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SOCIAL CROWDING IN A FUTURE UNESCO WORLD HERITAGE SITE IN KEPONG, MALAYSIA

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Preface

For as long as I can remember I have been fascinated by the natural environment of different countries and how people design and use it. This is why I choose to study Geography. In my Master studies I was happy when I could finally specialize in Human- and Economic geography, because these were the subjects that I became most interested in during my Bachelor studies. Another great interest of mine is biology and later, in my Master studies I became very much interested in ethnology. Those two subjects became my minors as they complement very well with the physical and social aspects of my geography major.

In my last year of studying, this thesis was announced at the Department of Human Geography and it immediately caught my attention. In this study, it was possible to combine both my interest in social science and ethnology and my interest in nature and biology in one project. Malaysia has been an unknown country for me and I found it very interesting and motivating to engage with a country and a research field that I do not know a lot about. And Malaysia also was really attractive for me, since I always wanted to travel to a tropical area.

In the course of my Master's program I became aware of the different dimensions that environmental policy can have. Governing our environment is not only a state or region's subject. Also national parks, touristic sites or in this thesis' case a research park have to manage their environment and find a way to protect the park and still make the park accessible for the public. In addition to that, I was particularly interested in the UNESCO World Heritage application of the Forest Research Institute Malaysia (FRIM) and its implications on the park management. When I could finally start doing my research, I realized how relevant the topics discussed in this Master thesis are and how they occur in many different environments such as urban open spaces and ecotourist sites. Therefore, I am happy I could do this study and engage with the topic of park and visitor management as well as with the topic of ecotourism.

Zurich, September 2016

Acknowledgements

I would like to thank all the people that have accompanied me during this year of researching, planning, implementing, analysing and writing and who have been very supportive to me.

I am very grateful to my supervisor Prof. Dr Norman Backhaus from the Department of Human Geography in Zurich, Switzerland, who has helped me at every stage of the study. I could always rely on his advice and immediate response and I would like to express my special thanks for this support. I would further give many thanks to Dr Noor Azlin, my local supervisor from FRIM in Kepong, Malaysia who has greeted me very kindly as guest at FRIM and who has always been very helpful and supportive in terms of my work but also in terms of introducing me in the work field of FRIM. I very much appreciate the hospitality I received from FRIM and its staff.

Also I would like to express my thanks to all the colleagues at FRIM, who spared a lot of their time for me and my survey and who were very reliable and have become good friends to me during my stay. I would like to thank my friend Alia specially who has engaged really seeked to endeavour to help me out in every way. In addition to that, I would like to express my thanks to all the people, who participated in the survey and especially in the qualitative interviews and their sharing of information with me.

Last, but not least, I am very thankful to my brother Remo and my parents Margrit and Karl for enabling and supporting me through all of my studies. For this Master thesis specially they have helped me in many situations and could inspire me with their ideas and thoughts as well as just being a great mental support.

Executive Summary

FRIM campus consists of various areas that are used by different kinds of people. There is for example the picnic area, that is a very popular place for all types of visitors. There are the nature trails that are used by joggers, hikers and mountainbikers. And there is Kepong Botanic Garden, which also is one of the most popular places on the campus. To many people, who visit FRIM, tranquillity, education and being in the forest are the important aspects of their visit. In the year 2014 FRIM has had 683,946 visitors, which is a lot. Especially since 2012 the number of visitors has increased multiple factors. To many visitors this is starting to get a little too much and many people feel crowded, especially on certain days. Some people feel distracted in their activity by other people. Especially joggers and mountainbikers seem to be affecting the other group as they often use the same trails. In addition to crowding, other, mostly man- made factors influence the enjoyment of the visitor's stay in FRIM. Among these are for example littering and the lack of parking space. However, the survey also revealed that many people can accept quite a lot of people in their surroundings and still have an enjoyable stay. In terms of reasons for distraction, the survey has shoen, that it is mostly the youngest two age groups from <20 to 35 years, who was most concerned about the impact of visitors on the natural environment and also stated to feel disturbed by destruction of paths and trails or loss of wildlife.

The study is situated in the scientific field of social crowding and also in the field of ecotourism. One of the principal concepts to approach social crowding is the social carrying capacity approach, which takes the number of people as the most decisive factor that influences crowding perception. This concept is however highly disputed and research has shown that there are other factors that influence crowding perceptions as well. I found the most influential factors to be age, activity and the frequency of visit. Another finding is, that there might be multiple carrying capacities depending on the location in FRIM. Some of the areas are really contested but also parking space as an area is contested.

Staff and researchers in FRIM have raised various issues and problems that occur in FRIM. Some of them did have to do with crowding and other ones might not necessarily be connected to the crowding issue. Many visitors for example refuse to hire a nature guide and therefore it can happen that people would take some valuable plants or make unofficial paths. A lot of the information and advertisement of FRIM goes through word- of- mouth, therefore it is difficult for FRIM to keep track of all the information spread through Facebook or other kinds of social

media. However, the thesis discussed the findings with respect to the literature and one of the most important aspects found there is that it could be shown that most physical of financial measures are not well accepted by the public. However, since FRIM needs to approach and change certain things on the basis of management decisions I came up with some ideas of how to change certain things.

One idea would lie in a renewal of the entrance fee system, which is based on the length of stay of visitors. The survey showed that most people stay up to half a day and this finding could be considered in the creation of this payment system. In addition to that the thesis presents a rather radical change which is however also based on findings of other areas where the project has been implemented. In the Alpine region there are certain resorts and towns that are completely car free. Those results are among the most popular and those located in Switzerland are well above average popularity. It could be shown that car- free does not mean to be less mobile and the recreational aspect of those results could be highly increased as visitor surveys have shown. A possible implementation of this project in FRIM is suggested and discussed in terms of why it would help to approach the crowding issue in the discussion chapter of this thesis.

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Abbreviations

KBG	Kepong Botanic Garden
FRIM	Forest Research Institute Malaysia
NEC	Nature Education Centre

1. Introduction

1.1 Objectives and Research Questions

Green spaces have been of great cultural and social value ever since. Especially in the industrial age and with an ongoing trend towards urbanization, natural recreational areas such as recreational forests have become of increasing importance. Spending time in a natural environment is an important counterpart to the hectic urban life of a city like Kuala Lumpur. Outdoor recreational activities and an increasing interest in outdoor activities have contributed to the popularity of recreational parks and forests. FRIM, Forest Research institute Malaysia, which is accessible from almost everywhere in the state Selangor and from the state Kuala Lumpur, offers the public a healthy natural environment to recreate. In fact, FRIM has become a very popular place to visit in the Klang Valley for local tourist. Especially the weekends are very frequently visited by many people living just nearby.

Along this new popularity various problems are arising. According to a study that FRIM has set up earlier, among other reasons for distraction, social crowding has been named as a reason for people to stop visiting FRIM. Social crowding also has massive impacts on the natural environment and FRIM has already taken certain measures to decrease those impacts. Some of those measures however are being ignored by some people which leads to various conflicts among visitors and between staff and visitors. Destruction of the natural environment has also been a reason that was named by the visitors that would stop them from coming to FRIM in the future. Many people seem not to be aware of the kind of impacts they have on the natural environment and also do not seem to actively care about it. This is a bit of a contradiction, because most visitors are nature- lovers and enjoy spending time in the natural environment. Since FRIM intends to apply for UNESCO World Heritage Status, FRIM staff is increasingly worried about the natural condition of their park and about people's perception of crowding and other factors.

FRIM and the Department of Geography at the University of Zurich set up this study to assess how social crowding is perceived by the visitors and to better know what the visitor's expectations are and how FRIM can react to those. This Master thesis aims at evaluating the current situation and giving recommendations of how to approach any problems. This thesis also aims to assess whether social crowding is threatening the application for UNESCO World Heritage status.

The principal research question in this topic can be formulated as the following:

> How is social crowding perceived by the visitors and what influence does crowding perception have on the future park and visitor management?

In order to successfully approach this research, this question is divided in smaller questions that are more suitable to analyse:

1. How does the present crowding situation in FRIM look like?
    a. Do social crowding perceptions differ among different types of visitors?
    b. In what ways is social crowding related to other problems in FRIM?
    c. What specific problems do FRIM employees see?
    d. What specific problems do visitors see?
2. How much social crowding is acceptable in FRIM according to the visitors and the staff/ experts?
3. What are the consequences of social crowding and how could FRIM be dealing with it?

Those are the major questions in this thesis and to answer them a lot of information will be provided and analysed. Other than that the following questions will be approached as well:

4. What results can be meaningful for other studies in similar research areas?
5. What recommendations can be given to FRIM based of the results of this study?

The goal of the study is therefore to assess crowding perceptions among the visitors, to identify de various aspects of this issue and its related problems, to evaluate the consequences of this issue also with respect to the future application for UNESCO, to examine what results can be projected on other related studies and to critically reflect and give recommendations.

1.2 Structure

In the introductory section, the study area and context are presented. This includes a description of what FRIM and its physical features and historical background. Also, the chapter shortly touches on the importance of national parks and forests in Malaysia.

The next chapter presents the research process and procedure. The process is divided in a preparation phase, an execution phase and an evaluation phase, which are all described in detail in this chapter. The preparation phase includes mainly the work that has been done in advance to the field work, hence still in Zurich. The execution phase refers to the time spent in FRIM, when all the data was collected and the evaluation phase again refers to the time back in Zurich when I started to work with the data I collected.

Chapter four introduces the reader in the state of the art and the theoretical approaches applied in this study. The chapter mainly is a literature research that presents the state of the art in the research area of social crowding and in the research area of ecotourism. FRIM might not be directly referred to as an ecotouristic site but it has a lot in common with other areas that truly refer to the definition of ecotourism. Also does this chapter include a description of an earlier study made by FRIM and describes my scientific motivation to do this study.

The following chapter introduces the reader to the methodological approach that was applied in this study. This includes a description of how the field could be accessed and how the data were collected. The chapter contains a detailed description of the survey and interviews and also how the data was analysed.

In chapter six the results from both, the survey and the qualitative interviews will be presented in a thematic structure. Firstly, the main issues are extracted and presented. Secondly the chapter moves on and refers to the main research question and describes crowding perception and differences between crowding perceptions and highlights various aspects, including for example willingness to pay.

The last chapter discusses and analyses the issues that were presented beforehand and presents possible solutions to approach some of the issues. The chapter aims at finally answering all the research questions with respect to the theoretical approach and with respect to the findings. Lastly, the chapter contains an outlook where final conclusions and perspectives are presented and highlighted once more.

2. Research context

2.1 Geographical Context

2.1.1 Malaysia- Country Profile

Malaysia is located in South East Asia and has a total size of 329,847 km^2 including land and water masses. This is almost eight times the size of Switzerland. Malaysia consists of two separate islands, the Peninsula Malaysia and the two states Sarawak and Sabah on the island of Borneo in the East. Peninsula Malaysia shares its Northern border with Thailand. Also does the state territory of Malaysia include several smaller islands in the South Chinese Sea and in the Strait of Malacca. Malaysia consists of thirteen states. These are Johor, Kedah, Kelantan, Melaka, Negeri Sembilan, Pahang, Perak, Perlis, Pulau Pinang, Sabah, Sarawak, Selangor, and Terengganu (World Factbook: Access: 24.09.2016).

Image 1: Map of Malaysia (Central Intelligence Agency, 2016)

Climate conditions

Malaysia lies in a tropical climate zone. This brings along a warm and humid climate throughout the year. Due to its location in the tropical climate zone, Malaysia experiences dry and rainy seasons. There are two different monsoon seasons. One lasts approximately from April to October and is marked by Southwest monsoons. The other one lasts from October to February and is characterized by northeast monsoons. The monsoon activity result in rainy and dry seasons that are not the same for every region in the country. The climate provides the best conditions for tropical forests (World Factbook: Access: 24.09.2016). Over 60 percent of the country is covered by rainforests, which have an impact on the local climate as well (McColl 2005: 577). I visited the country during a rainy season.

Political environment

Malaysia is a federal parliamentary democracy under an elective constitutional monarchy. The parliament consists of two chambers with a nonelected upper house and an elected lower house. Except the states of Malacca and Penang, all Peninsular states have a hereditary ruler, who are referred to as Sultans. Malacca and Penang have, as well as Sabah and Sarawak in East Malaysia a governor. The Federation of Malaysia first became independent from the United Kingdom on August 31, 1957. On August 9, 1965, Singapore in the South, separated from Malaysia and became an independent state (World Factbook: Access: 24.09.2016).

Socio- economic environment

The population has been 23'522'482 in 2005 (McColl 2005: 576) and risen to 30,949,962 in June 2016 (World Factbook: Access: 25.09.2016). In 2015 the percentage of the population living in an urban environment was almost 75%. The number of people living in Kuala Lumpur was 6.837 million. The most common ethnic groups living in Malaysia are Malays with an established percentage 50%. The biggest minority is represented by the Chinese and is around 22.6 % of the population. Another 11.8% of the people living in Malaysia form the indigenous people. Another small minority is formed by the Indians and amounts around 6.7%. 8.2% percent of the people are non- citizen and 0.7% belong to other, not mentioned ethnic groups. The languages spoken most often are Bahasa Malaysia, which is the official language, English and Chinese. In the Chinese language we can differ between Mandarin, Cantonese and other. The age structure really looks like a pyramid. Malaysia thus has a very young population. An age group's ratio decreases with increasing age. Also one can see that there are slightly more men than women (World Factbook: Access: 24.09.2016).

2.2. Study Area

My study took place in the Forest Research Institute Malaysia, FRIM, which lies in the state of Selangor on the main Island in the West. Only about 20 km distance from the busy capital, Kuala Lumpur, FRIM campus extends over an area of 485.2 hectares. The greater area around Kuala Lumpur is called Klang Valley, which is named after the Klang River, that flows through it. The grounds of FRIM extend to the hills in the North and West of the central FRIM campus up to an elevation of 489 m above sea level (Nordin et al. 2013: vi).

2.3 Description of FRIM

2.3.1 History and Establishment

Originally, FRIM was established in 1926 by a forest research officer in Malaya, Dr F.W. Foxworthy. Together with Mr R. H. Whitty an, ex- rubber- planter, he set up FRIM grounds as a large- scale plantation and forest nursery (Nordin et al. 2013: 9). The first trees, mainly leguminous and fast- growing nursery trees, were planted as early as 1926. By now, they have reached an age of around 90 years. The main focus by that time lied in the plantation of timber trees, for which FRIM became known later. They specialized in timber products and still do research on it and they still do timber products. Before the idea of this man- made plantation arose, FRIM's grounds mainly were either degraded forests, patched that were cleared for cultivation of vegetables or abandoned mining pools (Nordin et al. 2013: 4). Therefore, it is a leading example of a recovery and how formerly almost bare grounds become a dense tropical forest with a high biodiversity. However, the idea was to create a plantation research station that serves various research areas as well as education and recreation. Thematic nature trails, arboretum and a Nature Education Centre make this possible. Due to the high recreational aspects that a forest offers and due to its location, close to the City of Kuala Lumpur, FRIM has become a very popular place for all sorts of activities, apart from education.

2.3.2 Physical Features

FRIM is composed of a main campus and a large area around this campus which is partly accessible through nature trails. Partly the forest is composed of commercial timber trees, that are still used for their products. Timber, or rather a collection of many timber species can be found at one of their five arboreta. In 1929 already the first arboretum came into existence with

timber species of one specific family. Later another arboretum for species of other families was established, the non- dipterocarp arboretum. Besides, FRIM also developed an arboretum for fruit trees, bamboos and conifer trees (Nordin et al. 2013: 15). Most offices can be found in the main campus with the central road called Jalan Foxworthy. Furthermore, there is the ethno-botanic garden, that displays various plants used in traditional medicine. The campus also includes sport fields, such as tennis, volleyball and football fields. A special attraction, especially for tourists offer the two Malay traditional houses that are made from timber products. They also are a popular background for events held at FRIM such as weddings. Another main attraction is the canopy walkway, which was established in 1992 and which really is unique in this area (Nordin et al. 2013: 79). In addition to that, FRIM's main campus is connected to the Kepong Botanic garden through a road. The Kepong Botanic garden has its own entrance but it is possible to access it from FRIM. This garden especially is a site for indigenous and rare plants of Malaysia (Nordin et al. 2013: 68).

Education is one of the park's principal concepts. Therefore, one can always see the thematic nature trails as well as the gardens and arboreta with their labelled trees and explanations given. FRIM campus therefor has next to their laboratories its own forestry school. For the purpose of offering school classes or other groups the possibility to stay overnight, FRIM campus has also a camp site called Perah. The camp site is located very close the Nature Education Centre. Often people who come for camping, especially if it is a student's class, they take part at Nature Education Centre's programs.

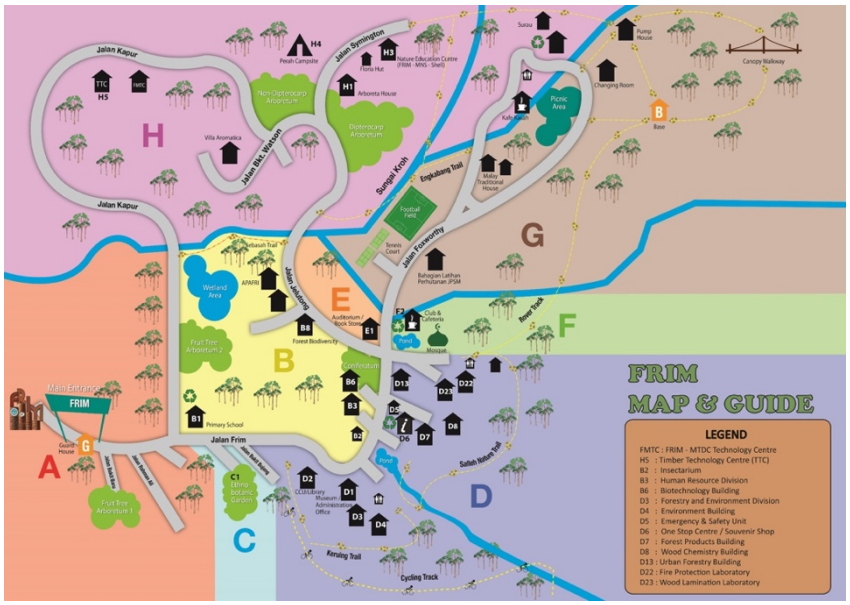


Image 2: FRIM Campus Map (FRIM, 2014)

2.4 Recreational Forests in Malaysia

In the following, I would like to present a study on recreational forest forests in the state Selangor, Malaysia, that highlights the importance of recreational forests and their cultural and ecological services for the visitors. The study refers to the state Selangor, where FRIM is located as well. Therefore, this study gives a good general idea what the research context is in this thesis in both, geographical and scientific terms.

Recreational forests and other, related places like national parks have become very popular and play an important role in Malaysia's economy and society. Tourism and spending free time in forest parks is socially and culturally important (Eagles and McCool 2002: 52). In Malaysia, forests and woodlands take in an important role in providing cultural and ecosystem services for the community and they are used as areas for recreation, research and development and also economic benefits. The visitors have therefore various motives to visit a park and the park management aims to look at all the expectations to provide the public the service it looks for (Norhuzailin and Norsidah 2015: 71). To identify the visitor's expectations of recreational forests, Norhuzailin and Norsidah present a study that includes a visitor survey as well as semi-structured interviews. Also the authors identify some of the ongoing problems that exist in those parks and forests. Among those problems are vandalism, poor accessibility, perceived insecurity and a lack of management which results in a poor quality of facilities (Norhuzailin and Norsidah 2015: 71). The survey has shown that many people are attracted by good quality facilities and a tidy condition of the environment. Also 81 percent of the visitors would like it to have more facilities for people with disabilities and 78 percent would appreciate it if there was more parking space available (Norhuzailin and Norsidah 2015: 73). Norhuzailin and Norsidah's survey has shown that expectations to recreational forests do not differ between males and females but they tend to be influenced by the visitors age.

60 percent of the Malaysian land masses are covered by rainforests (McColl 2005: 577) and Malaysia has a number of forest recreational areas and reserves. In a political decision during the First Malaysian Plan period from 1966 to1970, recreational forests have been designated for public recreational use and is managed under the Department of Forestry (Bhuiyan et al. 2012: 2554).

3. Research Process

3.1 Preparation Phase

The beginning of this Master thesis was in October 2015. This is when I started engaging with the topic and FRIM intensively. Soon after the start of the Master thesis, I had to prepare and present a concept of how to approach the topic and how I was going to do my research. After some time and when I started to know my mentor from FRIM and when I had exchanged some emails, we, my mentor from the University of Zurich and my mentor from FRIM decided to set the date for the field work in December 2015 and in January 2016. This period of time was chosen because it coincided with Malaysian school holiday and FRIM was expected to be very crowded. So from October until December I was working on my concept in more detail as well as on some ideas for the quantitative survey's questionnaire. Since I was interested in visitor's crowding perception, a survey seemed to be the best method to approach many visitor's opinions in a standardized questionnaire. The month of December was mainly used to prepare the survey. That included writing and adapting the questionnaire, doing a pre- test and define the sample and sampling area and time. Those single processes will be described later in more detail.

3.2 Execution Phase

3.2.1 December

Literature research and designing the questionnaire

In December, I did a lot of research on social crowding and on the state of the art in that specific study area. Through this research I could gain a lot of information on crowding perceptions and what kind of research has been done and in what specific environments. I found that researcher have been engaged with assessing what different kinds of personal characteristics can influence crowding. Some of the researchers worked with images to find out the visitor's preferences and perception of crowding in that specific situation. Even though, the settings were a bit different from FRIM, the researchers had similar research objectives, which was more relevant in the end. Based on this knowledge, I designed a questionnaire to approach the visitor's perceptions on crowding in various ways. The literature research gave me an idea what kinds of personal characteristics I need information on and what not. However I also included questions on personal background information that was not specifically mentioned in the literature that I

have read. This was for example “highest level of education”. In addition to that, I also was looking at a former research questionnaire that has been made by FRIM and realized they had established a certain structure to group their questions. With that input, I decided to group the questions thematically as well, in order to get information on

- Personal background
- Background of the visit
- Motivation of the visit
- Perception of other people and groups
- Coping strategies
- Willingness to pay.

The questions were not strictly grouped but in the end I needed the information on all of those topics for the analysis.

Pre- test and preparing the final questionnaire

When the questionnaire has been designed, I proceeded to do a pre- test in order to evaluate the questionnaire. For the pre- test, I decided to print ten copies. On a morning in late December three colleagues and I went to the Picnic area, one of the most utilized places on FRIM campus and started to distribute the copies. The questionnaire was in English at that time, but it was not a problem for any of the participants in this test. Among the participants were young adults as well as mountainbikers and other athletes.

Back in my office I realized very quickly that most of the open questions have not been answered. The only open questions that were answered, were the ones about activity, highest level of education and on where they live. Therefore, I decided to reformulate those questions and rewrite them as multiple choice questions. I think offering multiple, pre- written answers makes it easier for the participants and makes it in the end more probable, the people would engage with the questions. However, in most cases it was not necessary to rewrite the questions.

3.2.2 January

In January I spent most time doing the survey, preparing and conducting the qualitative interviews and also transfer the results of the survey into an excel chart to have it in digital form in order to work with it later.

After having done the pre- test, I was about to organize when and how I could do the survey. To do this, I closely worked with my mentor Noor Azlin in FRIM. I was really surprised and happy when I heard that eight people were going to help me doing the survey. But the first thing that had to be done in advance was, to translate the questionnaire in Malay. My mentors and I decided to make a bilingual questionnaire in English and Malay. In the first week of January, my colleagues at FRIM were busy with another research so we decided doing the survey the week after that, which is the second week of January.

Also in January all of the qualitative interviews were conducted. This included the preparation as well as the implementation of the interviews. To prepare myself for the expert and episodic interview, I engaged with the theory on qualitative research and interviewing and I designed a guideline for the interviews. I used the same guideline for all the interviews. However, some aspects of the guideline were discussed in more detail with the experts and some were discussed in more detail with during the episodic interviews. Parallel to that, I could work on digitalizing my surveys.

3.3 Evaluation Phase

In the evaluation phase, I was sorting my data and formed categories, where needed to make it ready for the statistical analysis. The statistical analysis was made with SPSS and involved doing many charts. I also started to transcribe the records that I made during the interviews with a program called Express Scribe. When I was done with that, I could proceed and work on the analysis of the qualitative interviews with the Grounded Theory approach. Simultaneously, I could start writing the thesis and include the results one by one. Some of the analyses also have been made later when I was already advanced in the writing process.

