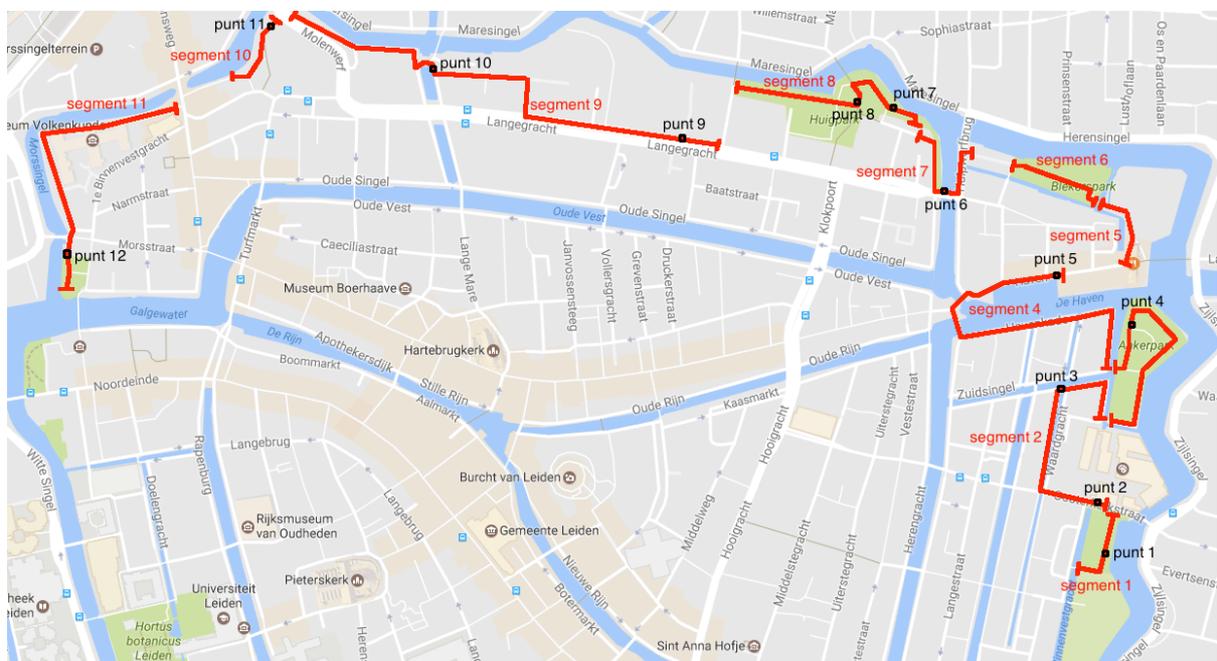
Loop verder. Bij Café Restaurant De Valk **eiidigt segment 10**. Vul hier de vragenlijst over segment 10 in.

Herinnering: segment 10 begon bij het begin van dit park, vlak bij de molen.

Vervolg je weg langs het water en steek over richting het Volkenmuseum. Als je het terrein van het Volkenmuseum inloopt, **beginnt segment 11**. Loop door en houd het water aan je rechterhand. Loop door tot de Morspoort. Als je de Morspoort aan je linkerhand en de brug aan je rechterhand hebt, loop je rechtdoor een paadje op, richting de molen. Met zicht op het parkje vul je de vragenlijst over **punt 12** in.

Bij de molen **eiidigt segment 11**. Vul hier de vragenlijst over segment 11 in.

Herinnering: segment 11 begon bij de entree van het Volkenmuseum.



Appendix H: Description of route North II, including a map of the route

Op het moment dat je wegloopt bij de onderzoeker **begint segment 1**. Loop vanaf de molen naar links, door het parkje. Loop over het linker pad, met het water aan je linkerhand. Voordat je langs een gebouw loopt (bij een wit hekje) draai je je om met je gezicht richting het park. Dit is **punt 1**. Vul nu de vragenlijst in over punt 1.