4. Theory

In order to see how this Master thesis can be embedded in scientific literature and debates, the following chapter provides insight in the latest state of the art in the scientific field of social crowding and in the field of ecotourism and tourism in protected areas. Research on social crowding has been done in various environments and tourist sites. There will be examples of visitor behaviour studied in European urban parks and public spaces. These will be discussed along with examples from Malaysia, which has a number of forest recreational areas and reserves as well as coastal areas where crowding and other aspects of tourism have been studied. As a local recreational area, FRIM attracts mainly local tourists from Kuala Lumpur and the area of Klang Valley. Nevertheless, for this research the scientific papers from Arne Arnberger who has done a lot of his research in Vienna have been very noteworthy.

4.1 State of the Art

4.1.1 Research on Social Crowding

Research on social crowding began widely in the 1960. An increasing interest in outdoor recreation and increasing use levels of parks and protected areas threatens the park's environment and nature. In this respect the concept of social crowding has been established to address the resource and the social impacts of visitor use in outdoor recreation areas (Lawson et al. 2003: 305). Not only the responsible and sustainable use of a natural resource but also the quality of the visit in the natural environment depend on social crowding. Sustainable management of parks and protected areas are part of sustainable tourism and ecotourism. Different concepts and approaches have been developed to help park managers to find the balance between protecting their park and provide facilities for the users. One of the most widely applied and discussed concept is called social carrying capacity. Social carrying capacity can be expressed by the number of visitors a natural site can tolerate before becoming significantly degraded (see Zhang and Chung 2015: 1466). The development of the concept of social crowding began when crowding was discussed in terms of "space" and "density" and the individual's demand for space. This idea was set up by Stokols in 1972. Another way of determination crowding was to see is as a relationship between the recreation quality and the number of visitors. This idea is especially relevant in relation to outdoor recreation (Zhang and

Chung 2015: 1468). The ideas on the concept of social crowding have been further developed. Schmidt and Keating have proposed the social interference theory, whereby indicators of crowding, such as density were put in relation to the degree of interference of one's activity. Further discussion has led to the concept of perceived crowding. This concept has been introduced by Shelby and Heberlein in 1986. Perceived crowding is based on the idea that crowding in recreational settings is perceived very subjectively and depends largely on individual preferences. Research on social crowding has for a long time mainly focused on why where and when crowding occurs (Zhang and Chung 2015: 1468). In 2003, Ryan and Cressford introduced the idea that crowding perceptions can be influenced by:

- Type of activity
- Spatial interaction of visitors
- The visitor's personality.

Arne Arnberger, an Austrian researcher, especially works on determining the effects of personal criterions such as gender or age on the visitor's experience and crowding perceptions. Also he took other influential factors into account such as past- on site experience or socio-demographic characteristics (Arnberger 2012: 703, 709). He also looked at crowding perceptions at different times, such as weekends or workdays. Another study by Liye Zhang and Shanshan Chung focuses on multiple factors that influence crowding perception such as personal characteristics such as gender, but also the number of people and spatial proximity to people in the diver's environment. At the end of their study and analyses they suggest that the biggest impact on crowding perceptions could be explained by then number of people and the proximity to other people (Zhang and Chung 2015: 1473, 1474).

4.1.2 Research on Ecotourism and Tourism in Protected Areas

After the overview given on social crowding and social carrying capacity, this section focuses on ecotourism and tourism in protected areas. For this Master thesis I find it important to look at the evolution of ecotourism and the trends going on in this sector. This helps to understand the increasing popularity of ecotourism and also gives a broader frame to the topic of crowding.

Ecotourism can be defined as a

> *Responsible travel to natural areas which conserves the environment and improves the welfare of local people.* (Chin et al. 2000: 22)

Ecotourism is a growing sector and is defined by its sustainable development results, according to Wood (2002: 7). These are conserving natural areas, educating visitors about sustainability and it should benefit the local people. The concept of ecotourism has its origin in the late 1980s. There has been a growing interest in outdoor travel and environment which is linked to the environmental or conservation movement. Ecotourism is a part of nature- based tourism and it was viewed as a way to sustain natural resources and as a revenue to natural areas (Wood 2002: 11). One of the key elements in ecotourism is the planning and managing it involves. Ecotourism main focus is environmental, social cultural as well as economic sustainability. Establishing an area open for ecotourism also means providing facilities and infrastructure and therefore needs careful planning (Wood 2002: 9). According to those components, different guidelines and principles of ecotourism have been established. These may differ for specific regions. Common principles however include for example

- Educating the traveller on the importance of conservation
- Minimizing the impacts on nature and culture that can damage a destination
- Seek to ensure that tourism development does not exceed the social and environmental limits of acceptable change as determined by researchers in cooperation with local residents (Wood 2002: 14).

In addition to the principles, Megan Epler Wood summarizes some of the guidelines for nature tour operators that have been written by the International Ecotourism Society in 1993. Those guidelines are naturally based on the principles of ecotourism and include advices on different aspects. In these guidelines, one important focus lies on the traveller and his behaviour. For example, should travellers be well prepared and receive guidance in order to minimize the negative impacts on the nature and culture (Wood 2002: 15). Informing and educating the traveller is one of the most crucial and at the same time challenging tasks for the operator. Ecotourism really depends on the natural resources and at the same time risks to destroy it by overutilization or wrong utilization. Travelers often are concerned about the natural environment they are visiting. However, often, the motivation and the travel choices they make

are not based on these concerns (Wood 2002: 19). They rather are bases on personal preferences and mostly pleasure- driven. Additionally, travellers perhaps tend to underestimate the impact they have on the environment. So the choices of the tourists are highly important to the business as the tourists are the ones that use the sites most intensively.

4.2 Theoretical Approaches

4.2.1 Social Carrying Capacity

Along with other approaches to determine social crowding and to find management objectives, the social carrying capacity approach has been developed. As already stated earlier, it is important to distinguish between resource carrying capacity and social carrying capacity. Social carrying capacity (SCC) is defined as the maximum number of people tolerated (Dall et al. 2005: 1). The tolerance can naturally differ among different people depending on personal preferences, activities, whether they are residents or visitors and many other things (Dall et al. 2005: 1). Common to all approaches are their objectives of both protection of the resource and at the same time keep the quality of visit high (Lawson et al. 2003, 305). The frameworks that help to make decisions about carrying capacity are mainly

- Visitor Impact Management (VIM),
- Limits of Acceptable Change (LAC)
- Visitor Experience and Resource Protection (Lawson et al. 2003: 305).

Social carrying capacity is primarily socially determined and not defined in ecological terms (Dall et al. 2005: 2). Even though FRIM's management is increasingly worried about the physical and ecological conditions of the park as well, the focus of this Master thesis is the socially determined carrying capacity.

Tourism, especially ecotourism as we will see, is very complex and different factors such as ecology, economy, infrastructure, management and culture for example play a role. These influential factors can also be, and most often are, in conflict with and contradict each other. In outdoor recreation, having an enjoyable visit is probably as important to the management as keeping the visited resource intact. Factors that deteriorates the quality of the recreational experience of the visitor might be

- Traffic
- Criminality
- Waiting time
- and Noise (Dall et al. 2005: 2).

This list only relies on one paper and is therefore not complete, nor claims to be universally valid. These factors are probable to change depending on the site visited. However, another study suggests that environmental conditions, as for example littering, degradation of soil and vegetation damage have had more influence on the visitor's enjoyment than social conditions such as the number of people around (Chin et al. 2000: 20).

The number of people might not utterly be the decisive variable on how much a resource is overutilized but the specific impact of the users (Chin et al. 2000: 21). This impact can depend also on the visitor's activity, behaviour and following the rules. But this again refers to resource carrying capacity rather than social carrying capacity. However, it offers a good reason to critically look at the concept of carrying capacity. This will be done in the following paragraph.

4.2.2 Critical View on Social Carrying Capacity

The study by Chin et al. (2000) supports the idea that the concept of social carrying capacity has not been able to address resource management problems and issues. In their own study they apply a visitor management impact (VIM) framework to identify the perspective of visitors. McCool and Lime (2001: 372) state, that the main problem with carrying capacity is its question to numbers, asking *how many* visitors can be accepted instead of how they propose what *social and biophysical conditions* are we aiming at (McCool and Lime 2001: 373). Initially, the concept has been used within the field of wildlife management and applied on animal populations. The underlying assumption has been that populations grow exponentially but growth is limited by external, environmental factors. This view is based on a neo-Malthusian way of thinking. The weakness of this concept at this stage were the many uncertainties that existed in natural environments. Furthermore, is a numerical approach for carrying capacity in protected areas or anything like that also determined on factors like ethics, politics or economics. This makes it even more difficult to rely on a straight number as a threshold for carrying capacity (McCool and Lime 2001: 374).

Visitor impacts mostly affect the environment. Some negative impacts of visitors are soil degradation, decrease in biodiversity or destruction of plants. Other man- made destructions

and impacts are littering or noise. This in turn can affect the enjoyment of the visitors negatively. Research on this topic has started as early as 1930 but was discontinued doe to the Second World War. In the 1960s in the United States, several projects were going on identifying the carrying capacity for recreation areas (McCool and Lime 2001: 376). The level of how much a person can be disturbed by the presence of other people depends among others, on the person's activity, Wagar (1964) suggests. This is a very early finding and actually does not support the social carrying capacity concept that is based on numbers. In the 1970s the finding that carrying capacity cannot be applied to a whole area but there are multiple carrying capacities within a recreation site also supports the idea, that there might not be an overall valid number, so there are multiple carrying capacities (McCool and Lime 2001: 377). Lime and McCool seem to be some of the strongest opponents to the study. They further explain that it is always also the management's *objective* that determines social and even environmental carrying capacity. As an example they say, social carrying capacity of a recreation site differs if the objective is to provide a peaceful, solitary place or a place where social interaction plays a higher role (McCool, Lime, 2001: 377). Considering this it might be helpful to closely analyse the specific objectives at FRIM according to the park management and according to the visitors. Moreover it is necessary not to try to find a solution for all FRIM but specifically look at the different sites and what they are made for.

4.3 Foundation: FRIM Study

FRIM has set up a study to investigate visitor's preferences in order to understand the visitors and their behaviour. Various aspects have been investigated. The study in this Master Thesis builds up on these findings and extends the study further. Specifically crowding perception and perception of other visitors are the focus in this study's survey. FRIM noticed a vast increase in number of visitors during the past five years. They noticed that a lot of advertisement came from the visitors themselves and occurred mouth- to- mouth. FRIM originally has been designed to become an education forest. Awareness of the natural environment and a sustainable way to utilize it is a central aspect in FRIM's management goals. Many trails contain explanations to the plants and trees to offer the visitor to educate in that

area. Especially the canopy walkway, that has become a major tourist attraction was originally built with an educational background. Information on plants and trees are displayed along the walkway platform. The walkway was established in 1992 and has originally served the researchers before it was opened to the public in 1993. By opening up major attractions in FRIM to the public, the number of visitor has increased. People started to treasure FRIM as a green area, close to the city. Due to its proximity to Kuala Lumpur FRIM is considered an urban open space of cultural importance. People can benefit from this area in many ways. Health benefits, educational benefits and benefits to the community are some of them. In addition to that is serves as a green lunge in the Klang valley and therefore has many environmental and climate benefits. The study that was set up by FRIM conducted how the visitors themselves perceive the park and how and why they use it. Also the survey searches for reasons, why people would not visit FRIM and what might be reasons for people to stop coming to FRIM. The main findings of this study were that FRIM is perceived to be a good educational environment for the interviewees. Camping activities at the weekends are very popular. Along with that, activities connected to personal health such as exercise compose the most popular activities. FRIM offers a nice place for athletic activities where the trees regulate the climate in a way that athletic activities are most pleasant. In conclusion, visitors regard FRIM as a place that offers benefits at many levels that is accessible in very little time from Kuala Lumpur. Furthermore, the results reveal that crowding is one of the reasons why people would stop coming to FRIM. Damage on nature and an unpleasant looking environment is another reason for people to stop coming to FRIM. Deriving from this, FRIM concludes that publicity must be done very carefully to avoid overcrowding and potential damage on the environment, since this is neither attractive to the visitors nor to the researchers.

4.4 Scientific motivation

The concept of ecotourism discusses how protected areas and parks can be managed and used in a sustainable way. The concept for example includes guidelines and principles that serve as orientation for managers of parks and protected areas and reserves. Those guidelines include to formulate management goals and to educate and prepare the visitor. This is one of the most crucial points, since it is often the visitors that cause most of the effects and damages on the natural environment. In Malaysia, recreational forests play a great role in local tourism and

are very popular. Assuming that perhaps other parks and forests have problems with visitors and visitor behaviour as well, there is certainly a need to find ways to manage those areas in the most sustainable way possible. This specially applies to FRIM since they are applying for UNESCO which might attracts more visitors.

In the research area of social crowding the discussion is mostly about identifying the factors that are most crucial to crowding. Firstly, there is the individual crowding perception which can be determined by the number of people but also by other things like proximity or activity. Moreover, research has shown that there are clear differences in crowding perceptions among user groups. Those could be for example different age groups. The discussion also is about what factors contribute most to an enjoyable visit. For quite a long time it has been assumed that the number is perhaps the most crucial and influential variable that effects the natural environment. The approach has been the social carrying capacity approach. However, the view that the number of visitors mostly to determine how much the ecosystem or the area in question is and can be stressed and utilized and still provide an enjoyable and intact place for all visitors has been hardly criticized. The number alone does not determine the amount of stress the eco system is exposed to and does not singularly determine the enjoyment of one's visit.
The study made by FRIM reveals that many people regard urban open spaces such as FRIM to be highly beneficial in various ways. Many visitors are nature lovers and like to recreate and exercise in an healthy environment. The forests offer a shadowy and cool place compared to the surrounding areas. The role of outdoor recreation marks an important and connecting point in this thesis. Outdoor recreation has changed and especially increased during the past decades. FRIM noticed this change as well and needs to react to such changes in order to avoid the park to become overutilized and damaged. FRIM, which is an educational park especially takes up the issue, since they noticed that many people come for their own pleasure rather than for learning and educational reasons. Promoting in a certain way to attract a certain type of user can be a way to approach this struggle. Crowding has shown to be an issue not only for FRIM staff but also for the visitors. Therefore this Master thesis aims at going deeper into the crowding perception of the people and get to know the visitor's expectations more. Identifying the various types of visitors can help the management to act and promote in a certain way. The study of this thesis therefore searches for the main factors that contribute to crowding perceptions. In addition it tries to understand what other conflicts there are and proposes ways to approach those problems. Moving in the field of social crowding and ecotourism this thesis aims to contribute its scientific findings to both areas of study.

5. Methodological Approach

5.1 Triangulation

Under triangulation one understands the use of multiple methods in one research project. Uwe Flick describes Denzin's ideas about triangulation. He differentiates between different forms of triangulation, such as data triangulation, triangulation of theories, triangulation of methods and investigator triangulation. Within the triangulation of methods, Denzin originally (1978) differentiates between within- method and between- method triangulation (Flick 2004: 15). For this study a form of between method triangulation is used, since the study is based on different methods of data collection. The main goal of triangulation is to have different perspectives on the same phenomenon by using different data (e.g. oral, textual), different theoretical approaches or different methods (e.g. qualitative, quantitative). Additionally, different points of view can be achieved by different researchers working on the same study (Flick 2004: 13). Any form of triangulation highlights and discovers different aspects of the phenomenon in focus. The amount of truth or objectivity generated can assumed to be higher with triangulation if just one sort of data, method, theory is used or only one person does the whole research.

5.2 Field Access

When I started my thesis in October, it was already clear, when and how I am going to the field. Both, my mentors and I decided December and January to be the most reasonable period of time for my stay at FRIM. During that time, we knew there was a holiday season and FRIM was expected to be crowded. I could life in a guest house in FRIM campus during the stay and I was offered an office next to my mentor Dr Noor Azlin. On my day of arrival, I was introduced to my colleagues and in the first week of my stay I was shown the campus including the Kepong Botanic Garden, which is a bit further away. In the first week I was getting information on different kinds of programs and public activities taking place in FRIM. Also I was introduced in many kinds of issues and difficulties with visitors and visitor behaviour and how they are handling them. For example, I learned that the areas right next to the nature trails often show less biodiversity, soil deprivation or a recession of wildlife deeper into the forest. Therefore, FRIM decided to close some nature trails for a period of around five years in order for them to

recover. Apart from gathering information on FRIM and the crowding in FRIM, I was engaging with studies and research on crowding and public parks and visitor's perception of crowding done by other researchers. This way I could engage in the scientific field of social crowding and outdoor recreation. Based on some of these findings I adapted the questionnaires on which I was working on during the first three weeks of December.

The field however is not necessarily defined by a geographical space. The field often refers to the community one studies. The contact to the community however is geographically and temporally bounded by the researcher (Katz 2010: 67). Clifford Geertz (1979) defined every conversation with the natives as the field research (In: Katz 2010: 67). This is important to consider since I was also collecting information and data when I spoke to different members of FRIM or to my mentor in everyday situations and not just specifically at times when I was conducting interviews. The communication itself with my colleagues at FRIM went well in English. Unfortunately, I did not speak Malaysian, which perhaps was a bit limiting, but after the language was not really a problem, as my colleagues who helped me could speak both, Malaysian and English very well. Also my interview- partners and many participants in the survey could answer my questions in English and if not, we had the prepared the bilingual questionnaire. When we did the survey, I realized that many people were very open and did volunteer at participating at the survey. The questions were not too personal, so there was no reason for any of the participants to hesitate or be ashamed. My requests to my interview-partners for the qualitative interviews were mainly answered positively. I was happy to have Dr Noor Azlin helping me to find the contacts and to send the request.

5.3 Data Collection

My collection of data is based on two major sources. One broad set of data is given by the survey, where I could collect data from 310 questionnaires. This set of data was used to get insight in the visitor's perspective and perception of FRIM also with regard to social crowding. Since I also included questions regarding the visitor's demographic attributes I was able to analyse the questionnaires according to those attributes. With exception of tourists, I think I had a very well distributed and representative sample. I will later describe in more detail how we approached the visitors and how the sampling looked like. The other major source of data are the qualitative interviews with people engaged in FRIM. Some of my interviewees were more in touch and aware of the issue of social crowding.

However, my interviewees still could tell me a lot about the problems and concerns they have and that they often have to face. Some of those issues that were mentioned in the interviews can be linked directly to social crowding and others cannot. However, it still is important that these issues came up since they indeed can be related to visitor's behaviour in the park. I will describe the interviewing process in more detail later in this chapter.

5.3.1 Qualitative Interviews

A qualitative approach is very common in human geography. We are interested in qualitative data and are interested in a variety of views, perspectives, opinions or narrations. There is a variety of approaches to work quantitatively. Some of the research methods are focus- group interviews, participant observation and in- depth interviews. The latter works really well for collecting data on people's individual experiences and perspectives (Mack et al. 2005: 2). The three main types of individual interviews are the focus interview, the episodic interview and the narrative interview. Each interview type requires a different amount of structure or guidance. The type of interview I choose to make for my study was the episodic interview. The episodic interview is based on episodic knowledge. Its aim is to gain information and contextualized knowledge on a certain issue based on memories and experiences (Flick 2000: 77). In my case I was interested in specific experiences with social crowding or general with visitors and how they use and behave in the park and towards FRIM members.

Expert interviews

The debate on expert interviews still raises many very basic questions. From a scientific perspective it is still not fully clear, *how* and *whether* expert interviews can be placed in the scientific methodology. One perspective argues that expert interviews cannot be universally defined and to turn it in a specific method is against the nature of research in this field. On the other hand, it is argued that the expert interview clearly belongs to the qualitative research method (Bogner et al. 2009: 43). Despite this ongoing debate, the expert interview offers a great way to gather a lot of relevant and often exclusive data. Expert interviews often serve as a good orientation point when begging a study in a new field or topic. It is, what Bogner et al. call it, an exploratory tool. This makes it really relevant for empirical research and makes it a part of method triangulation (2009: 46). Expert knowledge often is contextualized and it is operational for the branch or institution or company. Experts are often very familiar with a specific topic since they deal with it on an everyday basis in their profession. Bogner et al.

differentiate between three types of expert interviews that differ in their main purpose. The explanatory interview's main purpose is to give the researcher initial orientation. Beside this type there are the theory- generating and the systematizing expert interview. In a systematizing interview, the researcher is most interested in what works and what does not work what kind of plans and politics have been implemented and so on. The theory- generating interview is more interested in the concepts and ideas or even position the expert has on a certain topic (Bogner et al. 2009: 47, 48). In my case, all of those types applied. I was new in the field of social crowding and I did not know the specific issues at FRIM very well, so the expert interview gave me a lot of insight on this. Also I learned about some of the problems and policies they have in the park and I got to know the expert's impression of the visitor's expectations and thoughts. The question of who can be called an expert also was engaged in Bogner et al. (2009). In a way they explain, every person is an expert in their specific profession. So this distinction between who is an expert and who not is mainly analytical and also to some degree subjective (Bogner et al. 2009: 47, 49). Deriving from the questions asked I think I could say I even had two experts. My first interview partner was the Head of the Corporate Communication Unit at FRIM and could tell me a lot about social crowding in FRIM and many other things. The other person who I would consider to be an expert too, is Tan Lay Lean from the One- Stop- Centre. One- Stop- Centre mainly handles visitors and it is the place where groups and individuals can hire a nature guide. She deals with all sort of visitor issues. Therefore, I think the interview with her gave me a lot of insights in what kinds of complaints and problems they have and also what kinds of measures have worked, and what not.

Episodic interviews

The episodic interview mostly is a semi- structured type of interview. The interview should be open enough for the interviewee to select certain episodes. It should also be partly guided to address all the relevant aspects of the issue (Flick 2000: 77). As preparation task for the interview it is required that that the interviewer develops an interview guide and that the interviewer has developed some preliminary understanding of the topic and the area (Flick 2000: 78). My interview guide was mostly made up with keywords. Those keywords gave me an idea about what aspects I would like to cover and to which I would like to refer to during the interview. The preparation also included to get to know the campus, the connections and structure of FRIM, which was very important during some of the interviews. Flick (2000: 79)

describes the second phase of the process of interviewing as the introduction of the interview principle. This means informing the interview- partner about the structure of the interview and how you are planning to guide the interview. This helps the interviewee to get an idea of his role in this interview and whether for example a whole narration or just smaller episodic narrations are required. Therefore, I normally started the interview by explaining my subject and what I did research on in order to let the interviewees know what subjects I am interested in. Only then I turned on my recorder after I asked my interviewee for permission. The next step according to Flick (2000: 79) is then to understand how the interview- partner relates to the topic, what he or she knows about it and what incidents come to their mind when they think about certain aspects of the issue. I usually formulated this in a very open question and asked what he or she did in FRIM and what he or she can tell me about social crowding. After this starting question I could very well distinguish how much my interview- partner was concerned with the topic and how his or her work is related to it. During the interview I was trying to find out the difficulties that exist with social crowding from the perspective of FRIM employees but also about the measures that they might have already taken. In Flick's description this refers to phase four, five and six. I was focusing on my keywords and elements on my interview guide, but also we talked about more general things related to the study. Often, when I turned off the recorder, my interview- partner and I kept talking and most often some of the really interesting and relevant points were mentioned only in this part of the interview. Flick (2000: 83) would call that small talk and evaluation. Since I could not record this last part of the conversation, I immediately took notes when I was back at the office. Also I made it a habit to take notes during the interviews. I also noted some of the prevailing conditions of the interview and my personal impression of it. Later the interviews would be transcribed word by word in English, as this was the language the interviews were held.

Sampling

Choosing a sample is one of the most important steps in the research process. This is especially true for qualitative research approaches. In the quantitative approach, the sample is chosen rather randomly. In a qualitative research approach, Patton (1990) delivers 15 different strategies to choose a sample purposefully. Purposeful sampling is way different than random probability sampling. In random probability samples the chosen set of people should be able to reach a confidence level in order to represent the population and in order to make

generalizations possible. In my research I am using this kind of sampling in the quantitative survey. The different purposeful sampling strategies differ for example in the way of heterogeneity of homogeneity that can be provided or they differ in the specific group that they represent, such as "extreme cases" (Patton 1990: 182). The underlying principle of purposeful sampling is the selection of information- rich cases that serve different purposes and answer different kinds of questions (Patton 1990: 169). Often in practice, and Patton calls this the 16th strategy, the strategies are being combined. In most cases, a study aims at answering different questions and serves multiple purposes. Therefore, it makes sense to combine some strategies in order to successfully answer the research questions. One of the strategies applied, I would say is *intensity sampling*. This kind of sampling is looking for information- rich cases that manifest the topic in some way (Patton 1990: 171). Also I would say I did apply the *criterion sampling*. Criterion sampling means to choose a sample according to predefined criterions (Patton 1990: 176). I was especially looking for interview partner who could tell me a lot about crowding and their experiences with it. This was of course based on the fact that my interviewee should have something to do with visitors, either directly or indirectly. This contact and experiences with visitors was my criterion for taking a person into the sample or not. Furthermore, I tried to look for people who really could tell me a lot, either specific episodes and experiences or general thoughts. So this is where I tried to make the sample as information-rich as possible.

My interview partners were all working at different positions for FRIM itself. There were no extern people interviewed. One interview partner worked for the Nature Education Centre, which is located in the FRIM campus close to the campsite. Nature Education Centre is a partner to FRIM as we will later see and is led by two young women. All my respondents were selected during the field work in FRIM. Dr Noor Azlin was very helpful in contacting several people. Some people were not available at the time but I still had the opportunity to talk to seven people. In all the cases I could go and talk to them at their respective office. However, when I later started to analyse my material, I realized I could not really use the interview with Gary Lim, from the Edutree Service and the interview with the representatives from the Facility Unit at FRIM.

Table 1: Table of Qualitative Interviews:

Date	Interviewee
Monday, 18.01.2016	Pn. Norhayati Nordin *Head, Corporate Communication Unit*
Monday, 18.01.2016	Liza bt. Ismail, Sharifudden b. Samin *Facility Unit*
Tuesday, 19.01.2016	Dr Sam Yen Yen *Taxonomist*
Wednesday 20.01.2016	Zulaikha *Nature Education Centre (NEC)*
Tuesday, 26.01.2016	An Nee *Communication Unit*
Thursday, 28.01.2016 (postponed from Tuesday)	Gary Lim *Edutree Service*
Friday, 29.01.2016	Tan Lay Lean *One- Stop- Centre*

5.3.2 Quantitative Survey

In this Master thesis one of the primary goals is to assess the crowding situation present at FRIM and find out the visitor's perception on crowding. Therefore, I was looking for a method to make the attitudes and views of the visitors visible. A survey with a standardized questionnaire seemed to be the best solution to approach many people and make their attitudes and views visible, analysable and comparable. In human geography it is not that usual to work quantitatively. However, working with a standardized questionnaire is a good way to count and numerically analyse the data. The main goal is to see the trends and tendencies of crowding perceptions. Moreover, it is possible to trace back on what attributes or attitudes crowding perceptions are possibly based. The samples were taken at different times and places. Therefore, it might be even possible to make statements whether crowding perceptions differ between different times and places or not. This is relevant information since in the end the data conducted will be put in context to the existing literature and state of the art.

Quantitative research can be defined as

> *Explaining phenomena collecting numerical data that area analysed using mathematically based methods (in particular statistics)* (In: Muijs 2010: 1).

This Master thesis belongs to human geography and is interested in people's perceptions. But attitudes and beliefs are common things, on which data in human geography or other social sciences can be collected quantitatively. An important part of empirical- quantitative research are assumptions and hypothesis. For the empirical research it is important, these assumptions and hypothesis are testable, hence falsifiable. According to Schuman (2000:14,15) the main goal of quantitative research is to connect hypothesis that are empirically accepted in a way that they do not contradict each other. In that way they can be integrated into a model and finally theory. The question how the data is collected to approach a certain hypothesis is crucial as transparency and replicability are important elements in empirical quantitative as well as empirical qualitative research.

In quantitative research the scale of measurement is of great importance. For this study mostly an ordinal or even nominal scale of measurement were used. With a nominal and ordinal scale of measurement it is possible to compare and attach values to non- numerical attributes. Those scales were used for the question like "main activity" or "gender" and many more. The ordinal scale of measurement also could be used for the questions like "popularity of certain areas in FRIM or estimating utilization level of certain areas. The questionnaire also included a number of Likert- scale questions. The idea is to allow the respondent to choose to what degree they agree with a certain statement or item. This instrument was established by Rensis Likert in 1923 and has proved to be very useful to identify people's personal attitudes (Schuman 2000: 33). The questions were formulated in closed questions mainly and only very few open questions.

In total the types of questions used were mainly

- Scale: Nominal- and ordinal scaled
- Instrument: Likert- scale questions
- Formulation: Closed questions, Multiple- choice.

Some very few questions were hypothetical but they were also included in the Likert- scale question battery. The selection of answers often was two- sided, hence the multiple choice ranged from negative to positive possibilities to answer (Schuman 2000: 68). In most cases it was decided not to provide a neutral answer. Knowing that not to provide a neutral answer is

risky as well, in case people really do not know, two question batteries included an “I do not know” as a possible answer.

The questionnaire included some control questions. Those questions were expected to be answered in a certain way or tendency to approve a former question. Control questions aim at identifying questionnaires that were filled in more or less randomly by the respondent. Those control questions are connected in a logical way so that there have to occur certain combinations of answers or else the questions were probably answered randomly (Schuman 2000: 55,56).

Sampling

For the sampling, originally a target of 300 at FRIM campus and Kepong Botanic Garden (KBG) was defined. Additionally, another 30 questionnaires from NEC/ Perah Camp site were targeted. Basically, weekends and weekdays should have been sampled equally, but after some consideration, the main focus was put on weekends as the weekends were just more contested. Therefore, around two third of the samples were collected on weekends. The samples that were collected in Nature Education Centre and in Perah Camp site also were collected on weekends and belong therefore to samples collected on the weekend.

The following list shows the sampling sites.

- Picnic area
- Arboretum
- FRIM Café (Auditorium)
- Kepong Botanic Garden (KBG)
- NEC/ Perah Camp site

The sampling sessions took place on two weekdays, Tuesday 12.01.16 and Thursday 14.01.16 and on Saturday 16.01.16 as representative for the weekend.

Table 2: Sampling Days and Areas: Target Numbers of Samples

	Tuesday 12.01.2016	**Thursday 14.01.2016**	**Saturday 16.01.2016**
Main Campus **Picnic Area**	15	15	40
Main Campus **Arboretum**	15	15	40
Main Campus **FRIM Café (Auditorium)**	15	15	40
KBG	30	30	40
NEC/ Perah Camp			30 (NEC) 40 (Perah Camp)

For each sampling sites at the main campus 70 samples were targeted. For Kepong Botanic Garden, 100 samples were targeted, because Kepong Botanic Garden represents a big area and is very popular. Perah Camp site and NEC has been labelled as one sampling area in the analysis.

By Wednesday, 20 January 2016 all the questionnaires were returned and counted. In total, from 350 questionnaires 323 were completed. The table displays the targets for each sampling day in total for all sampling sites. The third column displays how many samples actually could be reached and in the fourth column the difference between the amount of questionnaires returned and the target goal is displayed.

Table 3: Table on Sampling Target/ Reached and Difference

Date	Target	Reached	Difference
Tue 12.01.16	60	60	+-0
Thu 14.01.16	60	55	-5
Sat 16.01.16	160	159	-1
Fri 22.01.16	40	21	-19
Fri 22.01.16	30	17	-13

5.4 Methodological Approach for the Interpretation of the Results

5.4.1 Qualitative Interviews

The analysis and interpretation of the results generated by the qualitative interviews, is based on an interpretative- categorizing approach. The alternative would be to use an interpretive-sequential approach. While the interpretive-sequential approach is more interested in questions like how something is said and talked about, the interpretative categorizing approach is interested in the content of the transcript or conversation. The main question is "what is said?". The two approaches also have different methods or tools of data analysis. In an interpretative-categorizing approach scientists can work with either Qualitative Content Analysis by Mayring or Grounded Theory by Strauss and Corbin as the most common methods. In an interpretive-sequential approach the most common methods are conversation analysis and objective hermeneutics.

I choose to work with an interpretative- categorizing approach as I am interested in the context rather than the form of the text and I decided to work with Grounded Theory. In contrast to the qualitative content analysis, the grounded theory method uses a coding system to analyse the textual data. The aim is to generate a concept or theory based on the data conducted (Strauss and Corbin 1996: 39). There are three different types of coding: open coding, axial coding and

selective coding. In the literature they are presented to use in sequence, but they do not urgently have to be worked with sequence. This is especially true, since the three types are not strictly separable and it is well possible to switch between those types, especially between the open and the axial coding (Strauss and Corbin 1996: 40). Open coding is the process of breaking- up, analysing, comparing, conceptualizing and categorizing data. *Conceptualizing* means to attach a name or term to a certain aspect of a phenomenon. The process of categorizing is the grouping of concepts that refer to a similar aspect of the phenomenon (Strauss and Corbin 1996: 43). The axial coding aims at relating the formerly made categories and subcategories. This step usually follows the open coding (Strauss and Corbin 1996: 75). The axial coding also aims to structure the phenomenon that is studied. Usually the terms are allocated to groups like causes, context, intervening conditions, strategies of action and consequences. This kind of structure is called the *paradigmatic model*, which actually describes a set of relations. This model helps to systematically study the data and to organize it in terms of relations (Strauss and Corbin 1996: 76). The final step in the coding procedure is the selective coding where all the categories are integrated into a Grounded Theory (Strauss and Corbin 1996: 94f). For this, usually a core category is defined, around which the paradigm can be laid (Strauss and Corbin 1996: 95). In addition to that the selective coding includes making a descriptive narration or presentation of the phenomenon in the form of a story (Strauss and Corbin 1996: 94).

Open coding

For the coding I used a program called MAXQDA, where I could highlight and code the transcripts one by one. I highlighted important segments of the written text and allocated a code for that segment. I already focused on different aspects like

- Causes of crowding
- Personal experiences
- Challenges/ Problems
- Measurements
- Consequences of crowding

These were more or less the categories and groups that were formed later during the axial coding. So the open coding led to almost fifty codes. But they could be allocated to the categories quite easily afterwards. Some of the most important codes were

- Pleasure- driven
- Reaction of visitors
- Crowded family days

But I already as well formed the codes

- Problems
- Measures
- Conflicts
- Activities

They actually were the ones that were used most frequently.

Axial coding

Following the open coding the codes were grouped and categories were defined. Those categories were formed across the different interviews. Especially the statements of the expert interviews complemented very well and could be grouped reasonably. The expert interviews were generally more related to the actual thesis but the episodic interviews were useful to gain a broader picture, particularly the interview with Zulaika from Nature Education Centre. The categories were if possible tied to the research questions.

Selective coding

The selective coding aims at integrating the categories built earlier into a Grounded Theory. This process also includes finding a core category around which others can be laid and related. With respect to the survey, I suggest *"pleasure- driven"* as a core category. I would avoid to give this category a negative character only but it seems to describe closely the way many visitors behave. Pleasure-driven also suggests the main motivation that people leads to FRIM and it reflects how visitors use and perceive their environment. It connects well to for example the categories "Informing ahead" and "Announcements", because the media office at FRIM needs to take care about informing the public at least three months ahead, so people can accept any measures such as trail closures better. Another category that is connected to the core category is one that reflects the increasing interest in outdoor activities and also like recreation in a green area. When I was talking to the head of the Cooperate Communication Unit, I had the impression that there is a huge problem in the discrepancy between visitor's expectation and the authority in charge of the campus and facilities. I will further investigate this core category and how the theory around it has been formed in the next chapter. At this point the

results from the qualitative interviews can be set in relation to the results of the survey.

5.4.2 Quantitative Survey

To analyse the questionnaires statistically, they first had to be transferred in an excel chart to have it in digital form. I used a numerical system to transfer the answers of the questionnaires to the chart. This worked perfectly for the multiple choice questions, that was the major part. Some questions, mainly the ones that were not multiple choice, had to be categorized. For example, the question on main activity had to be categorized. In total four different categories for sports and athletic activities and three categories for recreational and educational activities were created. Also the question on where they live has been categorized. In that case the categories refer to the states and how far they are from FRIM. That way I could differentiate between local tourists and international tourists. For the question on the highest level of education the categories primary, secondary and tertiary level were created. The data was composed of normative and ordinal scaled data. Therefore, the analysis was mainly based on frequency and cross charts. The software used for the analysis was the SPSS program Version 22. In the beginning simple charts and frequencies were calculated. This way a general overview on crowding perception could be created. After that a more differentiated analysis followed. This was specially based on different user and visitor groups. The goal was to approach the first research question about crowding perceptions among different types of visitors. From that basic analysis more following up questions could be analysed and answered since some of the results were quite unexpected and led to further thoughts.

The most challenging part was to combine the results of the qualitative and quantitative research. Often they covered different aspects of crowding especially since they reflect the different perspectives of the various visitors and the staff. However, the results and discussion follow a thematic structure and the chapters contain results from both data sets.

6. Results

The following chapter presents main findings from both the qualitative interviews and the quantitative survey. The chapter will be thematically structured to cover the different aspects of the study. First there will be a part on crowding issues. This part includes all the main findings from the qualitative interviews mostly but also from the quantitative survey. Next, there will be a part where crowding perceptions and differences between the visitor groups are shown. In that part, the results from the analysis of the questionnaires will dominate over the ones from the qualitative interviews.

6.1 Crowding Issues

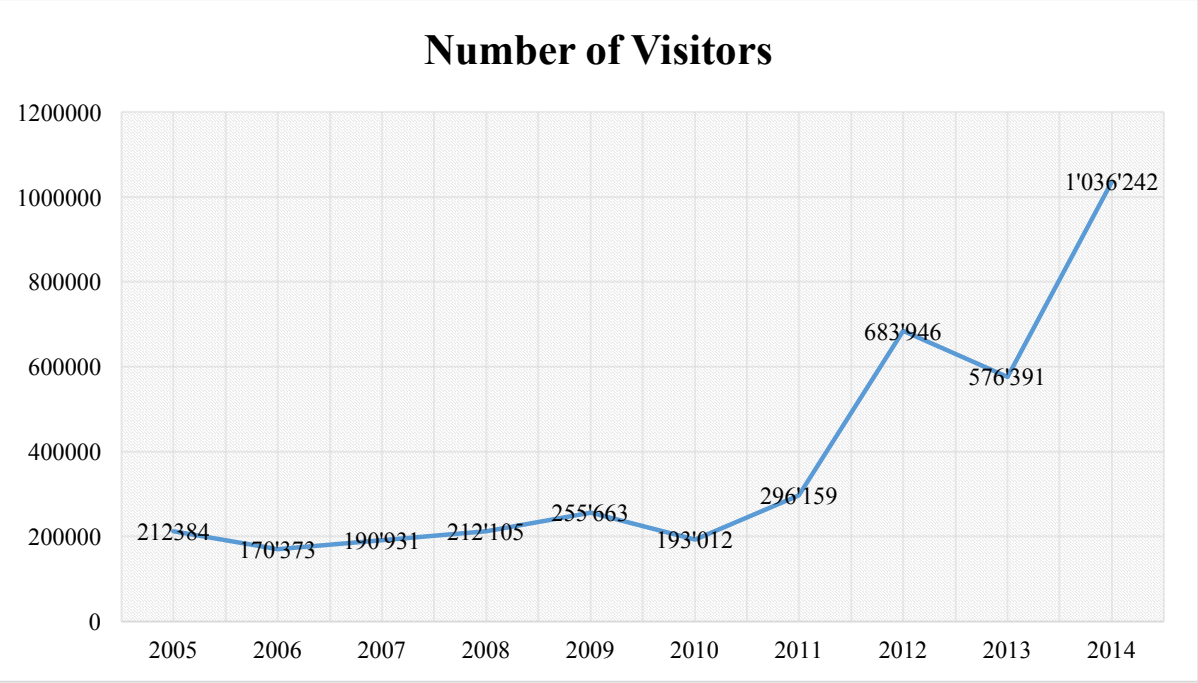
6.1.1 General Findings

FRIM, clearly is a very popular park in Klang Valley. Alone from 2011 to 2012 the number of visitor has more than doubled. In 2011 the total number of visitors, including pass owners, official visitors and visitors was 296,159. In 2012 the number raised to 683,946. In 2014 the number of visitors has raised to 1,036,242 visitors (FRIM figure). This is the highest number reached. Due to its proximity to Kuala Lumpur FRIM attracts a lot of people.

Table 4: Visitors in FRIM (2005- 2014)

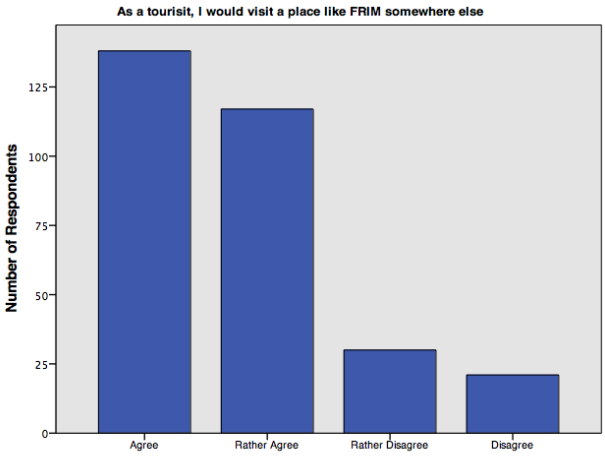
Year	Number of Visitors*
2005	212,384
2006	170'373
2007	190'931
2008	212'105
2009	255'663
2010	193'012
2011	296'159
2012	683'946
2013	576'391
2014	1'036'242

Table 5: Visitors Counted (2005- 2014)



The concept of the park meets many desires and a whole range of people feel comfortable and are able to do their favourite activity. FRIM study shows that there are a lot of people who find FRIM attractive for its accessibility and availability in addition to the natural experience people can get (). The figures of this thesis' research show that 83 percent of the people would visit a place like FRIM if they were a tourist. This shows that people think FRIM also is a very attractive place to visit as a tourist. However most of the respondents in the survey were locals, living in the state Selangor. In Klang Valley, where most of the visitors live, there is no such place as FRIM. This uniqueness is also a reason why FRIM has become such an attractive place. People from the city and from nearby can come here in a short time (NN, 18.01.2016). 96.9 percent of the visitors live in the states Selangor and Kuala Lumpur. Less than three percent of the visitors have been international tourists during the survey. However, for many visitors it is clear, that they would like to visit a place like FRIM in another country or as a tourist in general. The table below shows that the majority would definitely visit an area or a park like FRIM and a really great part would probably visit such an area.

Table 6: Diagram on the question if people would visit a place like FRIM as a tourist



In general, the survey showed that many people indeed felt that FRIM is generally crowded. 22 percent of the interviewees answered they think FRIM is crowded. In addition to those people who said rather yes, which were 51 percent, 73 percent of the people at least notice some social crowding in FRIM. A small percentage of 10.7 even thinks there are too many visitors. And in total, only 24.6 percent of the people thought there are few or rather few people in FRIM. People were asked what they think about limiting the number of visitors either in order to protect the

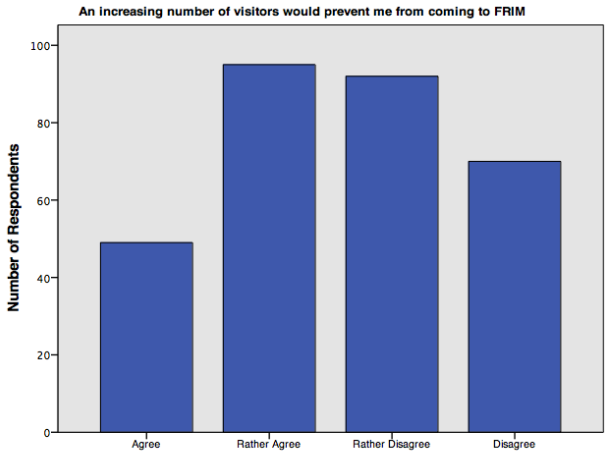
environment or in favour of people who come for educational reasons. Many visitors were not convinced by the idea of limiting the number of visitors. Although, over a third of the visitors, 33.1 percent would rather agree on the questions, if terms of the environment.

Even though many people would say FRIM is crowded or rather crowded, a little more than half of the visitors interviewed would still say that an increasing number of visitors would not prevent them from coming to FRIM. 47.1 percent of the visitors would rather or definitely avoid FRIM if the number of visitors continues to increase and stop coming to FRIM.

Table 7: Table on the question if people would visit a place like FRIM as a tourist

	Frequency	**Valid Percentage**	**Cumulative Percentage**
Agree	49	16	16
Rather Agree	95	31	47.1
Rather Disagree	92	30.1	77.1
Disagree	70	22.9	100.0
Sum	306	100.0	

Table 8: Diagram on the question if an increasing number of visitors would prevent the visitors from coming to FRIM



6.1.2 Publicity and Popularity

The Cooperate Communication Unit, CCU, has done a lot of publicity during the last few years. There have been TV stations, who used the location for their programs and FRIM has become a very popular place for local and international tourists. People started to value FRIM for its recreational and health benefits and its benefits to the community. Increasing awareness of the environment and a growing urban population meets the desire for refugee in a natural environment such as a recreation park. Along with that, there has been a growing interest in health and outdoor activities (AN, 26.01.2016). The publicity has been done in local newspaper and through FRIM's website and Facebook profile. However, a lot of publicity has been done without FRIM setting it up. People started to share their experiences with friends and family and a lot of people state they know about FRIM from somebody they knew (AN, 26.01.2016). Also a lot of people share their experiences through their personal Facebook profile. This kind of publicity can whatsoever lead to a spreading of wrong or unfortunate information. For example, can information on how to get to some unofficial trails be distributed without FRIM being able to stop that (AN, 26.01.2016). Almost 75 percent of the visitors are 50 and below years old and almost 50 percent are even younger than 35 years. Those people generally belong to the generation who uses Facebook rather frequently and is familiar with it. Most of the experiences shared through Facebook are positive. But there are also descriptions of people who start to create a bad image, and who express their unhappiness about certain things that way. If the local newspaper or other media report any negative and unfortunate news about FRIM it is very important also to react to this kind of publicity, as the media officer tells me.

> *"Keeping quiet is not an option."* (AN, 26.01.2016).

The media officer channels the information and management decisions and provides the information that people need. To FRIM it is also crucial to inform the public about any changes moths ahead, if possible. At least three months (AN, 26.01.2016). Depending on the issue, this happens through their website and Facebook mainly. By giving the reasons why certain changes occur, for example why they decide to close some trails, people can accept those changes better and are prepared for it. However, some people would still protest and not comply (AN, 26.01.2016).

6.1.3 Nature Trails

As already mentioned, some of the measures FRIM has taken to countermeasure trail overutilization, are the temporary closure of those trails. During a certain period of time, the trails are not open to the public and this allows the trail to recover. The pre- test, included a question whether Even through the sample for the pre- test was very small, it can be said that people seem to be informed about those kind of things. When it comes to nature trails, there are various points that worry FRIM. One point is the using of unofficial trails and people getting lost in the forest (NN, 18.01.2016). One- Stop- Centre regularly has problems with people passing and going to the trails without hiring a nature guide. Also there are some other entrances to FRIM which they cannot control and people get in through those unofficial paths (NN, 18.01.2016). Along with the problem refuse to hire a nature guide it also happens that the groups of people who enter a trail often are too large. For example, on the cycling paths, no more than ten people are allowed, but this number gets exceeded (TLL, 29.01.2016). Due to that, the trails have widened enormously.

> *"Even the cars can enter."* (TLL, 29.01.2016).

Signatures and information provided does not stop people from using the trails as they wish. Often people complain about the payment for a nature guide and they go public with such incidences, which created a bad image (TLL, 29.01.2016). Another point that was mentioned in two interviews was the fact that there have been several cases where people would pull out certain plants or medical herbs of high value (TLL, 29.01.2016). Another issue with nature trails are the fact that there are cased where visitors have been caught having a barbeque in the forest. Barbeques are not allowed and everybody can read that in the rules and regulations. Some of the trees near that barbeque spot get seriously damaged because of the fire, that is why barbeques are not allowed.

Another main challenge when talking about the nature trails is, the simultaneous use of the tails by different types of athletes. Trails are actually assigned to a certain type of sport. For example mountainbiking, which has four trails available. Joggers often complain at the One- Stop- Centre about the mountainbikers on the jogging and walking trails. Some of the visitors feel less safe nature trails with the mountainbikers around. The rangers, who would like to stop the mountainbikers, often have difficulties to stop the them or take a picture because they cycle really fast (TLL, 29.01.2016). At the time of the study, the Rover track, which is famous for mountainbiking has been closed and for that reasons mountainbikers had to use alternative trails. So other ones would get more contested.

6.1.4 Visitor's Motivation

Visitor's motivation to visit FRIM sometimes contradicts with the idea behind opening the park to the public. FRIM wants to offer a place where people can come and feel comfortable. Also, due to its scientific background FRIM intends to offer people a place where they can learn about environment and forestry. Many nature trails contain descriptions on plants and trees and are designed in a thematic way. Most visitors who come to FRIM on a regular basis can be said to be nature lovers. Many people come for their physical exercise, but spending time in the forest and natural environment really is a great factor why people come. However, even though people value the natural environment and are sensitive to a decrease in the natural condition of the park, the primary reason is the exercise they do for themselves. Norhayati Nordin expressed this in the following way

> *"They think they are nature lovers. They think they are. But to me, if you're a nature lover you would respect the authorities who are in charge."*
> (NN, 18.01.2016).

This kind of issue was taken up in all the expert interviews. In the media office this was expressed in as being a pleasure- driven way of using the environment.