Draai je weer om en loop rechtdoor richting het Volkenmuseum. Je komt langs een brug aan je linkerhand en de Morspoort aan je rechterhand. Loop het terrein van het Volkenmuseum op. Blijf je weg langs het water volgen. Het water blijft aan je linkerhand. Het moment dat je het terrein van het Volkenmuseum afloopt en café Abel aan je linkerhand hebt, **eindigt segment 1**. Vul nu de vragenlijst in over segment 1.

Herinnering: segment 1 begon toen je weg liep bij de onderzoeker, bij de molen.

Steek de weg schuin naar links over en loop links van café Van Der Werff het pad op. Aan je rechterhand kom je Café Restaurant De Valk tegen. Hier **begint segment 2**. Vervolg je weg via het pad dat langs het water loopt en naar links afbuigt. Loop via de linkerkant langs de molen, zodat het water vlak naast je blijft. Zodra je bij een oversteekplaats en een zebrapad komt draai je je om met je gezicht richting het park. Dit is **punt 2**. Vul nu de vragenlijst over punt 2 in.

Hier **eindigt tevens segment 2**. Vul nu (terwijl je met je gezicht naar het park staat) de vragenlijst over segment 2 in.

Herinnering: segment 2 begon bij Café Restaurant De Valk.

Draai je weer om en steek het zebrapad over. Zodra je bent overgestoken begint segment 3. Sla rechtsaf en loop over de parkeerplaats. Ga linksaf de eerstvolgende straat in. Je hebt nu het water aan je linkerhand en huizen aan je rechterhand. Ga met de bocht mee naar rechts en meteen links de brug over. Ga voor Café Re-Spons staan, met je rug naar het cafe. Dit is **punt 3**. Vul nu de vragenlijst over punt 3 in.

Draai je weer om, zodat je met je gezicht richting Café Re-Spons staat. Loop nu rechts langs het café de 3^e Binnenvestgracht in. Ga de eerste rechts en dan de eerste links (vlak voor een groot gebouw met blauwe kozijnen). Loop over de stoep met de autoweg aan je rechterhand. Loop voorbij het bedrijf 'De Sleutels'. Stop als je aan je linkerhand blauwe hekken tegenkomt. Blijf staan met deze hekken aan je linkerzijde. Dit is **punt 4**. Vul nu de vragenlijst over punt 4 in.

Vervolg je weg rechtdoor. Sla de eerste linksaf de Tweelingstraat in. Hier **eindigt segment 3**. Vul nu de vragenlijst over segment 3 in.

Herinnering: segment 3 begon vlak na het oversteken bij de molen, toen je de parkeerplaats op liep.

Je loopt onder de glazen "brug" door, richting het water, tot je bij een witte brug komt. Ga vlak voor deze brug rechtsaf. Nu **begint segment 4**. Volg het pad langs het water tot een basketbalveld ziet waar wat grote stenen/rotsblokken voor liggen. Bij deze stenen is punt 5. Blijf even staan met je rug naar het basketbalveldje. Vul hier de vragenlijst over **punt 5** in.

Vervolg je weg richting de brug met sleutels erop. Ga deze brug niet over maar sla rechtsaf. Loop over het paadje en hou het water aan je linkerhand. Aan je linkerhand kom je nu een

picknicktafel tegen. Blijf hier even staan en draai je naar links (met je gezicht naar het water). Dit is **punt 6**. Vul nu de vragenlijst over punt 6 in.

Vervolg je weg met het water aan je linkerhand. Voordat je de straat bereikt, (Houtmarkt) **eindigt segment 4**. Vul nu de vragenlijst over segment 4 in.

Herinnering: segment 4 begon toen je het pad naast het water op liep, vlak na de witte brug.

Loop rechtdoor de straat in en hou het water aan je linkerhand, hier **begint segment 5**. Je komt nu weer bij een autoweg. Sla linksaf en loop de brug op. Dit is **punt 7**. Ga met je rug naar de weg staan (en je gezicht naar het water) en vul nu de vragenlijst over punt 7 in.

Sla na de brug meteen linksaf (Oude Herengracht). Ga de eerste rechts (De Bleek in). Zodra je rechtsaf slaat **eindigt segment 5**. Vul nu de vragenlijst over segment 5 in.

Herinnering: segment 5 begon bij de Houtmarkt, vlak na het park.

Zodra je De Bleek in bent geslagen, **begint segment 6**. Loop rechtdoor over het pad langs de bomen. Bij de bruine brug aan het eind van het pad, **eindigt segment 6**. Vul nu de vragenlijst in over segment 6.

Segment 7 begint na de brug. Loop het grindpad op en ga met de weg mee naar rechts. Houd het water aan je rechterhand. Aan je linkerhand zal je een grote toren zien. Bij deze toren **eindigt segment 7**. Vul nu de vragenlijst over segment 7 in.

Sla rechtsaf en loop rechtdoor tot je bij restaurant Lot & De Walvis komt. Zodra je dit restaurant aan je linkerhand hebt en op de haven kijkt, ben je bij **punt 8**. Vul nu de vragenlijst over punt 8 in.

Hier **begint tevens segment 8**. Loop rechtdoor met de haven aan je linkerhand. Ga de eerste brug links het water over en ga meteen weer links, nog een keer het water over. Je hebt de haven nu weer aan je linkerhand. Loop helemaal rechtdoor over de Havenkade tot je niet verder kunt en ga met de bocht mee naar rechts. Op deze hoek **eindigt segment 8**. Vul nu de vragenlijst over segment 8 in.

Herinnering: segment 8 begon naast Lot & De Walvis.

Vervolg je weg. Aan het einde van de Binnenoostsingel zie je aan je linkerhand een brug. Ga de brug over. Zodra je het park inloopt **begint segment 9**. Sla de eerste linksaf en hou het water aan je linkerhand. Je komt al snel aan je rechterhand een voetbalveldje tegen. Ga met je gezicht richting dit voetbalveldje staan. Dit is **punt 9**. Vul nu de vragenlijst over punt 9 in.

Vervolg je weg langs de kanonnen en blijf het water aan je linkerhand houden. Op een gegeven moment kom je bij een splitsing van het pad. Hier **eindigt segment 9**. Vul nu de vragenlijst over segment 9 in.

Herinnering: segment 9 begon toen je de brug over liep, het park in.

Sla bij de splitsing niet rechtsaf, maar blijf je weg langs het water vervolgen, richting de fabriek. Ga met het pad mee naar rechts. Ga de brug over en sla meteen af naar rechts. Nu **begint segment 10**. Loop rechtdoor en ga met de weg mee naar links. De eerste brug die je overloopt is **punt 10**. Draai je naar rechts en vul nu de vragenlijst over punt 10 in.

Draai je weer terug. Sla meteen na deze brug linksaf (de Waardgracht) met het water aan je linkerhand. Je komt nu bij een autoweg. Sla linksaf richting de Meelfabriek. Zodra je een zebrapad tegenkomt ben je bij **punt 11**. Ga met je rug naar de fabriek staan en vul nu de vragenlijst over punt 11 in.

Loop nog een klein stukje rechtdoor. Nu is de ingang van de Meelfabriek aan je linkerhand. Hier **eindigt segment 10**. Vul nu de vragenlijst over segment 10 in.

Herinnering: segment 10 begon toen je het park uit liep (over het bruggetje) en rechtsaf sloeg.

Recht tegenover de ingang van de Meelfabriek (met zwart-witte vlaggen) kun je een paadje inlopen. Ga hierheen. Nu **begint segment 11**. Loop rechtdoor tot je bankjes tegen komt aan je rechterhand. Dit is **punt 12**. Neem plaats op de bankjes en vul de vragenlijst over punt 12 in

Loop nu verder. Zodra je de brug tegenkomt, **eindigt segment 11**. Vul nu de vragenlijst over segment 11 in. Vul ook de vragenlijst in over de totale gelopen route en je gemoedstoestand. *Herinnering: segment 11 begon toen je overstak en het parkje in liep.*