> *"Most people do not care what happens to the environment. It's a very much pleasure- driven kind of, get the exercise for yourself.*"
> (AN, 26.01.2016).

Also in One- Stop- Centre, the staff has the impression that people primarily take care about their own pleasure and not about the nature.

> *"But when the public enters, they don't care about the trees and the plants."*
> (TLL, 29.01.2016)

Nevertheless, people actually state that education is important to them when they visit FRIM. 78.4 percent of the visitors say that education is important or even very important to them. Being in the forest or nature was considered to be important or very important by 95.4 percent of the visitors. The figures show that to visitors tranquillity, recreation and being in the forest or nature has the highest priority in their visit. Those are the things that were considered to be important or very important by 97.3 percent of the people for tranquillity, by 96.9 percent of the people for recreation and by 95.4 percent of the people for being in the forest or nature. To many people exercise means recreation. They strongly connect natural environment and being

in nature to recreation. Also spending time with friends and family often is a part of their personal description of "recreation".

6.2 Crowding Perceptions

6.2.1 Personal Characteristics

The figures show that crowding perception does not differ a lot between women and men. Most of the people answered they feel there are rather many people in their environment. Between 59,2 and 69.3 percent. Women might tend to feel FRIM to be a bit more crowded, but not significantly. Only 8.7 percent of the women and 13.3 percent of the men answered there were too many visitors in FRIM.

Education has also been taken as a factor that could influence crowding perception. The level of education has been categorized in primary education, secondary education and tertiary education. The group of the secondary education level consists of many various diplomas. The tertiary education group consists of

"Degree", "University", "Diploma" and "College". The group with primary education is represented by eleven people only. Therefore, it might be not possible to reasonably compare this group to the others.

Table 9: Legend of categorized Level of Education

Primary Education Level	UPSR
Secondary Education Level	Matriculation, Form 3, Form 5, Form 6, A Levels, High School, STPM, SPM, IGCSE, MCE (Malaysian Certificate of Education), PT 3
Tertiary Education Level	Degree, University, Diploma, College

The analysis tells that the distribution of answers given among the secondary and tertiary educated people is relatively similar. Both groups show a high percentage of people thinking there are rather many (60.0 percent for secondary education level and 70.9 percent for tertiary education level) or too many people around them (14.2 percent and 7.9 percent). Accordingly, they also answered they would rather not or not feel distracted by other people. 44.5 percent for

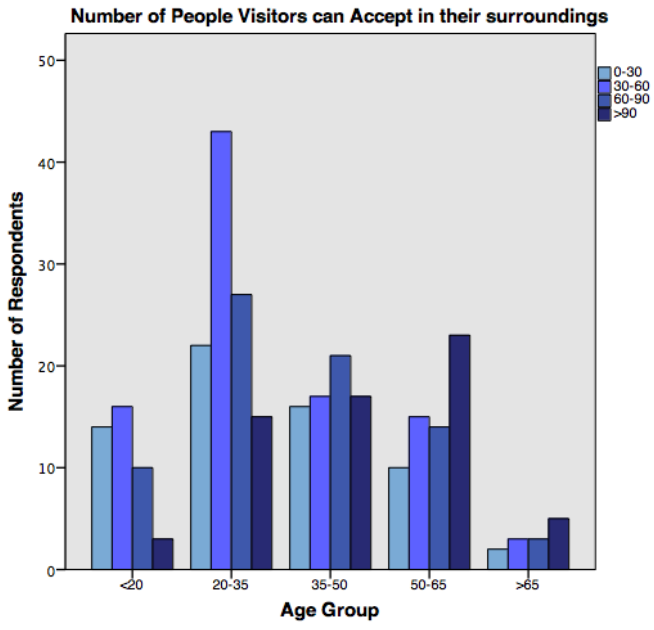
secondary education and 41.1 percent for tertiary education. 39.5 percent for secondary education level and 29.8 percent for tertiary education level even say “no”, they feel not distracted at all.

6.2.2 Age

Among the age groups, the crowding perception differs, but there is no clear tendency visible. The middle- aged people, so the ones in the age groups 21-35 and 36- 50 and but also the older ones from 51-65 years were those who felt it was crowded most. In addition to that general view, one question in the survey was concerned with the number of people one can accept in their surroundings to still enjoy their activity and stay. Generally, most people answered 30 to 60 people. Second most, 25.7 percent of the people answered they could accept 60 to 90 people. Almost as many though, answered only zero to 30 people (21.3 percent) or more than 90 people (21.3 percent) were acceptable.

Considering the age groups in this questions, a tendency in the distribution of the answers becomes visible. The younger the people, the less people they could accept in their surroundings. Elderly people were more tolerant in that aspect. 37.1 of the age group 50 to 65 and 38.5 percent of the age group > 65 could accept more than 90 people in their surrounding and still enjoy their activity and stay. The younger people more often stated they could accept 0 to 30 or 30 to 60 people in their surroundings.

Table 10: Number of People Visitors can Accept in their Surroundings

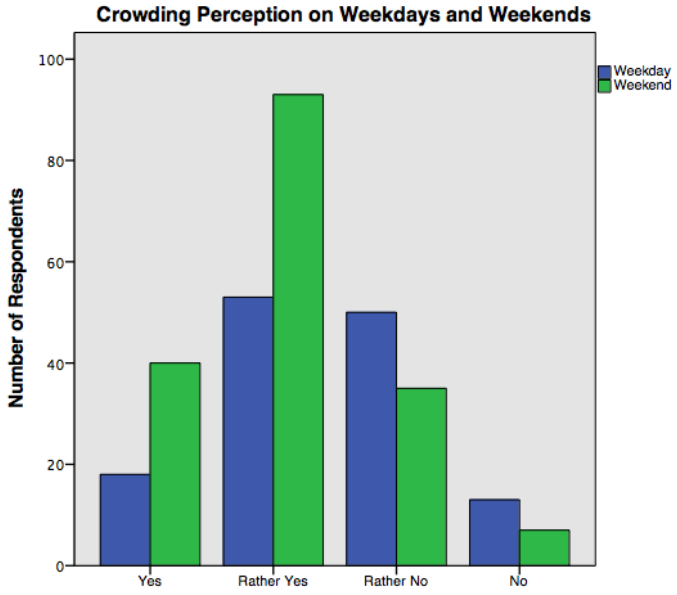


The table shows the distribution of answers among age groups. The age group > 65 was represented by a few people only, but there still is a tendency visible in the table.

6.2.3 Time and Past on- site Experience

The data of the survey has shown that there are significant differences in crowding perceptions on weekends and on weekdays. While, during the weekdays, 13.4 percent of the respondents felt FRIM was crowded, during the weekend the percentage of people who answered they felt FRIM was crowded, was 22.9 percent. The percentage of the respondents who stated they felt FRIM was rather crowded was 39.6 percent on weekdays and 53.1 percent on weekends.

Table 11: Crowding Perceptions on Weekdays and Weekends

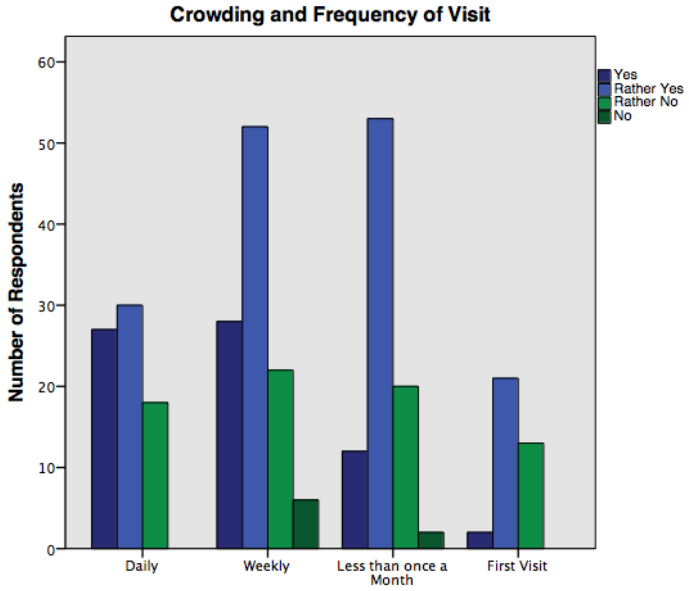


The table shows the distributions of answers on the question, how crowded people felt on the day the interview was taken. Since the survey was not equally distributed, the weekend displays a greater number of people. They represent around two third of the survey's participants.

The frequency of visits seemed to play a more important role in crowding perceptions than the length of the say. Visitors who come on a frequent, regular basis, like daily or weekly reported they think FRIM generally is very crowded. Almost 80 percent of the people who answered

FRIM is crowded are from those two groups, the daily and weekly visitors. People who visited FRIM for their first time most often answered they think FRIM is rather crowded.

Table 12: Diagram on the question if people think it is crowded (yes- rather yes- rather no- no) in comparison to the frequency of visit

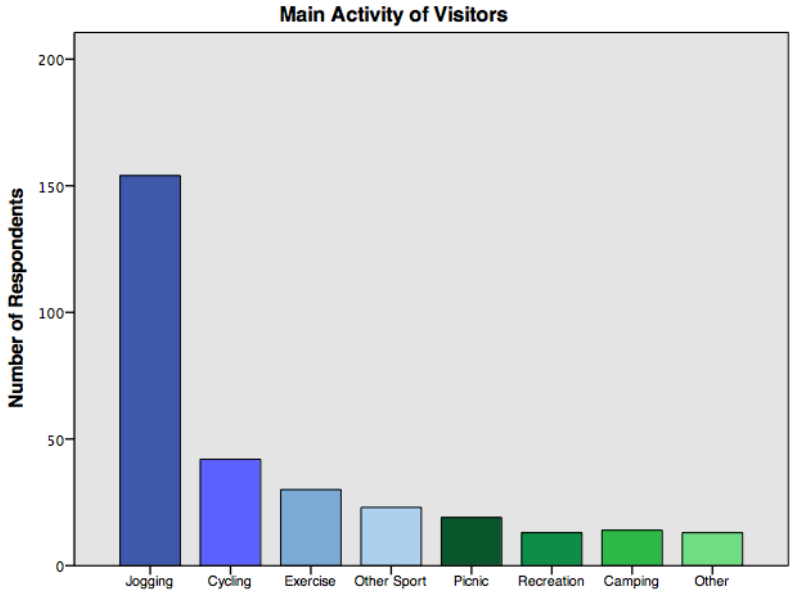


The company that accompanies someone does not seem to be the influencing a person's crowding perceptions as well. Most respondents gave similar answers. Approximately 60- 65 percent of the respondents answered they feel there are rather many visitors around them. People who came alone or with family were a little more prone to say they feel there are too many people around them than people who came with friends or in another kind of group.

6.2.4 Activity and Crowding

The vast majority of visitor named jogging or other walking activity such as brisk walk or hiking as their main activity. Those walking activities were categorized in one group. The second most practiced sport is cycling. Together with other kinds of sports and exercise, athletes make up 80.8 percent of the visitors.

Table 13: Main Activities of Visitors



The data of the survey show that crowding perception of people differs a lot, depending on the type of activities that is practice by somebody. Generally, those visitors who mainly come for sport activities tend to perceive FRIM as crowded or rather crowded. Around 80 percent of those people felt there were rather many or too many visitors around them. Those who came for more tranquil activities such as recreation and camping did not seem to perceive FRIM as crowded as the other types of visitors. On the question, whether they felt distracted by other visitors, the people who come for picnic answered yes or rather yes most frequently. Second most were the people who belong to the category "other sports" that include for example tennis, football, climbing and third most the cyclists. Least distracted felt the campers and the people from the category "jogging".

6.2.5 Perception of other Groups

The results reveal that perception of other groups (main activity) depends a lot on a person's own activity. There are for example great differences between different types of athletes and other groups of people are perceived differently among the other groups as well. The number of joggers for example is perceived to be rather high or too high by joggers and mountainbikers equally. 62.7 of the joggers and 61 percent of mountainbikers felt there are rather many joggers in FRIM and 22.7 percent of the joggers and 26.8 percent of the mountainbikers felt there are even too many joggers in FRIM. For the mountainbikers, the figures look a bit different. 35.3

percent of the joggers and 56.1 percent of the mountainbikers feel there are rather many mountainbikers around. 7.3 percent of the joggers and 12.2 percent of the mountainbikers respectively think there are too many mountainbikers. The mountainbikers definitely feel the presence of other mountainbikers more than joggers do for example. People having picnics and families however equally feel that there are rather many or too many other people having picnics and families around. 63.2 percent and 15.8 percent respectively. However, also people having picnics and other groups feel there are many or too many mountainbikers and joggers. On the other hand, 10 percent of the joggers and of the mountainbikers answered there are too many people having picnics and families in their view. This perhaps shows to some degree that people feel the presence of people doing the same activities more intensely than they feel the presence of people doing something completely different. For the joggers and mountainbikers, it can be assumed that they clearly feel the presence of the other group perhaps because they often use the same trails and have more interference with each other than with other groups.

6.2.6 Variations between Areas

While jogging and cycling are the most popular activities, the nature trails, Kepong Botanic Garden, Picnic area and the canopy walkway are the most popular places in FRIM. Canopy walkway and Perah Camp site are very popular especially during the weekends. In fact, especially the nature trails, Kepong Botanic Garden and Picnic area are the most contested places also according to the experts. There are different kinds of problems occurring on in those areas. As described above, the on the nature trails the rangers and scientists in FRIM observe a lot of damage and conflicts between the users while in the Picnic area for example noise can be a problem.

In the different areas distributed around the campus, in Perah Camp site or NEC area the people felt least crowded. In Kepong Botanic Garden was the highest amount of people who answered they felt there were many or rather many people around them. Kepong Botanic Garden, Picnic area and also to some extent Canopy walkway were the areas that were considered used to capacity and even crowded by all kinds of visitors. Nature trails and Perah Camp site/ NEC were on average considered used to capacity.

Table 14- 16: Popularity of Places

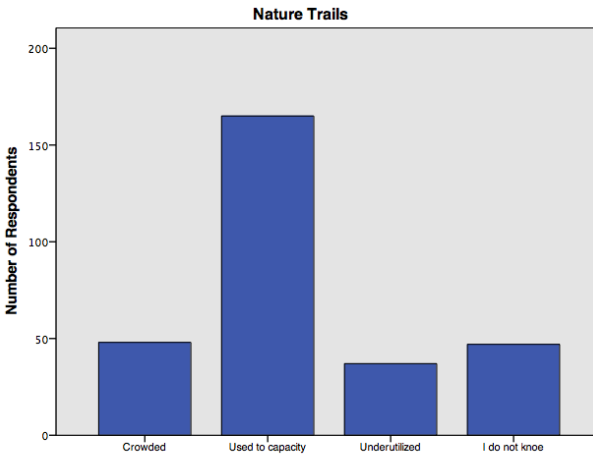


Table 14

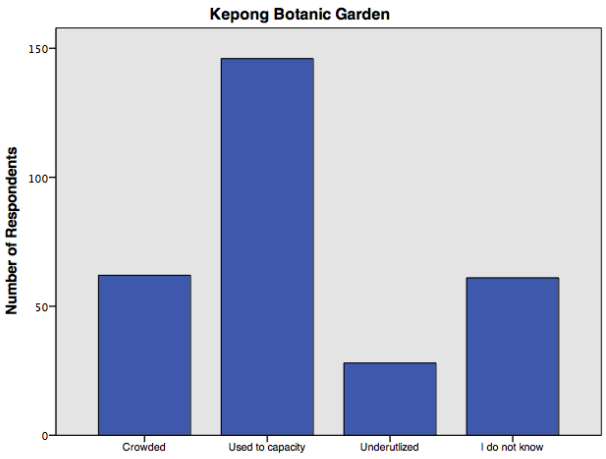


Table 15

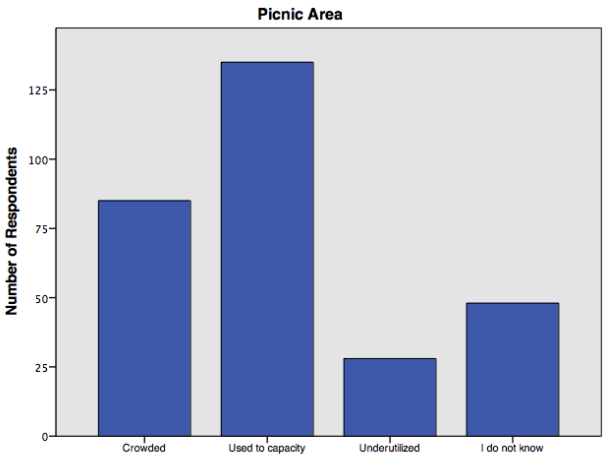


Table 16

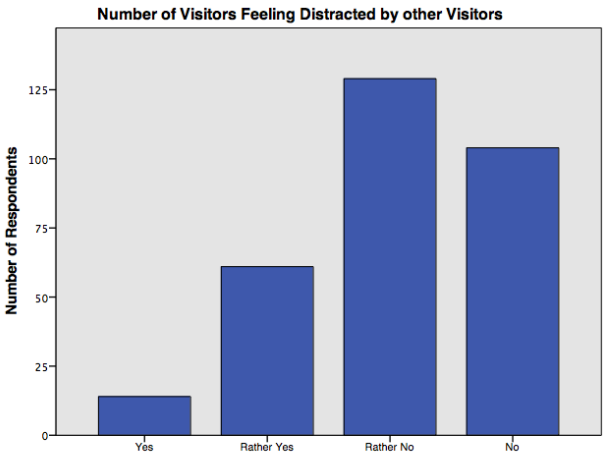
In the area of Nature Education Centre there are trails that are used mainly by visitors who come for an event at NEC. In the area of Rover track, they have a small trail that is only used for groups who visit NEC. As my interview partner from NEC told me, those trails are not overutilized. She feels they have rather few visitors at NEC and still capacity to invite more people. To NEC the number of visitors is also very crucial for their finance. To them, it is rather bad if they have to cancel events, since this leads to deficits in the budget. Bad or really hot weather can lead to cancelling programs. Most programs take place during school holidays, since activities and camps organized by NEC address children or young adults. The average number of participants varies between ten and 15 children. The problem is the lack of promotion for those camps and programs and the lack of money to pay for promotion. In addition, my interviewee feels that for example parents, who are not connected to nature and activities in

nature, are less likely to send their children in nature education camp, which also results in a low number of participants (Z, 20.01.2016).

6.3 Reasons for Distraction

In the survey, I tried to approach the question on what distracts people most and investigate what role crowding plays in the distraction of the people. The question followed the questions on crowding perception and even though some people would say FRIM is crowded, the table below shows that not many people actually feel distracted by the presence of other people and groups.

Table 17: Number of Visitors Feeling Distracted by other Visitors



6.3. 1 Activity and Distraction

Following the questions about general crowding perceptions in FRIM, was a question asking for reasons for distraction. Initially, this question was a follow- up based on the question whether other people or groups of people distract someone from having an enjoyable stay in FRIM. However, the question has also been filled in by people who actually answered no or rather no on this question. This shows a bit that even though, generally, some people did not feel disturbed by other people but they still had some points bothering them. The most frequent reason for feeling disturbed was the lack of parking space. This is followed by littering, lack of

space (crowding) and noise. Fewer people named destruction of paths, damage on plants and loss of wildlife as a reason for feeling destructed.

Table 18: List of Reasons for Distraction and Number of Responses

	Number of Responses (N)
Lack of space	43
Noise	40
Littering	46
Lack of parking space	58
Loss of wildlife	16
Damage on plants	30
Destruction of paths and trails	30
Effect on water	12

6.3.2 Age and Distraction

In terms of what destructs people most, the results reveal that there are some differences between age groups. The older generation is most sensitive to noise and also a little on lack of parking space. The younger generation are more concerned about loss of wildlife, damage on plants and destruction of paths as well as littering. 50 percent of the people who saw littering as a problem belong to the age between 20 and 35. This age group as well as the group from 35- 50 years belong to those people who answered the question on reasons for distraction most frequently in the first place. This shows that those groups seem to be the ones, that are most concerned with the effects of visitor's activities on the natural environment. The youngest age group, was most concerned with littering as well as with lack of space or crowding and named those most often.

6.3.3 Coping Behaviour

68.5 percent of all visitors interviewed reported to never have taken any measures to avoid crowding. However, if any measure to avoid crowding is taken, most often it is coming at

another time of the day or on other days. 78.3 percent say they would come at other times or days to avoid crowding. Some people added that they would come in the early mornings. Few people, including two of my interview partners also would say they avoid FRIM at the day when there is free entry or on family days (N. and S.). Coping behaviour varies a little between the age group. From the younger people, the ones younger than 20 years, 20- 35 years and the ones between 35 and 50 around a third of the people have ever taken any measures to avoid crowding. Among the elder people there were 27.4 percent for the group of people aged 50- 65 and 14.3 percent for the group of people 65 and older who had ever taken any measures. Measures to avoid crowding also seem to be taken by men more frequently than by women. 54.2 percent of the men and 45.8 percent of the women said they have taken measures before.

6.4 Willingness to pay

The balance between conservation the natural environment and making the park available for the public has been an issue to FRIM for some time now. Opening FRIM to the public also means to let go of control and to hand over some responsibility to the visitors. Unfortunately, as described already, visitors do not always behave as respectful as desired. In the course of my stay and along with that issue, the idea of introducing an area where only a limited number of people is allowed to enter has been an issue as well. The idea is to ask for an entrance fee to this area, in order to control the amount of people entering that area and therefore make sure it is not overutilized and can be held in a steady intact condition. To investigate, whether people would be willing to pay to enter such an area if there was one, the survey included a question on willingness to pay and also one on how much they would pay. 263 of 310 participants answered this question and the figures show that from 263 out of 310 almost half of the participants, namely 44.1 percent would be willing to pay an entrance fee to a separate area that is less crowded. It can be assumed that the participants who did not answer the question probably would not be willing to pay, but it is best to let this open.

Table 19: Entrance Fee Paid this Day

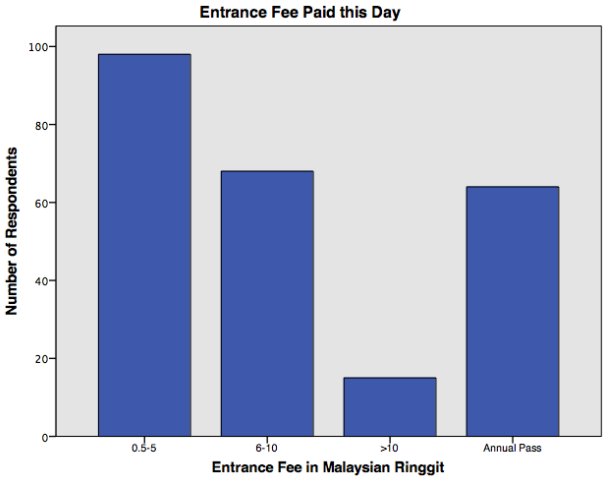
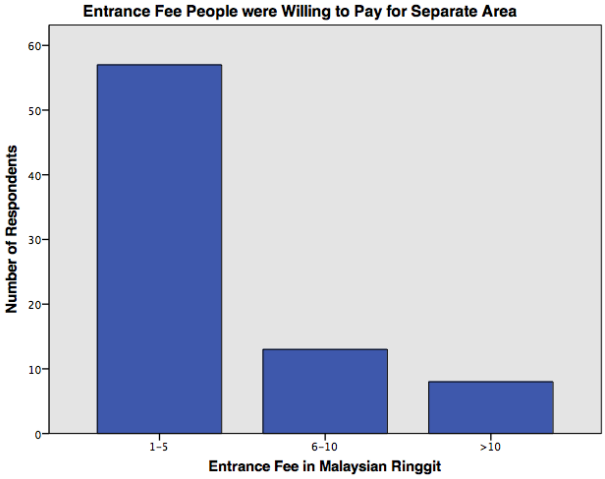


Table 20: Entrance Fee People were Willing to Pay for a Separate Area (Categorized)



The two tables above show, that most people currently pay 0.5 to five Malaysian Ringgit for the entrance fee. A lot of people, 26.1 percent, also own an Annual Pass. From those 44.1 percent of the people who would pay to enter a separate area, most would pay something between one and five Malaysian Ringgit. There were around seven people who would be willing to pay a multiple of the current entrance fee. The highest amount a person wrote down was 50 Malaysian Ringgit. But the ones who are in the category > 10, all would either pay ten, 20, 30 or 40 Malaysian Ringgit.

Following that finding, I analysed whether those people who would be willing to pay also were the ones who felt FRIM is crowded and there are too many or rather many people around.

Interestingly, from those people who felt there are too many other visitors around them, more than twice as many would not pay not enter a separate area. Only seven people would be willing to pay and think there are too many visitors around. On the other hand, 72.2 percent of the people who are willing to pay also think there are rather many visitors around. Expressed in numbers, out of 115 people who are willing to pay, 90 people actually felt there are too many or rather many people around. On the other hand, there are 111 out of 147 people who felt there are many or rather many people around them in the group of people that is not willing to pay.

Almost 30 percent of the people who are not willing to pay would say FRIM is definitely crowded. Only half as many, who though that way as well, would be willing to pay.

This analysis shows that crowding perception does not ultimately lead to a willingness to pay. In the following, I was wondering what might be the most frequently picked reason for being willing to pay. Again I was looking at the questions where different reasons for destruction were listed and compared this to the question on willingness to pay. The cases where more people from the group "willing to pay" considered a reason of distraction were the following:

- Lack of space
- Noise
- Loss of wildlife
- Damage on plants
- Effects on water

On the other hand, people of the group "not willing to pay" would rather answer that

- Littering
- Lack of parking space
- Destruction of paths

were the reasons for destruction to them. This question was a multiple choice question. Therefor it is not possible to exclude overlapping. Nevertheless, to people who would pay to enter a separate area, it would probably be most important that this area is less crowded and less noisy as well as in good natural condition. The problem that exists in steering visitor flows through

money is that it is in favour for those who can afford it. It is in a way discriminating for those people who would not like to pay more. This also was an issue in one of the expert interviews.

"Once you open, it's all." (NN, 18.01.2016)

So according to the figures, people who feel crowding is a problem are not necessarily the ones who would pay to enter a separate area with less people. The amount of people who really takes measures to avoid crowding is 31.5 percent. The most frequent way to avoid crowding is to come at other times or on other days as already mentioned.

6.5 Summary

The analysis of the interviews and survey questionnaire have shown that several issues seem to be of special importance to the staff and also to the visitors. Generally, survey's results are quite similar to the survey on recreational forests by Norhuzailin and Norsidah, that was presented in the research context. To people a healthy and tidied environment is really important. This is why littering has been named as a reason for distraction by many people. A lack of parking space and even a lack of facilities can influence the enjoyment of the visitors negatively. Crowding also has been one of the reasons for distraction. However, many people state that an increase in the number of visitors at FRIM would not prevent them from coming. The results also have shown that different areas in FRIM are affected differently by crowding. Among the most popular and also most contested places are Kepong Botanic Garden, nature trails and Picnic Area. On nature trails there are various issues arising, and the experts are very worried about some of the impacts, like widening of the trails. The results also could show that crowding perception differs among the visitors and depends mainly on past on- site experience, activity and age. FRIM is visited by rather young people between 20 and 35 or 35 between 35 to 50 years. The second youngest and the youngest age groups have shown to be ones most concerned with visitor's impacts on the environment.

7. Discussion and Evaluation

The following chapter addresses certain aspects of the findings and discusses them with respect to the study FRIM has done and with respect to the state of the art. Also the chapter evaluates the findings and sets them in relation to the scientific motivation and gives recommendations.

The central questions that were approached by the survey and interviews are

- How does the present crowding situation in FRIM look like?
- Do social crowding perceptions differ among different types of visitors?
- In what ways is social crowding related to other problems at FRIM?
- How much social crowding is acceptable in FRIM according to the visitors and the staff/experts?
- What are the consequences of crowding and how could FRIM be dealing with it?
- What results can be meaningful for other studies in similar research areas?

7.1 Assessing Social Crowding

When FRIM set up their study to investigate visitor's perception of FRIM as an urban open space, one of the main findings was that crowding is an issue for many visitors and that crowding was named as a reason to stop coming to FRIM in the future. The study that has been set up by FRIM and the University of Zurich aimed at further investigating that issue and get a more diversified image. Therefore, the results of this study will be discussed with respect to FRIM's study first. FRIM found that a lot of publicity about FRIM came from the visitors themselves through word- of- mouth. Many people stated they knew about FRIM from friends and family. Advices and sharing experiences on Facebook has become hugely popular and is a factor that led to more visitors. People also felt that people who do not visit FRIM, might just do not know about it or do not know it is open for public. So in addition to FRIM promoting the park and attractions, this kind of publicity has had a huge impact on the number of visitors and thus on crowding. Furthermore, people also share a lot of their tips and knowledge on

Facebook. That way, tips about nice trails and spots can be spread. However, this can also become problematic, as also negative incidents and conflicts with the staff is displayed that way, which can lead to a negative image of FRIM.

FRIM is generally seen as a place for nature- lovers and people who enjoy being in a natural environment. This can be told by the results of both studies. Physical activities such as exercising is the primary reason why people visit FRIM. Accessibility, availability of nature experiences and physical facilities also belong the reasons why FRIM attracts so many people. The survey of FRIM indicated that there are many visitors who come the first time but also many who visit the place once or twice a week. In this research however I found out, that there are many people who visit FRIM on a daily or weekly basis. 24 percent of the visitors visit FRIM daily. The frequency of visits actually was found to be influencing crowding perception. Past on- site experience was discussed in the literature as well and was indeed found to be an influencing factor. Arnberger and Brandenburg found that people with more on- site experiences reported greater crowding perceptions (2007: 35). This could also be observed in FRIM. People who reported to come daily or weekly were the ones that felt FRIM was most crowded.

Forest- related facilities, the camp site and general facilities are utilized most often. According to my study, nature trails as well as Kepong Botanic Garden, Picnic area and Canopy Walkway were among the most popular places and also the ones where the conflict potential was the highest according to visitors and staff.

Many personal characteristics such as gender or the highest level of education did not play a high role in crowding perceptions. However, the age seemed to have influence on crowding perceptions in general as well as on coping behaviour. Also did people from different age groups named different reasons for distraction. That age plays a role in preferences and that age determines sensitivity towards certain external distracting factors is coherent with the findings presented by Arne Arnberger, who analyses how age determined recreation preferences and behaviour. His study was set up in green urban spaces in Vienna. He found that littering and the number of visitors had the highest influence on trails preferences across the age groups (Arnberger and Eder 2011: 891).

Arnberger and Eder argue that the older generations are sensitive to things like littering, dog mess and aggressive visitor behaviours and cyclists who do not pay attention to others and therefore threat their security. The younger people aged 25 and below were in contrast more concerned with environmental issues and unhealthy air, traffic noise and lack of cycle paths (Arnberger and Eder 2011: 893). This is a result that actually is similar to what could be found in FRIM. In the case of FRIM, the elderly people were more concerned with noise and perhaps lack of parking space. The younger generation in contrast more often found that loss of wildlife, damage on plants and destruction of paths but also littering is a problem and was considered disturbing. Also the youngest age group was more often concerned with environmental issues than for example the oldest one. Littering and lack of space were the most disturbing factors to the young. In Arnberger and Eder's study, the youngest quartile, with people aged 13 to 29 years, and the quartile with people aged 30–43 years both preferred uncrowded, litter-, dog- and vandalism-free trails. The next older quartile that ranged from people aged 44–59 years preferred dog-free and uncrowded trails as well, but they often preferred if the trail has not been completely unused. The oldest quartile liked trails with medium use levels and without dogs. In addition to that, they disliked littering but also extremely high use levels and they did not like too many cyclists. So in this setting the most disturbing factors were crowding and littering for the youngest two age groups. Older aged people accepted a higher number of people present in their environment. In FRIM, it was also the younger people who reacted more sensitive towards crowding and especially littering. The young and middle aged people were also the ones who were most concerned impacts on the natural environment. It also is interesting to see that older people tend to accept more people in their environment. Many young people could accept 30- 60 or 0- 30 people. In FRIM the lack of parking space is a problem people from all age groups name.

7.2 Crowding Issues and Future Park Management

Holding (2001: 411) describes that due to the increased environmental impacts by car, measures against had to be found. He argues that most measures that have been proposed by public bodies have concentrated on promoting alternative means of transport and for example improved public transport or facilities for cycling or else they have concentrated on discouraging car use through either physical or financial measures. But experience shows that most forms of measures like promoting alternative ways of mobility have achieved only limited success (See: Holding and Kreutner, 1998) and that financial and physical measures even can raise political opposition and is hardly accepted (See: Holding, 1998; Cullinane, Cullinane, Fewings, and Southwell, 1996). However, the project of "gentle mobility" has been accepted very well and become very popular as a tourist resort.

7.2.1 Reasons for Distraction: Littering and Lack of Parking Place

The results reveal that crowding definitely is an issue to people but that being in the forest and natural environment contributes more to an enjoyable stay than crowding can distract. However, there have been a few disturbing factors that people have named. Most of them are man- made factors including noise, lack of space, littering and lack of parking space. In one of the expert interviews, it was mentioned that people have complained about the littering in the Picnic area especially. A lot of the mess there probably can be traced back to the monkeys who stay there, which is a problem that is hard for FRIM to approach. The trails and other areas in the park were taken care of well and there was not a lot of littering, as far as I can assess from my stay. But perhaps if littering really is considered a problem for staff and visitors both, a further study might be helpful to investigate, where the people find, littering occurs most often. Placing enough garbage cans along the roads certainly is a good way to approach the littering problem. Cars and a lack of parking space has been a serious problem to many people and also a great challenge to handle for FRIM. During my stay I

Image 3: Car Parking Space at Picnic Area (own picture)

observed that many people parked their car along the football field in the grass and I can confirm that parking has indeed been a bit of a problem. Also in the guesthouse area, people often parked on the grass areas instead of the parking space nearby. Perhaps crowding perceptions are actually being increased due to the presence of cars and traffic on the roads. Especially during big events when people arrive by car individually, parking space gets really contested.

Gentle mobility

In the campus there are parking spaces at Perah Camp site, in front of the FRIM Café and at the Picnic area as well as in front of the main entrance that the public can use. Another big parking area is in front of Kepong Botanic Garden. Many people however park their car along the roads or in front of the herbarium for example. This can be quite unfortunate for the scientists who work in the herbarium, as one of my interviewees told me, since the visitors are taking away parking space from the scientists and staff.

Image 4: Empty Car Parking Space in Front of the Guest House (own picture)

During my research and while I was writing this thesis a project called "Sanfte Mobilität" (in English: Gentle Mobility) came to my mind. This is a project where resorts in the Alpine region have joined a program to go car-free. The project has been set up by the EU Tourism Directorate in 1996/97 and included eleven locations in Austria, Germany and Italy (Holding 2001: 411). Also in Switzerland there are nine resorts in total that have taken on this concept. The common slogan of the locations was: "mobile even without your car". Vehicles were permitted in exceptional cases, for example for services on the local infrastructure (Holding 2001:412). If this concept was applied in FRIM, the exception could be applied to the staff for example. In a paper by David Holding visitor's attitudes and perceptions were investigated to see how popular this concept is among the visitors. And indeed, visitor satisfaction in Switzerland were well above average (Holding 2001:412). The car- free locations have become an attraction themselves. Also the intern transportation system, that have been either electromobiles or horse- drawn conveyances or

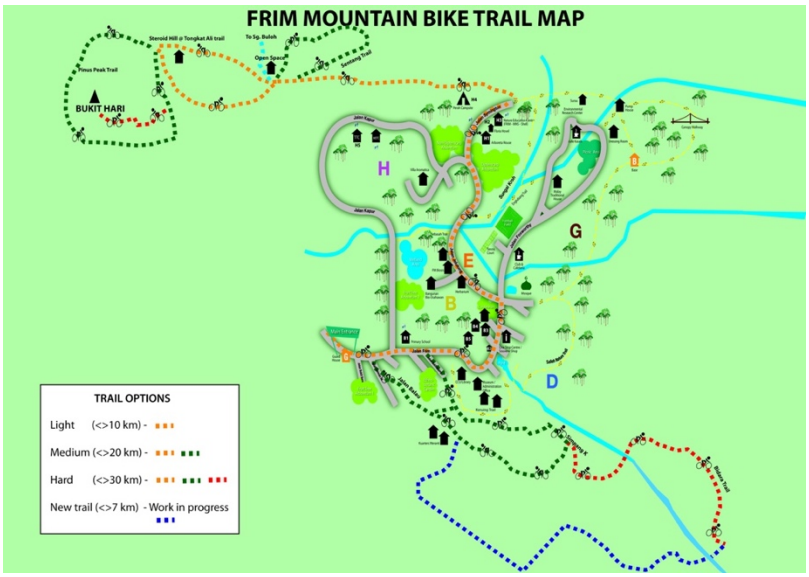
sledges in winter were kind of an attraction. Those electromobiles are for example also used to carry luggage or passengers. The author makes an important remark, namely that the character of a location is dynamic rather than static and that also visitor's attitudes, expectations and perceptions are not fixed and that people can get used to a new situation and also see the benefits (Holding 2001:411). A visitor survey with 217 usable answers showed that those "calmed" destinations can become a target market for themselves. Many people were attracted by the extensions of local calming measures. Car- free resorts can be a marketing strength rather than a weakness and perhaps attract a different kind of public (Holding 2001:412). In the survey, people were asked to rank some characteristics about the car- free spaces. The results show that there were four positive characteristics over two negative ones. The positive characteristics were better air quality, less noise, more room for pedestrians and protection of village structure and the negative characteristics were the difficulty with luggage and reduced mobility (Holding 2001:415).

I would argue that for FRIM this kind of concept could work as good as it does for the European locations. A tram and other attractions were requested by a number of visitors, as the study of FRIM reveals. Many people also stated that attractions are a reason for them to come to FRIM and that a lack of new attractions might prevent them from coming. Closure of facilities, increase in charges and an unhealthy natural condition were the other reasons for people to stop coming to FRIM, according to FRIM's survey. Sure, to make FRIM car- free is a rather drastic change. However, if FRIM introduces electromobiles to carry the visitors from the main entrance to the Picnic area or FRIM Café most people would be able to move by their own from there. Since there are many parking places at Picnic area and in front of FRIM Café, those probably are the places where people start their exercise anyway. Those kinds of vehicles can also be used to bring visitors to the Perah Camp site or to guest house. The distance from the entrance to the Café and Picnic area and also to the camp site is not too far by car. It is only a few minutes. The main challenge might be the parking space that had to be moved outside the park in front of the main entrance. To investigate if such a concept can be applied, some further investigations need to be made to assess whether it is possible to create enough parking space outside the campus or not. Also FRIM probably would need to check, if they could enhance public transport to FRIM from the railway station or any other location that is easily accessible for visitors.

7.2.2 Contested Areas: Nature Trails

Among the most contested areas were Kepong, Botanic Garden, Picnic Area and the nature tails. Most nature trials are used by different types of users who move at different speeds. Many complaints come from the joggers and hikers who complain about the mountainbikers who drive at very high speed and can really be a threat to their security. According to One- Stop-Centre, mountainbikers not only do use the same trails as joggers and hiker but also often go there in a large group. Actually FRIM allows a group of maximum ten people to enter the trail. However, this number often gets beyond what is permitted. So on the trails there is not only the problem of conflicts between types of visitors but also a kind of overutilization by the large groups that enter the trail. In the expert interviews, the hiring of a nature guide and the use of closed trails as well as creation of new unofficial trails by visitors were an issue. One of the main problems is the refusal to hire a nature guide because most probably people do not want to pay for it and so they just say they are short of money (TLL, 29.01.16).

Image 5: Mountainbike Trail Map



A way to overcome this problem and gain back the control on the trails and on the visitor behaviours on the trails would be to offer the nature guide for free to all the visitors. Obviously this means some decrease in income from that service and it would have to be discussed with the financial section at FRIM in order to decide whether FRIM is able to cover its costs without visitors hiring the nature guide. The positive effect of this would be, that FRIM would be able to monitor the visitors while they are on the trails and that visitors would be able to profit from an educated nature guide who can answer their questions. On the trail it has happened, that people would take herbs and medical plants that are precious without permission of course. Those kinds of acts could probably be reduced with a nature guide around. Also, the nature guide would be able to see whether there are mountainbikers on the jogger's trail and send them away.

Image 6: Picnic Area

Image 7: Picnic/ Waterfall Area

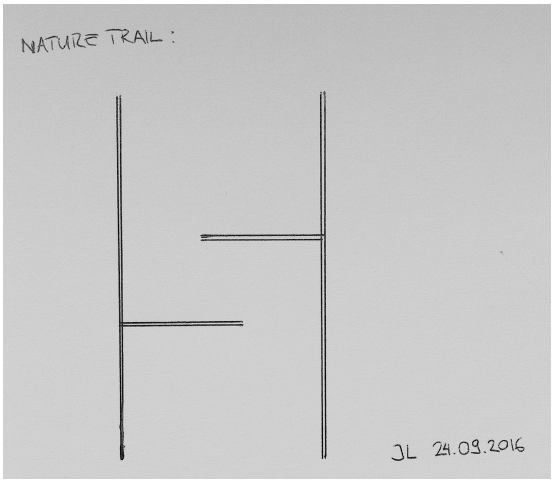
Image 8: Kepong Botanic Garden

7.2.3 Crowding and Activity

Especially the type of activity a person himself or herself does is perceived differently by him or her than by people doing something different. Visitors that have been using the park or the recreation site for a longer time, usually know the resource better and are more sensitive to crowding. Another striking point was that trail preferences depend a lot on the visitor's activity, Arnberger and Eder found in their study. Different athletes such as joggers and mountainbikers often move at different speeds. This fact contributes to the occurrence of conflicts between the trail users. This same result can also be found in FRIM. One of the interviewees and head of the One- Stop- Centre described this as well. One- Stop- Centre receives a lot of complaints from joggers, complaining about the mountainbikers. Mountainbikers often move very fast and use a lot of space on the trails because of their bicycles. On FRIM grounds there are specific trails indicated that are specially for cycling. However, often it happens that this trail is used by joggers as well, and that mountainbikers also use other trails than the cycling trail. To create different trails for the different activities is a good idea to approach the problem of people moving at different speeds. The strategy however depends on people who follow the rule and use the trails the way they are indicated.

As described by Holding, physical and financial measures tend to be a problematic and the chances people accept them are rather low. However, I present here a kind of a physical obstacle for the mountainbikers, that would be implemented on the jogger's trails.

Image 9: Sketch of a Nature trail with horizontal, overlapping obstacles



7.3 Entrance Fee Model

The survey showed that many people, 44 percent of those who answered the question, would be willing to pay more for an area that is less crowded. The results also show that it was not necessarily the people who felt FRIM was generally crowded who were the ones that would be willing to pay. Many of those people who answered they felt FRIM was crowded, would not be willing to pay more. Deriving from this result it can be assumed that it would actually be possible to steer crowding through prices to some degree.

Table 21: Amount of time spent at FRIM in a normal visit

	Frequency	Valid Percentage	Cumulative Percentage
Up to an hour	33	10.6	10.6
1- 2 hours	179	57.7	68.4
Up to half a day	70	22.6	91.0
The whole day	28	9.0	100.0
Sum	310	100.0	

The table above shows that most of the respondents stay at FRIM for a length of one to two hours. 20 percent of the visitors responded to stay in FRIM up to half a day normally. The table below shows that the majority of visitors stay at FRIM with their friends. Another high percentage, almost 30 percent stays with their family.

Table 22: Type of company a person usually accompanies

	Frequency	Valid Percentage	Cumulative Percentage
Alone	52	16.9	16.9
With family	104	33.9	50.8
With friends	126	41.1	91.9
Other kind of group	25	8.1	100.0
Sum	307	100.0	

In the following, I created some entrance fee model that might address some of the crowding. Steering through money can be expected to cause problems and reclamations by the visitors. Already now, people tend to complain about the money they have to pay to hire the nature guide if they go on the trails. Income generation is one of the most crucial issues in FRIM. In fact, in their strategic plan, FRIM lists various ways to generate income in the park:

- Increase income from **rental of properties** including equipment, machine, spaces and facilities
- Increase sale of products from both forestry and forest products output
- Increase revenue from technical services including products testing, consultation and technical advisory
- Maximise return on investment on available short term funds
- Increase income from **royalties, licenses and fees** (Strategic Plan 2011- 2020).

FRIM obviously does not depend on visitor's payment singularly. They also list other things like the increase sale of products from forestry and forest products in their income strategies. Nevertheless, fees and rental of properties certainly are part of the income strategies and should therefore be discussed. Entrance fees are very reasonable and are used to maintain facilities and cleanliness of the park as well as other services. Weddings and similar great events are an important source of income that should be maintained as well as the entrance fee. Steering visitor flow through money should be done in the fairest possible way and not in charge of people who cannot afford a higher price. Many people stay in FRIM half a day or less. 91 percent actually. Therefore, FRIM could apply a sort of divided paying system:

- People, how arrive in the morning would pay say 3.00 Malaysian Ringgit.
- If they leave before 2 p.m. they get back half of it, 1.50 Malaysian Ringgit.
- People who arrive after 2 p.m. pay 1.50 Malaysian Ringgit

That way, it is probable that many people would make sure to either come in the morning or in the afternoon and the number of visitors would be distributed throughout the day. It might be worth trying to investigate the times, when people arrive to check whether mornings and afternoons are more or less equally strong visited. If that is the case, this kind of entrance fee with a depot could work. If it was the case that there are far more people coming in the morning

than in the afternoon, this entrance fee system might not be the right thing. The surveys were conducted in the morning, but after staying in FRIM for two months, I can say that afternoons also can be quite busy. With this twofold paying system it is likely that many people would decide, if they would rather come in the morning or in the afternoon. And people who stay in FRIM for the whole day would accordingly pay two times the price of a visitor who comes for only half a day.

7.4 UNESCO World Heritage Status Goal

After this analysis of the surveys' and qualitative interview's results it is clear that a majority of people are young, active and appreciate FRIM as an urban open space where they can come and recreate and exercise. Also it has become clear that disregarding FRIM's rules and regulations can cause a lot of problems and lead to conflicts among visitor groups and between visitors and staff.

World Heritage Status as well as other sustainability and conversation goals are written in the Strategic Plan 2011- 2020. Ecotourism and urban forestry also mark goals in the Strategic Plan. To achieve those goals FRIM has to be conscious of its role in local recreation and its role as an urban open space. Also it is crucial to know what to offer the visitors and what kind of public FRIM aims to address. When I was talking to experts and staff, I had the impression that most of all, people who are willing to educate themselves and to learn are the public that FRIM is trying to address. In FRIM, most visitors are athletes. Only a low percentage comes for more tranquil activities. Megan Epler Wood for example writes that most ecotourists do not base their decisions on environmental conversation even though they are concerned about that (19). Maybe there also is a lack of consciousness among the tourists and visitors about their impact. Either way, Epler Wood argues that people need to take responsibility and make responsible travel choices or in FRIM choices about their activity. Therefore, it is crucial for managers to provide information for the public to make them more aware of their impacts. Perhaps if they saw the results coming from their activities they would accept FRIM's decisions to close nature trails better. Among the principles of ecotourism also is the principle to only use and rely on infrastructure that has been developed in harmony with the natural environment and minimizing the use of fossil fuels. Therefore I would argue that even though parking space for example is a problem, providing more facilities and more parking space is not a good solution contradicts

with those principles and also with the sustainable and conservational goals in FRIM. From that perspective, using only electromobiles in the park is certainly in line with those principles which is an argument in favour of the car- free park and perhaps also favours the UNESCO World Heritage Status.

7.5 Contribution to the Scientific Field of the Study

In this following paragraph the question what this case study can contribute to the scientific the field of social crowding is going to be discussed. In that respect the theoretical concept of social carrying capacity can be discussed and evaluated.

For the theoretical approach I situated this thesis in the scientific field of social crowding and in the field of ecotourism. In the scientific literature, social crowding perceptions were assessed in various environments and settings. Some research has been done in touristic sites and in protected areas. This has been done specially with respect to the topic of tourism and tourist management in protected areas. Other settings were urban parks and green spaces in Europe. Even more comparable are national parks and a diving site in Mabul Island in Malaysia. However, I found that, even though the settings varied a bit, the research objective has to some degree been comparable to mine, that is why those studies still have been of relevance to this research. In many cases, the aim was to find a balance between protecting the environment and minimizing the visitor's impacts while still providing the public a place where they can enjoy nature. An increased interest in outdoor activities and increased possibilities to travel to exclusive places made it possible that many, formerly sparsely used places have become overutilized and contested. I found that for the analysis of visitor's perception the actual setting is probably less important. However, one has to be aware what kind of public is using the park most. In FRIM, many people live in towns nearby or in Kuala Lumpur. In tourist sites like Mabul Island, a more diverse public can be assumed. Past on- site experience has had an influence on crowding perception. To actually have past on- site experience mostly is possible in urban parks and green areas where people can go on a regular basis. First- time tourists are likely to perceive the crowding situation differently than people who visit the place regularly. The influence of age has been discussed in literature before and I can confirm that age had an influence in many aspects. So a lot of research has been focussing on what kind of personal characteristics and what other factors such as frequency of the visit influence crowding

perceptions. In addition to those findings the analysis and evaluation of the results in this study also revealed how crowding perceptions and coping behaviour as well as willingness to pay for a separate, less crowded area are connected. It has become clear that perceived crowding does not lead to an increased willingness to escape the crowding situation and take measures to avoid crowding or even pay to enter a less crowded area. Most people seem to accept around 30- 60 people in their environment, some people even more. This shows that visitors in FRIM are quite tolerant towards crowding, even though some of them feel disturbed by it. Of course it is hard to tell, whether this result can be applied to other settings as well, but since many results deriving from studies in European urban parks were in line with results from FRIM, it is likely that this is the case also the other way around.

7.6 Reflection of the Concept of Social Carrying Capacity

As a final remark, I would like to address the concept of social carrying capacity and evaluate in what terms it has been useful and in what terms it has not been able to explain visitor's distraction. Literature research as well as the study have shown that the concept of carrying capacity which focusses visitor numbers as the decisive factor to explain visitor impacts. However, most importantly, the concept of carrying capacity can mainly be applied on the environmental level by determining how many visitors an environment can accept to still be intact. On the social level, carrying capacity might refer to the number of people one can accept to still enjoy the activity and stay. The enjoyment of one's visit has however not only been dependent on the number of other visitors and groups around. Reasons for distraction such as noise or perception of a specific group of people, littering and damage to the environment are rated almost as high or even higher as crowding to be a factor of distraction.

8. Critical Reflection

The aim of this Master thesis was to investigate the current crowding situation in FRIM and to understand how crowding perceptions differ according to different factors. Another aim was to identify the consequences of crowding and how much crowding might be acceptable in the park according to visitors and to staff. In addition to that the results of the study form the basis for further investigations in FRIM and might be even of use for other similar parks such as recreational parks. The following chapter critically analyses to what degree those goals could be reached and whether the theoretical concepts and methodology were appropriate to answer the research questions. Furthermore, this chapter points out what questions are still unanswered and suggests what other methods and steps could be taken next.

8.1 Critical Reflection of the Methodology Chosen

For this research a combination of qualitative and quantitative methods was used. The qualitative survey definitely was a good way to approach the visitors and the general crowding perceptions. The standardized questionnaire was a useful tool to analyse the responses statistically. Through contingency tables many different aspects of crowding could be made visible. This helped to gain deeper insight in the issue and to show different connections between the type of visitors and crowding. The expert and episodic interview were generally very helpful to get an idea of the consequences of crowding and what problems and challenges there are for the rangers and the staff. The interviews also gave a lot of information on the general goals that FRIM has and what FRIM offers the visitors. The interviews contained a lot of information on the visitor's expectations of the park and their reaction to certain changes and how they behave towards the staff, which is an important point in this research as well.

8.2 Critique of the Research Process

8.2.1 Planning and Implementation

By conducting expert interviews and episodic interviews, I was able to identify some of the major challenges. This would not have been possible with the survey only. The experts shared a lot of information on that topic and raised many issues that they were handling, that are linked to crowding. The interviews were conducted in January, mainly after the survey had taken place. In that aspect, I think that it would have been better to have had at least one expert interview before the survey. Many issues that came up might could have been brought up in the survey as well, to see the visitor's view. This might would have altered the questionnaire a bit, since it would not only focus on crowding perceptions, but it would reveal some other information. For many issues, especially if FRIM considers to change certain things, such as entrance fees, it would be useful to get the public's opinion on it. This might be useful in the process of finding measures to approach crowding and see what kinds of measures would be accepted. Generally, the questionnaire perhaps should have included some questions on the management in FRIM and the people's satisfaction with it. The sampling in general went well. It was good to take samples at different locations and at different days. The expert interviews went really well and my questions were well answered. The episodic interviews were rather difficult for me to steer and I realized sometimes my interviewee told me a lot of things that might not have been useful to answer my research questions.

Another point, which might have needed more investigation is FRIM's application for UNESCO World Heritage. During my stay at FRIM the application for UNESCO World Heritage has not been a big issue neither to my mentor or to the head of the Cooperate Communication Unit. In advance to my stay, I considered the application for UNESCO to be one of the core elements and crowding to be closely related to it. However, I had the impression that primarily, crowding and visitor behaviour was a more serious concern to the staff. Nevertheless, it might have been useful to still gather some more information of the UNESCO application to set it in context to the current crowding situation.

8.3 Methodological Critique of the Quantitative Survey

The questionnaire was adapted several times. In general, the final version was good and covered the interests of this study well. However, during the analysis of the results, one or two additional questions would have been useful in order to highlight some aspects of crowding. While transferring the filled in questionnaires into digital form, I realized that some people might have randomly filled in the questionnaire.

To avoid this problem, one or two more control questions would have been useful. Schuman (2012: 55) describes control questions as a tool to identify whether the questionnaire has been filled in randomly or not. In general, I did not have the impression that many questionnaires have been filled in this manner, but perhaps some more tactic questions would have been reasonable. There are different ways to do such tactic question. One possibility is also to create combinations of answers that have to be answered in a certain way in order to make the answers credible (Schuman 2012: 56). Those questions need to be thought through very carefully though. Another example where I received an unexpected result is on the question on reasons for distraction. Initially, I assumed for example that only those people who felt distracted by other people or groups were the ones who filled in the following question where the reasons for distraction were listed. However, this question was also answered by many people who generally did not or rather not feel distracted. Nevertheless, it has still been an interesting finding to see, that even people who did not feel crowding to be a general problem or did feel disturbed by it in a general way, felt the need to answer what exactly distracts them from having an enjoyable visit.

8.4 Methodological Critique of the Qualitative Interviews

The main critique that can be made on the qualitative interviews is the time they were conducted. As mentioned, many points could have influenced how the questionnaire was designed but by the time I conducted the interviews, it was already too late to include them. Many interviews really went well and my interviewees talked freely about the topic. However, for the episodic interview a better introduction to the topic and a better introducing question might have been helpful.

8.5 Critical Reflection of the Theoretical Approach

The scientific field of social crowding has been a rather difficult field to enter. Especially connected to park and urban open space management, there are many different concepts around that discuss social crowding. Some of them, like social carrying capacity have been criticized a lot by the scientific community. Also there have many studies been done in various environments and to compare those environments to FRIM might be critical. FRIM, as a research park is very unique, even though it can be considered to be an urban open area and is perceived as such by most visitors. The number of visitors played a huge role in this Master thesis. The concept of social carrying capacity that is engaged with numbers of visitors and implications of crowding is one of the most controversial concept. Nevertheless, since this study was investigating what implications crowding had, this concept could still be taken as a basis and discussed with respect to literature research and the study's findings. Scientists also discussed other theoretical concepts such as the "Visitor Impact Model" but for this thesis it was most useful to describe the state of the art in the scientific field of crowding as well as ecotourism and respond to that. In addition to that, this research was based on FRIM's study on FRIM as an urban open space, where they found that crowding even was a problem. I think it was a good idea to take the concept of social carrying capacity as an introductory concept, but then critically reflect it in the discussion.

9. Final Conclusions and Outlook

FRIM has become one of the most popular recreational forests in Klang Valley. It is probable that FRIM continues to attract many visitors in the future as well, especially because of its proximity to Kuala Lumpur and its attractive environment. Also the population in Klang Valley and Kuala Lumpur are likely to grow and a need for refugee from those urban centres is very big. Managing the forest park and targeting a lower number of visitors has therefore become a major issue in FRIM. Knowing the type of visitors and knowing their movement patterns and habits can help to specifically approach certain areas or times that are most contested and utilized. People are attracted by facilities and ongoing activities, but the more facilities are provided, the more people will come. FRIM is in the process of an ongoing application for UNESCO World Heritage Status. This also influences FRIM's attempt to lower the number of visitors, as they want to achieve this goal along with other sustainability goals. Hadley has argued that most financial and physical measures are not accepted really well as well as political decisions. However, for example switching to be a car- free space might be one solution. This concept has shown to be very attractive to visitors and the recreational service of those resorts are increasingly popular. FRIM could set up a kind of pilot project, being a car- free park in Selangor. Since FRIM is under the Ministry of Natural Resources and Environment, such a project might be temporarily also financially supported. Of course such a project is challenging also in terms of mobility to reach FRIM. But perhaps, providing more parking space outside the campus is more favourable than inside the park, where the traffic can be disturbing. As Norhuzailin and Norsidah have shown, other recreational forests in Selangor are struggling with similar kinds of issues. Therefore, such a pilot project might be beneficial for other parks in the state or country as well. For this reason, further studies could focus more on the kinds of changes and measures that would be accepted by the public. Many people have stated to be willing to pay more for a less crowded area, therefore changing something in the payment system might work. However, I would suggest to differentiate well in this aspect and to also consider what can be gained that is not a monetary term. For example, offering the nature guide for free could help FRIM to approach certain problems and issues on the nature trails, even though the incomes from this service are discontinued.

I hope, some of the recommendations are useful to FRIM and I wish the team the very best in the future and hopefully they can achieve their goals successfully.

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Appendices

Appendix A

Guideline for the Qualitative Interviews

Guideline for the Qualitative Interviews

Background Questions

1. What is your role at FRIM? How are you involved into visitor management?
2. How would you describe what is special about FRIM?
3. How would you describe FRIM's role as an urban open space?
4. When has FRIM started to serve as a recreational area for locals and tourists?
5. How and why did it start? Different for locals and tourists?
6. What does FRIM want to offer the visitors?
7. What public are you mainly addressing? Do you use any strategies to attract certain people or groups?

More Specific Questions on Crowding

1. What are currently the main challenges in visitor management in FRIM?
2. What are the main problems with social crowding?
3. When did crowding start to become an issue to the park and visitor management?
4. Why do you think crowding has increased during the last few years and become an issue?
5. Has the "type of visitor" or "purpose of visit" changed during the past few years?
6. Do you notice any specific problems with a certain kind of visitor?
7. Has crowding raised any other, related issues? (That have not been an issue before)
8. How does crowding influence work at FRIM? Have you been affected by it?

Crowding and Visitors

1. Are there complaints by visitors in terms of crowding?
   → If yes, how do you react to those complaints?
2. What measures have you already taken to approach the crowding issue?

Crowding and the Application for UNESCO World Heritage

1. Why is FRIM interested in the UNESCO World Heritage status?
   → What do you think would change?
2. Do you think crowding could have an impact on the application for UNESCO status?

Appendix B

Bilingual Questionnaire

University of Zurich[UZH]

The University of Zurich, Switzerland, and the Forest Research Institute Malaysia (FRIM) collaborate in assessing how visitors use and perceive FRIM campus. The results of the study can be used in the future management of FRIM. We are grateful if you could spare 10 minutes to answer our questions.

Universiti Zurich, Switzerland dan Institut Penyelidikan Perhutanan Malaysia (FRIM) bekerjasama dalam kajian penggunaan dan penilaian persepsi terhadap kampus FRIM. Hasil kajian ini akan digunakan untuk pengurusan kampus FRIM. Kami amat berterima kasih kepada anda kerana sudi meluangkan 10 minit untuk menjawab soalan-soalan kami.

Contact: Joëlle Linggi, Master Student, Major Geography, University of Zurich; Dr. Noor Azlin, FRIM

Hubungi: Joëlle Linggi, Master Student, Major Geography, University of Zurich; Dr. Noor Azlin, FRIM

1. What is your main activity, when you visit FRIM?
   Apakah aktiviti utama anda semasa di FRIM?

2. How much time do you spend at FRIM on a normal visit?
   Berama lamakah masa yang anda peruntukkan di FRIM dalam kunjungan biasa?

☐ Up to an hour
Sehingga 1 jam

☐ 1-2 hours
1-2 jam

☐ Up to half a day
Sehingga setengah hari

☐ The whole day
Sepanjang hari

3. How often do you visit FRIM?
   Berapa kerap anda mengunjungi FRIM?

☐ Daily
Setiap hari

☐ Weekly
Setiap minggu

☐ Less than once a month
Kurang dari sekali dalam sebulan

☐ This is my first visit
Ini kali pertama

4. How important are the following aspects to your enjoyment of the visit?
   Bagaimanakah kepentingan aspek-aspek berikut dalam keseronokan lawatan anda?

		Very important Sangat penting	Important Penting	Less important Kurang penting	Not important Tidak penting
4.1	Education Pendidikan	☐	☐	☐	☐
4.2	Being in the forest/ nature Berada di hutan/alam semula jadi	☐	☐	☐	☐
4.3	Spend time with the company I came with Meluangkan masa dengan mereka yang datang bersama saya	☐	☐	☐	☐

		Very important Sangat penting	Important Penting	Less important Kurang penting	Not important Tidak penting
4.4	Meet other people Berjumpa dengan orang lain	☐	☐	☐	☐
4.5	Tranquillity Ketenangan	☐	☐	☐	☐
4.6	Recreation Rekreasi	☐	☐	☐	☐

5. Do you visit FRIM mostly…?
Biasanya anda mengunjungi FRIM…?

☐ Alone / Berseorangan ☐ With your family / Bersama keluarga ☐ With friends / Bersama rakan ☐ Oher kind of group: / Lain-lain kumpulan:

6. How many people did you expect to see today in FRIM?
Berapa orangkah yang anda jangka akan dijumpai di FRIM hari ini?

☐ 0-30 ☐ 30-60 ☐ 60-90 ☐ >90

7. How many people did you actually see?
Berapa orangkah yang anda telah nampak?

☐ 0-30 ☐ 30-60 ☐ 60-90 ☐ >90

8. In the following I list a few places. Please answer whether you would like to visit these places?
Berdasarkan senarai tempat berikut, sila nyatakan samada anda suka untuk melawat tempat-tempat ini?

		Definitely Yes Sudah pasti	Maybe yes Mungkin ya	Maybe no Mungkin tidak	Definitely No Tidak sama sekali
8.1	Canopy walkway Titian silara	☐	☐	☐	☐
8.2	Perah Campsite/ Nature Education Centre Kem Perah/NEC	☐	☐	☐	☐
8.3	Nature trails Denai alam	☐	☐	☐	☐
8.4	Picnic area Kawasan perkelahan	☐	☐	☐	☐
8.5	Football field Padang bola	☐	☐	☐	☐
8.6	Kepong botanic garden Taman Botani Kepong	☐	☐	☐	☐

		Definitely Yes Sudah pasti	Maybe yes Mungkin ya	Maybe no Mungkin tidak	Definitely No Tidak sama sekali
8.7	Others: _____ Lain-lain:_____	☐	☐	☐	☐

9. How do you feel about seeing other people or groups in FRIM?
Apa pandangan anda tentang pengunjung/kumpulan lain di FRIM?

☐ Too many
Terlalu ramai

☐ Rather many
Agak ramai

☐ Rather few
Agak kurang

☐ Few
Sedikit

10. Do you think FRIM is crowded today?
Adakah anda fikir terdapat terlalu ramai orang di FRIM hari ini?

☐ Definitely yes
Sudah pasti

☐ Maybe yes
Mungkin ya

☐ Maybe no
Mungkin tidak

☐ Definitely no
Tidak sama sekali

11. Do you think FRIM is generally crowded?
Adakah anda fikir biasanya terlalu ramai orang di FRIM?

☐ Definitely yes
Sudah pasti

☐ Maybe yes
Mungkin ya

☐ Maybe no
Mungkin tidak

☐ Definitely no
Tidak sama sekali

12. Do other people or groups distract you from having an enjoyable stay in FRIM?
Adakah pengunjung atau kumpulan pengunjung lain mengganggu anda dalam menikmati pengalaman yang menyeronokkan di FRIM?

☐ Definitely yes
Sudah pasti

☐ Maybe yes
Mungkin ya

☐ Maybe no
Mungkin tidak

☐ Definitely no
Tidak sama sekali

12.1 If yes or rather yes, what were the reasons?
Jika ya, nyatakan sebab?

☐ Lack of space
Kekurangan ruang

☐ Noise
Bising

☐ Littering
Sampah-sarap

☐ Lack of parking space
Kekurangan tempat letak kereta

☐ Loss of wildlife
Kehilangan hidupan liar

☐ Damage on plants
Kerosakan pada tumbuh-tumbuhan

☐ Destruction of paths and trails
Kerosakan pada denai dan pejalan kaki

☐ Effect on water
Kesan kepada air

☐ Other: _____

Lain-lain: _____

13. Please estimate how many people you could accept in your surroundings to still enjoy your stay and activity.
Sila nyatakan anggaran berapa ramai orang yang anda boleh terima dalam persekitaran anda untuk membolehkan anda menikmati persekitaran dan aktiviti anda.

☐ 0-30 ☐ 30-60 ☐ 60-90 ☐ >90

14. In the following I name a few areas. Please indicate whether you think these areas are "underutilized", "used to capacity" or "crowded"?
Berdasarkan kawasan-kawasan berikut, nyatakan sama ada anda fikir kawasan ini adalah "tidak digunakan sepenuhnya", "yang digunakan ikut keupayaan" atau "padat"?

		Crowded Padat	Used to capacity Digunakan ikut keupayaan	Underutilized Tidak digunakan sepenuhnya	I do not know Saya tidak tahu
14.1	Canopy walkway Titian silara	☐	☐	☐	☐
14.2	Perah Campsite/ Nature Education Centre Kem Perah/NEC	☐	☐	☐	☐
14.3	Nature trails Denai Alam	☐	☐	☐	☐
14.4	Picnic area Kawasan perkelahan	☐	☐	☐	☐
14.5	Football field Padang bola	☐	☐	☐	☐
14.6	Kepong- Botanic Garden Taman Botani Kepong	☐	☐	☐	☐

15. How do you feel about the following groups of people? Can you tell, whether you think there are "too many", "rather many", "rather few", "few" or "I do not know"?
Apa pandangan anda tentang kumpulan pengunjung di bawah? Boleh nyatakan samada "terlalu ramai", "agak ramai", "agak kurang", "kurang" atau "tidak tahu".

		Too many Terlalu ramai	Rather many Agak ramai	Rather few Agak kurang	Few Kurang	I do not know Tidak tahu
15.1	Joggers Jogger	☐	☐	☐	☐	☐
15.2	Cyclists Penunggang basikal	☐	☐	☐	☐	☐
15.3	Hikers, Trekkers Pendaki, perintis	☐	☐	☐	☐	☐
15.4	Tourists Pelancong	☐	☐	☐	☐	☐

		Too many Terlalu ramai	Rather many Agak ramai	Rather few Agak kurang	Few Kurang	I do not know Tidak tahu
15.5	Picnicers, Families Orang berkelah, keluarga	☐	☐	☐	☐	☐
15.6	People coming for education Orang yang datang untuk pendidikan	☐	☐	☐	☐	☐
15.7	Other: _____ Lain-lain:_____	☐	☐	☐	☐	☐

16. Have you ever taken any measures to avoid crowding?
Adakah anda mengambil sebarang tindakan untuk mengelakkan kepadatan?

☐ Yes
Ya

☐ No
Tidak

16.1 If yes, what are the measurements you have taken?
Jika Ya, nyatakan tindakan tersebut?

☐ Come at other times/ days
Datang pada masa yang lain

☐ Go to other places in FRIM
Pergi ke tempat lain dalam FRIM

☐ Go to other places than FRIM
Pergi tempat selain FRIM

☐ Other: _____
Lain-lain:_____

17. How much did you pay for entrance at FRIM today?
Berapakah jumlah yang telah anda bayar untuk masuk ke FRIM hari ini?

RM: _____/ person
RM: _____/seorang

17.1 If there was access to a less crowded area, would you be willing to pay for it?
Jika ada sesuatu kawasan yang kurang padat, adakah anda sanggup membayar?

☐ Yes: RM: _____/ person
Ya: RM: _____/ seorang

☐ No
Tidak

18. In the following I read a few statements. Please indicate whether you “agree”, “rather agree”, “rather disagree” or “disagree” with them.
Berdasarkan penyataan di bawah ini, nyatakan samaada anda “setuju”, “agak setuju”, “kurang setuju” atau “ tidak setuju”

		Agree Setuju	Rather agree Agak setuju	Rather disagree Kurang setuju	Disagree Tidak setuju
18.1	As a tourist, I would visit a place like FRIM somewhere else. Sebagai pengunjung, saya akan mengunjungi kawasan lain seperti FRIM	☐	☐	☐	☐
18.2	In order to save the environment, FRIM should limit the number of visitors. Dalam menyelamatkan persekitaran, FRIM seharusnya menghadkan bilangan pengunjung.	☐	☐	☐	☐
18.3	FRIM should limit the number of visitors in favour of those who come for education. FRIM sepatutnya menghadkan bilangan pengunjung untuk memberi peluang mereka yang datang untuk pendidikan.	☐	☐	☐	☐
18.4	An increasing number of visitors would prevent me from coming to FRIM. Bilangan pengunjung yang terus meningkat akan menyebabkan saya tidak datang ke FRIM.	☐	☐	☐	☐
18.5	I am satisfied with the natural environment of FRIM. Saya sangat berpuas hati dengan keadaan semula jadi FRIM.	☐	☐	☐	☐
18.6	FRIM is peaceful enough for my recreational activity compared to the amount of money I paid for entrance. FRIM merupakan kawasan yang cukup tenang untuk aktiviti rekreasi saya berbanding jumlah yang saya bayar di pintu masuk.	☐	☐	☐	☐

19. What does “recreation” mean to you?
Apakah maksud “rekreasi” bagi anda?

20. Where do you live?
Dimanakan anda tinggal?

District:	State:	Country:

21. What is your highest level of education?
Nyatakan tahap pendidikan tertinggi anda?

22. What is your age group?
Nyatakan lingkungan umur kumpulan anda.

☐ < 20 ☐ 20- 35 ☐ 35- 50 ☐ 50-65 ☐ > 65

23. What is your gender?
Nyatakan jantina anda.

☐ Female
Perempuan

☐ Male
Lelaki

Thank you for your participation!
Terima kasih atas kerjasama anda!

Appendix C

Statistical Tables

Please note: All the numbers refer to the questions on the questionnaire

1. Personal Background Questions

Table 1

			9				
			1,0	2,0	3,0	4,0	Sum
Gender	1,0	Number	13	105	28	5	151
		% in 9	39,4%	53,6%	41,8%	62,5%	49,7%
	2,0	Number	20	91	39	3	153
		% in 9	60,6%	46,4%	58,2%	37,5%	50,3%
Sum		Number	33	196	67	8	304
		% in 9	100,0%	100,0%	100,0%	100,0%	100,0%

Cross Table 23*11

			11				
			1,0	2,0	3,0	4,0	Sum
23	1,0	Number	33	73	40	4	150
		% in 11	49,3%	46,8%	54,8%	57,1%	49,5%
	2,0	Number	34	83	33	3	153
		% in 11	50,7%	53,2%	45,2%	42,9%	50,5%
Sum		Number	67	156	73	7	303
		% in 11	100,0%	100,0%	100,0%	100,0%	100,0%

Cross Table 22*9

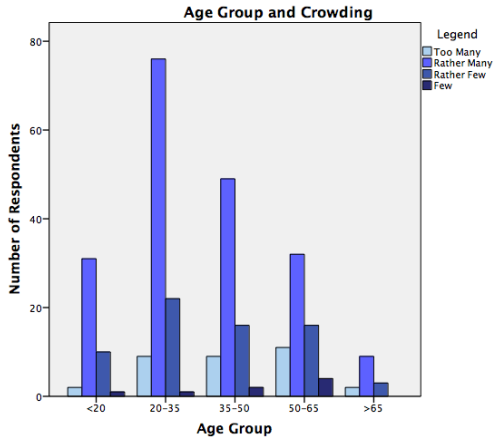
			9				
			1,0	2,0	3,0	4,0	Sum
22	1,0	Number	2	31	10	1	44
		% in 9	6,1%	15,7%	14,9%	12,5%	14,4%
	2,0	Number	9	76	22	1	108
		% in 9	27,3%	38,6%	32,8%	12,5%	35,4%
	3,0	Number	9	49	16	2	76
		% in 9	27,3%	24,9%	23,9%	25,0%	24,9%
	4,0	Number	11	32	16	4	63
		% in 9	33,3%	16,2%	23,9%	50,0%	20,7%
	5,0	Number	2	9	3	0	14
		% in 9	6,1%	4,6%	4,5%	0,0%	4,6%
Sum		Number	33	197	67	8	305
		% in 9	100,0%	100,0%	100,0%	100,0%	100,0%

Cross Table 21_Categorized*9

			9				
			1,0	2,0	3,0	4,0	Sum
21_Categorized	1,0	Number	1	6	4	0	11
		% in 21_Categorized	9,1%	54,5%	36,4%	0,0%	100,0%
		% in 9	3,3%	3,2%	6,9%	0,0%	3,9%
	2,0	Number	17	72	25	6	120
		% in 21_Categorized	14,2%	60,0%	20,8%	5,0%	100,0%
		% in 9	56,7%	38,9%	43,1%	66,7%	42,6%
	3,0	Number	12	107	29	3	151
		% in 21_Categorized	7,9%	70,9%	19,2%	2,0%	100,0%
		% in 9	40,0%	57,8%	50,0%	33,3%	53,5%
Sum		Number	30	185	58	9	282
		% in 21_Categorized	10,6%	65,6%	20,6%	3,2%	100,0%
		% in 9	100,0%	100,0%	100,0%	100,0%	100,0%

Categories: Level of Education

1: Primary Education 2: Secondary Education 3: Tertiary Education



2. Background to the Visit Questions

1_Categorized

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	154	44,0	50,0	50,0
	2,0	42	12,0	13,6	63,6
	3,0	30	8,6	9,7	73,4
	4,0	23	6,6	7,5	80,8
	5,0	19	5,4	6,2	87,0
	6,0	13	3,7	4,2	91,2
	7,0	14	4,0	4,5	95,8
	8,0	13	3,7	4,2	100,0
	Sum	308	88,0	100,0	
Absent in	System	42	12,0		
Sum		350	100,0		

Categories: Main Activity

1: Jogging, Trekking, Hiking 2: Cycling 3: Exercise, Thai-Chi 4: Other Sports
5: Picnic 6: Recreation 7: Camping 8: Other

Cross Table 11*3

			3				
			1,0	2,0	3,0	4,0	Sum
11	1,0	Number	27	28	12	2	69
		% in 3	36,0%	25,9%	13,8%	5,6%	22,5%
	2,0	Number	30	52	53	21	156
		% in 3	40,0%	48,1%	60,9%	58,3%	51,0%
	3,0	Number	18	22	20	13	73
		% in 3	24,0%	20,4%	23,0%	36,1%	23,9%
	4,0	Number	0	6	2	0	8
		% in 3	0,0%	5,6%	2,3%	0,0%	2,6%
Sum		Number	75	108	87	36	306
		% in 3	100,0%	100,0%	100,0%	100,0%	100,0%

Cross Table 11*2

			2				
			1,0	2,0	3,0	4,0	Sum
11	1,0	Number	7	42	21	0	70
		% in 2	21,9%	23,5%	30,0%	0,0%	22,7%
	2,0	Number	15	97	31	14	157
		% in 2	46,9%	54,2%	44,3%	51,9%	51,0%
	3,0	Number	9	33	18	13	73
		% in 2	28,1%	18,4%	25,7%	48,1%	23,7%
	4,0	Number	1	7	0	0	8
		% in 2	3,1%	3,9%	0,0%	0,0%	2,6%
Sum		Number	32	179	70	27	308
		% in 2	100,0%	100,0%	100,0%	100,0%	100,0%

Cross Table 1_Categorized*9

			9				
			1,0	2,0	3,0	4,0	Sum
1_Categorized	1,0	Number	17	91	38	7	153
		% in 1_Categorized	11,1%	59,5%	24,8%	4,6%	100,0%
	2,0	Number	4	34	4	0	42
		% in 1_Categorized	9,5%	81,0%	9,5%	0,0%	100,0%
	3,0	Number	5	20	5	0	30
		% in 1_Categorized	16,7%	66,7%	16,7%	0,0%	100,0%
	4,0	Number	1	17	4	1	23
		% in 1_Categorized	4,3%	73,9%	17,4%	4,3%	100,0%
	5,0	Number	3	13	2	1	19
		% in 1_Categorized	15,8%	68,4%	10,5%	5,3%	100,0%
	6,0	Number	1	7	5	0	13
		% in 1_Categorized	7,7%	53,8%	38,5%	0,0%	100,0%
	7,0	Number	0	8	6	0	14
		% in 1_Categorized	0,0%	57,1%	42,9%	0,0%	100,0%
	8,0	Number	2	9	2	0	13
		% in 1_Categorized	15,4%	69,2%	15,4%	0,0%	100,0%
Sum		Number	33	199	66	9	307
		% in 1_Categorized	10,7%	64,8%	21,5%	2,9%	100,0%

3. Motivation for the Visit Questions

18_1

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	138	39,4	45,1	45,1
	2,0	117	33,4	38,2	83,3
	3,0	30	8,6	9,8	93,1
	4,0	21	6,0	6,9	100,0
	Sum	306	87,4	100,0	
Absent in	System	44	12,6		
Sum		350	100,0		

18_2

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	64	18,3	20,9	20,9
	2,0	116	33,1	37,9	58,8
	3,0	82	23,4	26,8	85,6
	4,0	44	12,6	14,4	100,0
	Sum	306	87,4	100,0	
Absent in	System	44	12,6		
Sum		350	100,0		

18_3

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	56	16,0	18,4	18,4
	2,0	84	24,0	27,5	45,9
	3,0	110	31,4	36,1	82,0
	4,0	55	15,7	18,0	100,0
	Sum	305	87,1	100,0	
Absent in	System	45	12,9		
Sum		350	100,0		

18_4

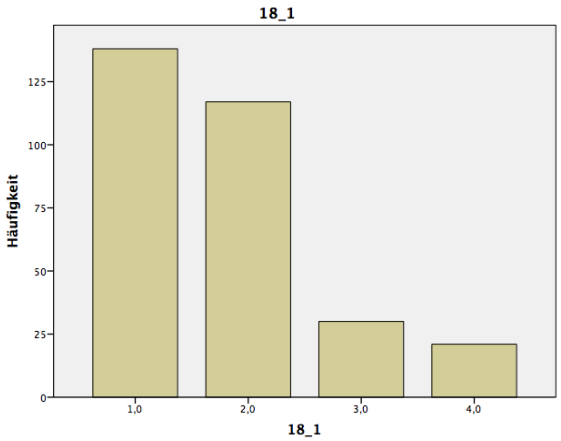
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	49	14,0	16,0	16,0
	2,0	95	27,1	31,0	47,1
	3,0	92	26,3	30,1	77,1
	4,0	70	20,0	22,9	100,0
	Sum	306	87,4	100,0	
Absent in	System	44	12,6		
Sum		350	100,0		

18_5

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	182	52,0	59,5	59,5
	2,0	105	30,0	34,3	93,8
	3,0	17	4,9	5,6	99,3
	4,0	2	,6	,7	100,0
	Sum	306	87,4	100,0	
Absent in	System	44	12,6		
Sum		350	100,0		

18_6

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	172	49,1	56,6	56,6
	2,0	116	33,1	38,2	94,7
	3,0	11	3,1	3,6	98,4
	4,0	5	1,4	1,6	100,0
	Sum	304	86,9	100,0	
Absent in	System	46	13,1		
Sum		350	100,0		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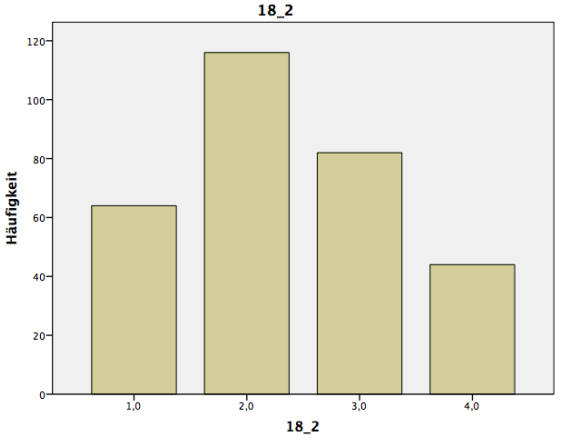
Häufigkeit
125
100
75
50
25
0
1,0
2,0
3,0
4,0
18_1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Häufigkeit
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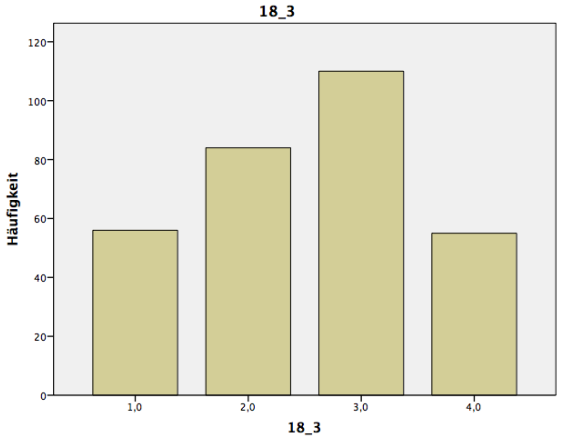
100
80
60
40
20
0
1,0
2,0
3,0
4,0
18_2


18_3
Häufigkeit
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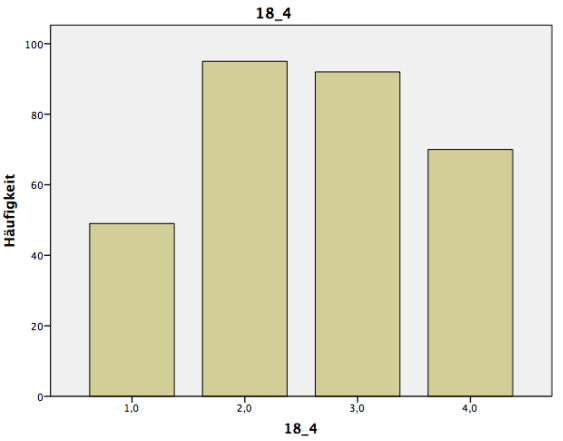
100
80
60
40
20
0
1,0
2,0
3,0
4,0
18_3


18_4
Häufigkeit
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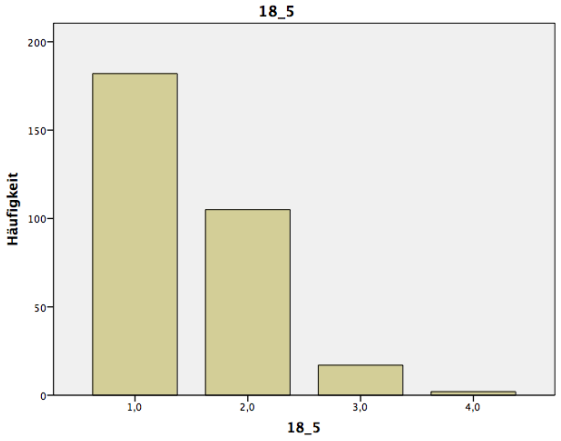
80
60
40
20
0
1,0
2,0
3,0
4,0
18_4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Häufigkeit
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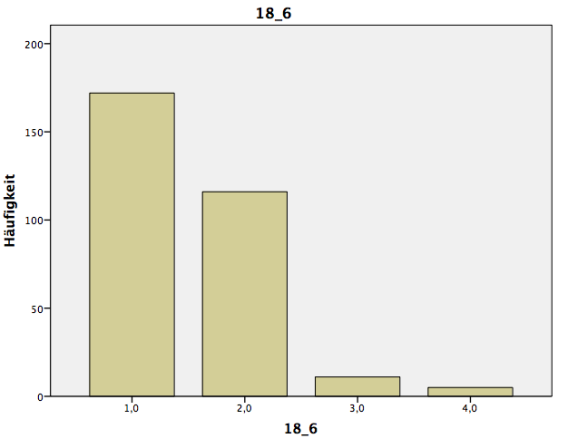
150
100
50
0
1,0
2,0
3,0
4,0
18_5


18_6
Häufigkeit
200
150
100
50
0
1,0
2,0
3,0
4,0
18_6

Important Aspects of the Visit

4_1

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	104	29,7	34,6	34,6
	2,0	132	37,7	43,9	78,4
	3,0	54	15,4	17,9	96,3
	4,0	11	3,1	3,7	100,0
	Sum	301	86,0	100,0	
Absent in	System	49	14,0		
Sum		350	100,0		

4_2

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	167	47,7	55,1	55,1
	2,0	122	34,9	40,3	95,4
	3,0	13	3,7	4,3	99,7
	4,0	1	,3	,3	100,0
	Sum	303	86,6	100,0	
Absent in	System	47	13,4		
Sum		350	100,0		

4_3

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	145	41,4	47,9	47,9
	2,0	125	35,7	41,3	89,1
	3,0	26	7,4	8,6	97,7
	4,0	7	2,0	2,3	100,0
	Sum	303	86,6	100,0	
Absent in	System	47	13,4		
Sum		350	100,0		

4_4

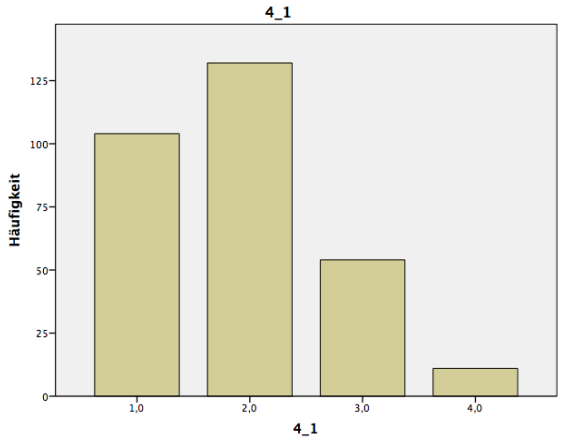
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	48	13,7	16,4	16,4
	2,0	145	41,4	49,5	65,9
	3,0	85	24,3	29,0	94,9
	4,0	15	4,3	5,1	100,0
	Sum	293	83,7	100,0	
Absent in	System	57	16,3		
Sum		350	100,0		

4_5

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	192	54,9	65,5	65,5
	2,0	93	26,6	31,7	97,3
	3,0	7	2,0	2,4	99,7
	4,0	1	,3	,3	100,0
	Sum	293	83,7	100,0	
Absent in	System	57	16,3		
Sum		350	100,0		

4_6

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	166	47,4	57,0	57,0
	2,0	116	33,1	39,9	96,9
	3,0	7	2,0	2,4	99,3
	4,0	2	,6	,7	100,0
	Sum	291	83,1	100,0	
Absent in	System	59	16,9		
Sum		350	100,0		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Häufigkeit
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100
75
50
25
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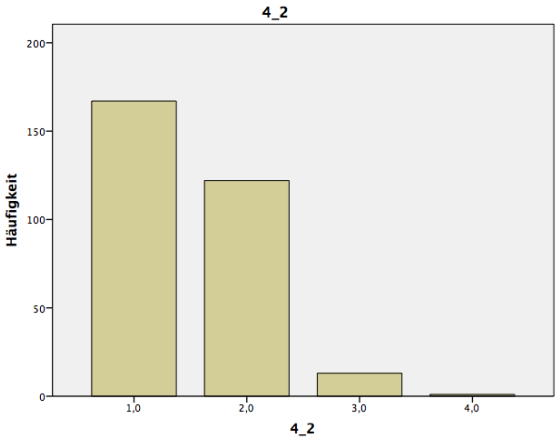
1,0
2,0
3,0
4,0
4_1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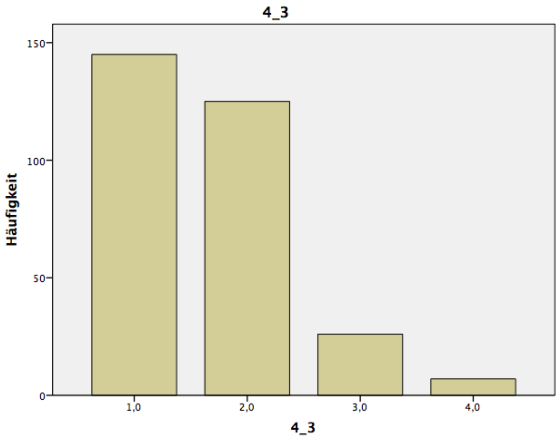
Häufigkeit
200
150
100
50
0
1,0
2,0
3,0
4,0
4_2


4_3
Häufigkeit
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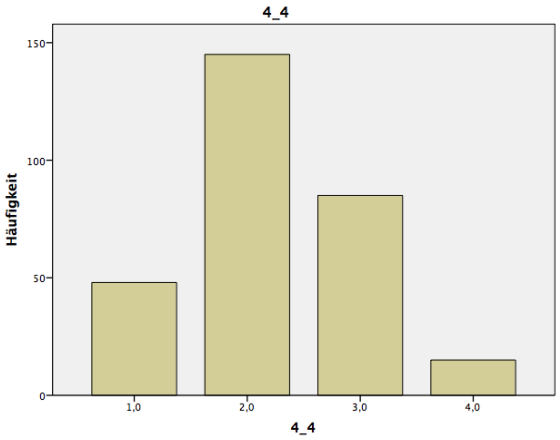
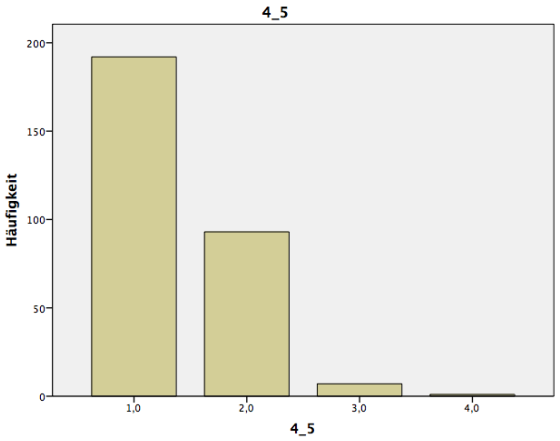
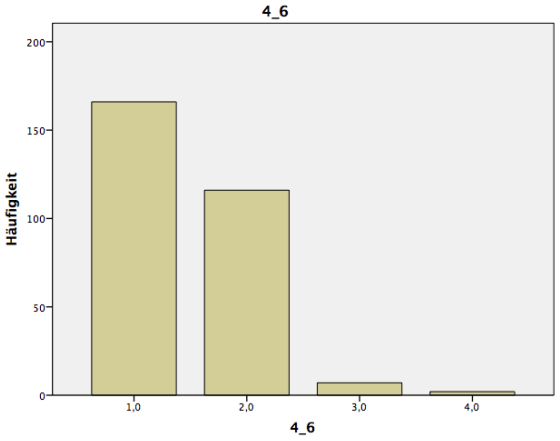
100
50
0
1,0
2,0
3,0
4,0
4_3


4_4
Häufigkeit
150
100
50
0
1,0
2,0
3,0
4,0
4_4


4_5
Häufigkeit
200
150
100
50
0
1,0
2,0
3,0
4,0
4_5


4_6
Häufigkeit
200
150
100
50
0
1,0
2,0
3,0
4,0
4_6

4. Perceptions of other Groups and Areas

Popular Places

8_1

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	159	45,4	53,5	53,5
	2,0	85	24,3	28,6	82,2
	3,0	29	8,3	9,8	91,9
	4,0	24	6,9	8,1	100,0
	Sum	297	84,9	100,0	
Absent in	System	53	15,1		
Sum		350	100,0		

8_2

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	74	21,1	24,7	24,7
	2,0	136	38,9	45,3	70,0
	3,0	66	18,9	22,0	92,0
	4,0	24	6,9	8,0	100,0
	Sum	300	85,7	100,0	
Absent in	System	50	14,3		
Sum		350	100,0		

8_3

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	170	48,6	56,5	56,5
	2,0	105	30,0	34,9	91,4
	3,0	14	4,0	4,7	96,0
	4,0	12	3,4	4,0	100,0
	Sum	301	86,0	100,0	
Absent in	System	49	14,0		
Sum		350	100,0		

8_4

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	154	44,0	51,2	51,2
	2,0	108	30,9	35,9	87,0
	3,0	24	6,9	8,0	95,0
	4,0	15	4,3	5,0	100,0
	Sum	301	86,0	100,0	
Absent in	System	49	14,0		
Sum		350	100,0		

8_5

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	59	16,9	19,8	19,8
	2,0	91	26,0	30,5	50,3
	3,0	105	30,0	35,2	85,6
	4,0	43	12,3	14,4	100,0
	Sum	298	85,1	100,0	
Absent in	System	52	14,9		
Sum		350	100,0		

8_6

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	157	44,9	52,0	52,0
	2,0	114	32,6	37,7	89,7
	3,0	28	8,0	9,3	99,0
	4,0	3	,9	1,0	100,0
	Sum	302	86,3	100,0	
Absent in	System	48	13,7		
Sum		350	100,0		

Perception of other groups

15_1

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	75	21,4	24,8	24,8
	2,0	179	51,1	59,3	84,1
	3,0	39	11,1	12,9	97,0
	4,0	6	1,7	2,0	99,0
	5,0	3	,9	1,0	100,0
	Sum	302	86,3	100,0	
Absent in	System	48	13,7		
Sum		350	100,0		

15_2

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	28	8,0	9,3	9,3
	2,0	133	38,0	44,0	53,3
	3,0	80	22,9	26,5	79,8
	4,0	54	15,4	17,9	97,7
	5,0	7	2,0	2,3	100,0
	Sum	302	86,3	100,0	
Absent in	System	48	13,7		
Sum		350	100,0		

15_3

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	32	9,1	10,6	10,6
	2,0	114	32,6	37,7	48,3
	3,0	94	26,9	31,1	79,5
	4,0	48	13,7	15,9	95,4
	5,0	14	4,0	4,6	100,0
	Sum	302	86,3	100,0	
Absent in	System	48	13,7		
Sum		350	100,0		

15_4

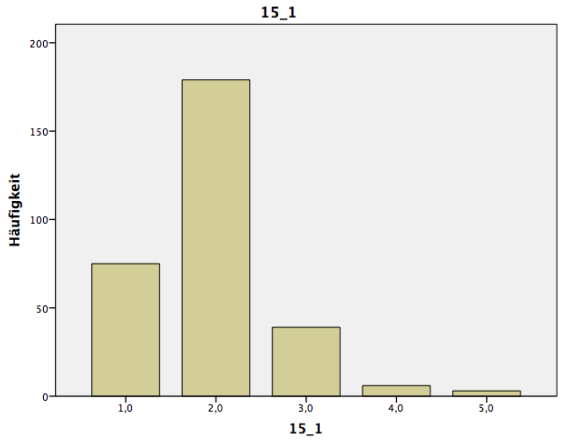
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	19	5,4	6,3	6,3
	2,0	79	22,6	26,1	32,3
	3,0	78	22,3	25,7	58,1
	4,0	100	28,6	33,0	91,1
	5,0	27	7,7	8,9	100,0
	Sum	303	86,6	100,0	
Absent in	System	47	13,4		
Sum		350	100,0		

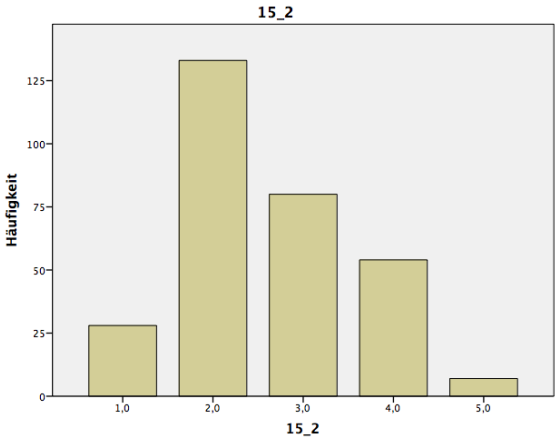
15_5

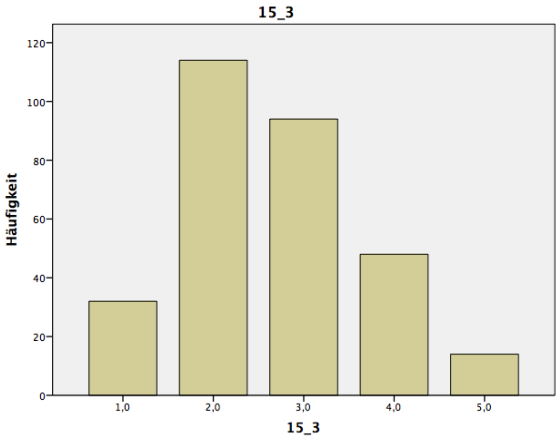
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	38	10,9	12,7	12,7
	2,0	106	30,3	35,3	48,0
	3,0	95	27,1	31,7	79,7
	4,0	37	10,6	12,3	92,0
	5,0	24	6,9	8,0	100,0
	Sum	300	85,7	100,0	
Absent in	System	50	14,3		
Sum		350	100,0		

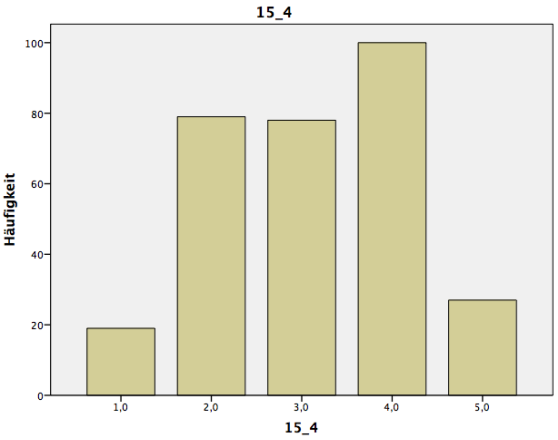
15_6

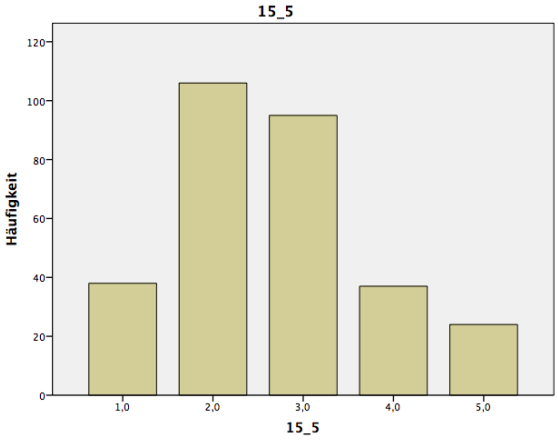
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	11	3,1	3,7	3,7
	2,0	58	16,6	19,4	23,1
	3,0	110	31,4	36,8	59,9
	4,0	58	16,6	19,4	79,3
	5,0	62	17,7	20,7	100,0
	Sum	299	85,4	100,0	
Absent in	System	51	14,6		
Sum		350	100,0		

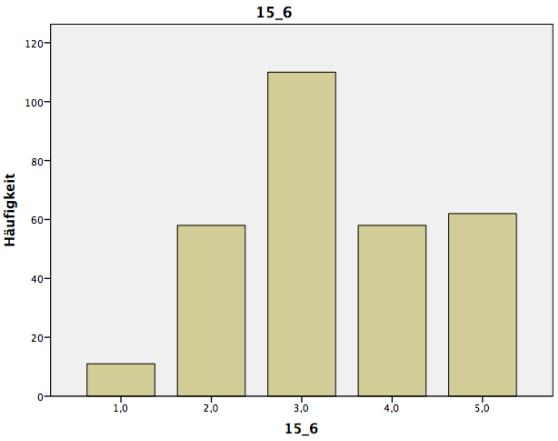

15_1
Häufigkeit
200
150
100
50
0
1,0
2,0
3,0
4,0
5,0
15_1


15_2
Häufigkeit
125
100
75
50
25
0
1,0
2,0
3,0
4,0
5,0
15_2


15_3
Häufigkeit
120
100
80
60
40
20
0
1,0
2,0
3,0
4,0
5,0
15_3


15_4
Häufigkeit
100
80
60
40
20
0
1,0
2,0
3,0
4,0
5,0
15_4


15_5
Häufigkeit
120
100
80
60
40
20
0
1,0
2,0
3,0
4,0
5,0
15_5


15_6
Häufigkeit
120
100
80
60
40
20
0
1,0
2,0
3,0
4,0
5,0
15_6

Perception of different Areas

14_1

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	42	12,0	14,2	14,2
	2,0	143	40,9	48,3	62,5
	3,0	42	12,0	14,2	76,7
	4,0	69	19,7	23,3	100,0
	Sum	296	84,6	100,0	
Absent in	System	54	15,4		
Sum		350	100,0		

14_2

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	15	4,3	5,0	5,0
	2,0	151	43,1	50,5	55,5
	3,0	46	13,1	15,4	70,9
	4,0	87	24,9	29,1	100,0
	Sum	299	85,4	100,0	
Absent in	System	51	14,6		
Sum		350	100,0		

14_3

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	48	13,7	16,2	16,2
	2,0	165	47,1	55,6	71,7
	3,0	37	10,6	12,5	84,2
	4,0	47	13,4	15,8	100,0
	Sum	297	84,9	100,0	
Absent in	System	53	15,1		
Sum		350	100,0		

14_4

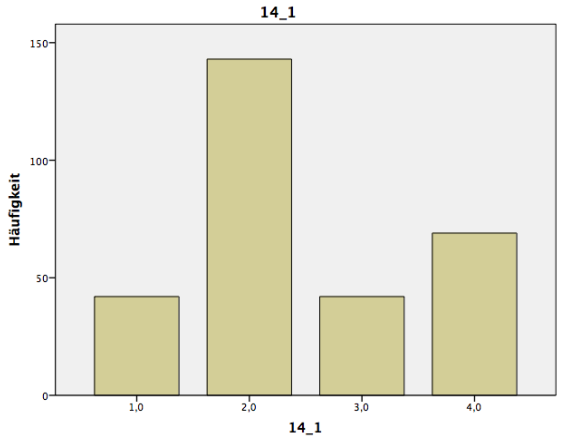
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	85	24,3	28,7	28,7
	2,0	135	38,6	45,6	74,3
	3,0	28	8,0	9,5	83,8
	4,0	48	13,7	16,2	100,0
	Sum	296	84,6	100,0	
Absent in	System	54	15,4		
Sum		350	100,0		

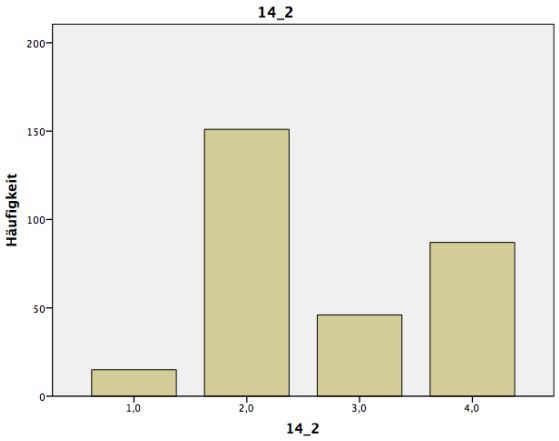
14_5

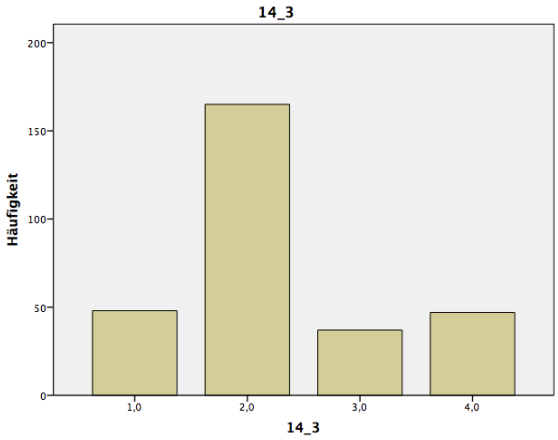
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	13	3,7	4,4	4,4
	2,0	128	36,6	43,2	47,6
	3,0	73	20,9	24,7	72,3
	4,0	82	23,4	27,7	100,0
	Sum	296	84,6	100,0	
Absent in	System	54	15,4		
Sum		350	100,0		

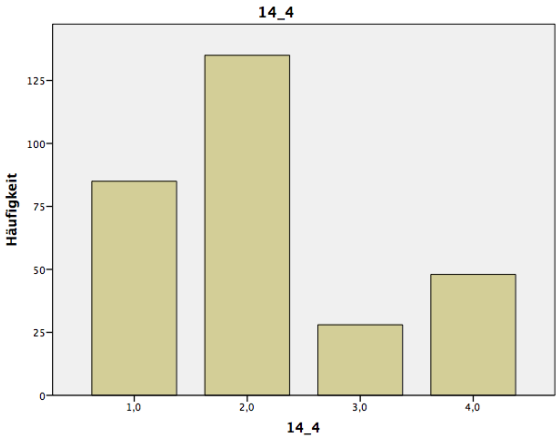
14_6

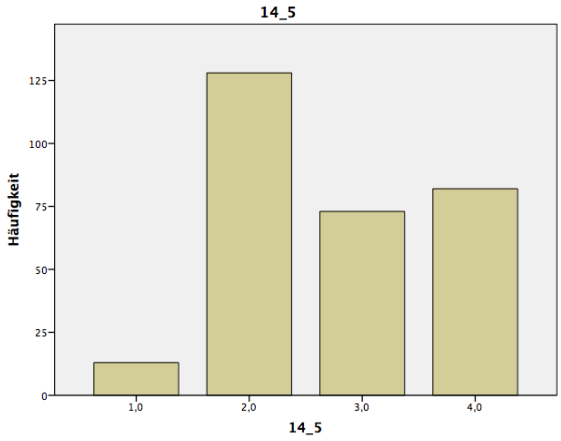
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	62	17,7	20,9	20,9
	2,0	146	41,7	49,2	70,0
	3,0	28	8,0	9,4	79,5
	4,0	61	17,4	20,5	100,0
	Sum	297	84,9	100,0	
Absent in	System	53	15,1		
Sum		350	100,0		

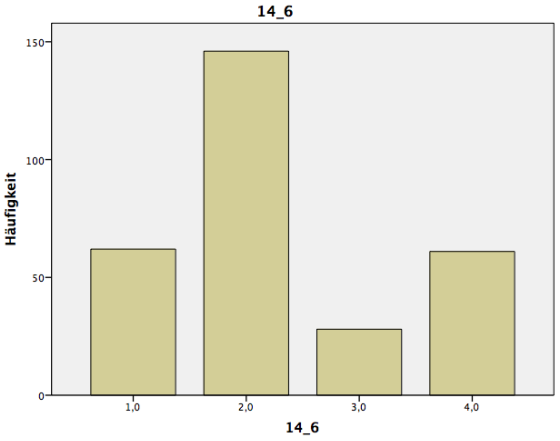

14_1
Häufigkeit
150
100
50
0
1,0
2,0
3,0
4,0
14_1


14_2
Häufigkeit
200
150
100
50
0
1,0
2,0
3,0
4,0
14_2


14_3
Häufigkeit
200
150
100
50
0
1,0
2,0
3,0
4,0
14_3


14_4
Häufigkeit
125
100
75
50
25
0
1,0
2,0
3,0
4,0
14_4

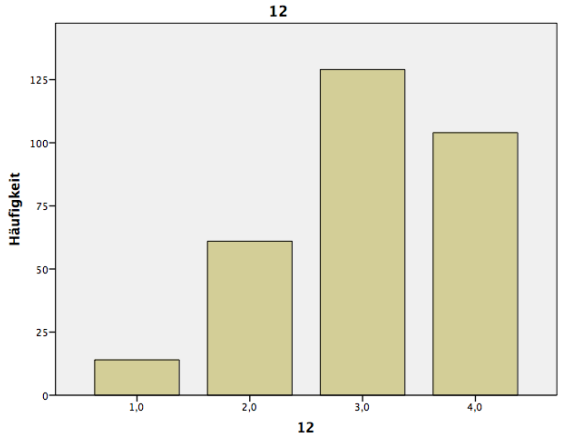

14_5
Häufigkeit
125
100
75
50
25
0
1,0
2,0
3,0
4,0
14_5


14_6
Häufigkeit
150
100
50
0
1,0
2,0
3,0
4,0
14_6

5. Reasons for Distraction and Coping Behaviour Questions

12

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	14	4,0	4,5	4,5
	2,0	61	17,4	19,8	24,4
	3,0	129	36,9	41,9	66,2
	4,0	104	29,7	33,8	100,0
	Sum	308	88,0	100,0	
Absent in	System	42	12,0		
Sum		350	100,0		



Cross Table 22*12_1

			12_1	
			1,0	Sum
22	1,0	Number	5	5
		% in 12_1	11,6%	11,6%
	2,0	Number	17	17
		% in 12_1	39,5%	39,5%
	3,0	Number	13	13
		% in 12_1	30,2%	30,2%
	4,0	Number	7	7
		% in 12_1	16,3%	16,3%
	5,0	Number	1	1
		% in 12_1	2,3%	2,3%
Sum		Number	43	43
		% in 12_1	100,0%	100,0%

Cross Table 22*12_12

			12_12	
			2,0	Sum
22	1,0	Number	3	3
		% in 12_12	7,5%	7,5%
	2,0	Number	21	21
		% in 12_12	52,5%	52,5%
	3,0	Number	9	9
		% in 12_12	22,5%	22,5%
	4,0	Number	6	6
		% in 12_12	15,0%	15,0%
	5,0	Number	1	1
		% in 12_12	2,5%	2,5%
Sum		Number	40	40
		% in 12_12	100,0%	100,0%

Cross Table 22*12_13

			12_13	
			3,0	Sum
22	1,0	Number	7	7
		% in 12_13	15,2%	15,2%
	2,0	Number	23	23
		% in 12_13	50,0%	50,0%
	3,0	Number	12	12
		% in 12_13	26,1%	26,1%
	4,0	Number	4	4
		% in 12_13	8,7%	8,7%
Sum		Number	46	46
		% in 12_13	100,0%	100,0%

Cross Table 22*12_14

			12_14	
			4,0	Sum
22	1,0	Number	5	5
		% in 12_14	8,6%	8,6%
	2,0	Number	23	23
		% in 12_14	39,7%	39,7%
	3,0	Number	20	20
		% in 12_14	34,5%	34,5%
	3,4	Number	1	1
		% in 12_14	1,7%	1,7%
	4,0	Number	7	7
		% in 12_14	12,1%	12,1%
	5,0	Number	2	2
		% in 12_14	3,4%	3,4%
Sum		Number	58	58
		% in 12_14	100,0%	100,0%

Cross Table 22*12_15

			12_15	
			5,0	Sum
22	1,0	Number	3	3
		% in 12_15	18,8%	18,8%
	2,0	Number	7	7
		% in 12_15	43,8%	43,8%
	3,0	Number	5	5
		% in 12_15	31,3%	31,3%
	4,0	Number	1	1
		% in 12_15	6,3%	6,3%
Sum		Number	16	16
		% in 12_15	100,0%	100,0%

Cross Table 22*12_16

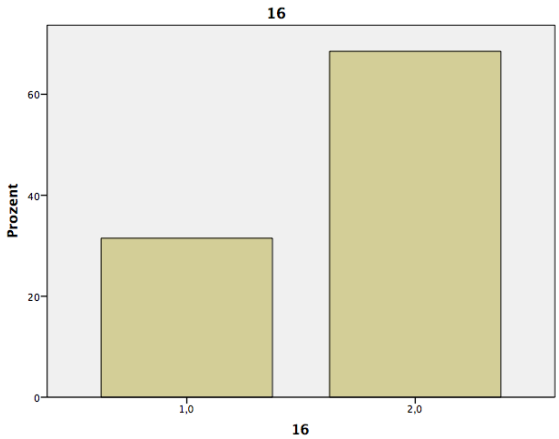
			12_16	
			6,0	Sum
22	1,0	Number	1	1
		% in 12_16	3,3%	3,3%
	2,0	Number	16	16
		% in 12_16	53,3%	53,3%
	3,0	Number	10	10
		% in 12_16	33,3%	33,3%
	4,0	Number	2	2
		% in 12_16	6,7%	6,7%
	5,0	Number	1	1
		% in 12_16	3,3%	3,3%
Sum		Number	30	30
		% in 12_16	100,0%	100,0%

Cross Table 22*12_17

			12_17	
			7,0	Sum
22	1,0	Number	5	5
		% in 12_17	16,7%	16,7%
	2,0	Number	12	12
		% in 12_17	40,0%	40,0%
	3,0	Number	10	10
		% in 12_17	33,3%	33,3%
	3,4	Number	1	1
		% in 12_17	3,3%	3,3%
	4,0	Number	2	2
		% in 12_17	6,7%	6,7%
Sum		Number	30	30
		% in 12_17	100,0%	100,0%

16

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	97	27,7	31,5	31,5
	2,0	211	60,3	68,5	100,0
	Sum	308	88,0	100,0	
Absent in	System	42	12,0		
Sum		350	100,0		



16_1

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	210	60,0	60,0	60,0
1	61	17,4	17,4	77,4
1; morning	1	,3	,3	77,7
1: Come early in the morning	1	,3	,3	78,0
1: early morning	1	,3	,3	78,3
2	52	14,9	14,9	93,1
3	20	5,7	5,7	98,9
4	3	,9	,9	99,7
Avoid the day when it's free to enter	1	,3	,3	100,0
Sum	350	100,0	100,0	

Cross Table 16*22

			22						
			1,0	2,0	3,0	3,4	4,0	5,0	Sum
16	1,0	Number	15	37	24	1	17	2	96
		% in 16	15,6%	38,5%	25,0%	1,0%	17,7%	2,1%	100,0%
		% in 22	34,1%	34,3%	32,0%	100,0%	27,4%	14,3%	31,6%
	2,0	Number	29	71	51	0	45	12	208
		% in 16	13,9%	34,1%	24,5%	0,0%	21,6%	5,8%	100,0%
		% in 22	65,9%	65,7%	68,0%	0,0%	72,6%	85,7%	68,4%
Sum		Number	44	108	75	1	62	14	304
		% in 16	14,5%	35,5%	24,7%	0,3%	20,4%	4,6%	100,0%
		% in 22	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Cross Table 16*23

			23			
			1,0	1,2	2,0	Sum
16	1,0	Number	44	0	52	96
		% in 16	45,8%	0,0%	54,2%	100,0%
		% in 23	29,1%	0,0%	34,4%	31,6%
	2,0	Number	107	2	99	208
		% in 16	51,4%	1,0%	47,6%	100,0%
		% in 23	70,9%	100,0%	65,6%	68,4%
Sum		Number	151	2	151	304
		% in 16	49,7%	0,7%	49,7%	100,0%
		% in 23	100,0%	100,0%	100,0%	100,0%

6. General Crowding Perception Questions

General Crowding Perceptions

9

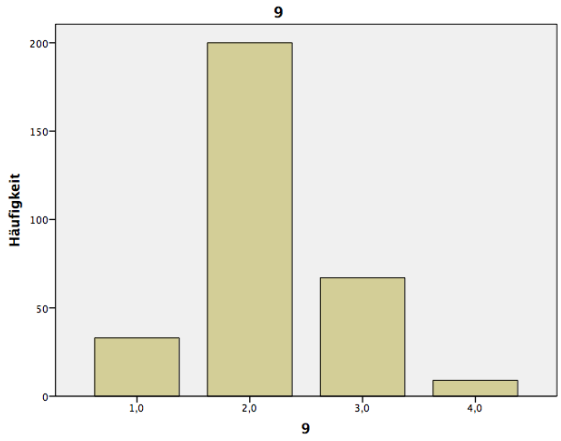
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	33	9,4	10,7	10,7
	2,0	200	57,1	64,7	75,4
	3,0	67	19,1	21,7	97,1
	4,0	9	2,6	2,9	100,0
	Sum	309	88,3	100,0	
Absent in	System	41	11,7		
Sum		350	100,0		

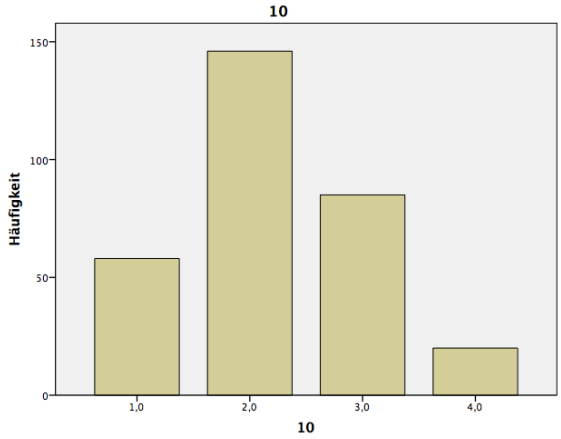
10

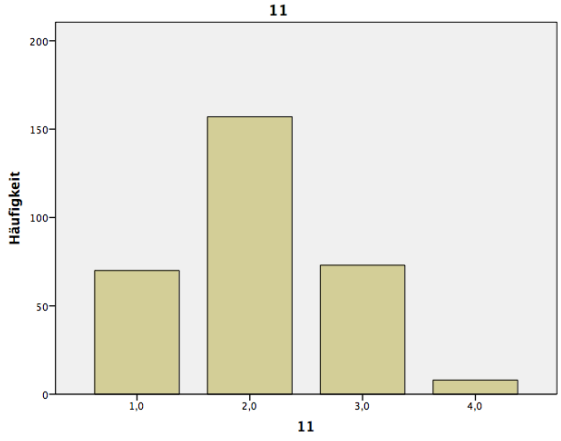
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	58	16,6	18,8	18,8
	2,0	146	41,7	47,2	66,0
	3,0	85	24,3	27,5	93,5
	4,0	20	5,7	6,5	100,0
	Sum	309	88,3	100,0	
Absent in	System	41	11,7		
Sum		350	100,0		

11

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	70	20,0	22,7	22,7
	2,0	157	44,9	51,0	73,7
	3,0	73	20,9	23,7	97,4
	4,0	8	2,3	2,6	100,0
	Sum	308	88,0	100,0	
Absent in	System	42	12,0		
Sum		350	100,0		


9
Häufigkeit
200
150
100
50
0
1,0
2,0
3,0
4,0
9


10
Häufigkeit
150
100
50
0
1,0
2,0
3,0
4,0
10


11
Häufigkeit
200
150
100
50
0
1,0
2,0
3,0
4,0
11

Cross Table 10*Weekday/ Weekend

			Weekday/ Weekend		
			1,0	2,0	Sum
10	1,0	Number	18	40	58
		% in 10	31,0%	69,0%	100,0%
		% in Weekday/ Weekend	13,4%	22,9%	18,8%
		% des Gesamtergebnisses	5,8%	12,9%	18,8%
	2,0	Number	53	93	146
		% in 10	36,3%	63,7%	100,0%
		% in Weekday/ Weekend	39,6%	53,1%	47,2%
		% des Gesamtergebnisses	17,2%	30,1%	47,2%
	3,0	Number	50	35	85
		% in 10	58,8%	41,2%	100,0%
		% in Weekday/ Weekend	37,3%	20,0%	27,5%
		% des Gesamtergebnisses	16,2%	11,3%	27,5%
	4,0	Number	13	7	20
		% in 10	65,0%	35,0%	100,0%
		% in Weekday/ Weekend	9,7%	4,0%	6,5%
		% des Gesamtergebnisses	4,2%	2,3%	6,5%
Sum		Number	134	175	309
		% in 10	43,4%	56,6%	100,0%
		% in Weekday/ Weekend	100,0%	100,0%	100,0%
		% des Gesamtergebnisses	43,4%	56,6%	100,0%

Tables on how many people in are acceptable in surroundings

6

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	67	19,1	22,0	22,0
	2,0	84	24,0	27,5	49,5
	3,0	61	17,4	20,0	69,5
	4,0	93	26,6	30,5	100,0
	Sum	305	87,1	100,0	
Absent in	System	45	12,9		
Sum		350	100,0		

7

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	75	21,4	24,6	24,6
	2,0	89	25,4	29,2	53,8
	3,0	58	16,6	19,0	72,8
	4,0	83	23,7	27,2	100,0
	Sum	305	87,1	100,0	
Absent in	System	45	12,9		
Sum		350	100,0		

13

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	64	18,3	21,3	21,3
	2,0	95	27,1	31,7	53,0
	3,0	77	22,0	25,7	78,7
	4,0	64	18,3	21,3	100,0
	Sum	300	85,7	100,0	
Absent in	System	50	14,3		
Sum		350	100,0		

Table on how many people in are acceptable in surroundings

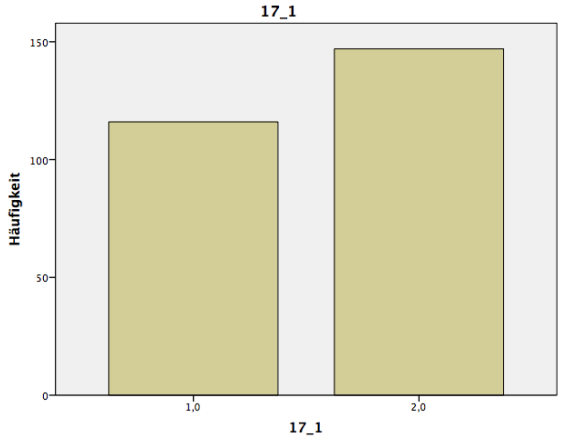
Cross Table 22*13

			13				
			1,0	2,0	3,0	4,0	Sum
22	1,0	Number	14	16	10	3	43
		% in 22	32,6%	37,2%	23,3%	7,0%	100,0%
		% in 13	21,9%	17,0%	13,3%	4,8%	14,5%
	2,0	Number	22	43	27	15	107
		% in 22	20,6%	40,2%	25,2%	14,0%	100,0%
		% in 13	34,4%	45,7%	36,0%	23,8%	36,1%
	3,0	Number	16	16	21	17	70
		% in 22	22,9%	22,9%	30,0%	24,3%	100,0%
		% in 13	25,0%	17,0%	28,0%	27,0%	23,6%
	3,4	Number	0	1	0	0	1
		% in 22	0,0%	100,0%	0,0%	0,0%	100,0%
		% in 13	0,0%	1,1%	0,0%	0,0%	0,3%
	4,0	Number	10	15	14	23	62
		% in 22	16,1%	24,2%	22,6%	37,1%	100,0%
		% in 13	15,6%	16,0%	18,7%	36,5%	20,9%
	5,0	Number	2	3	3	5	13
		% in 22	15,4%	23,1%	23,1%	38,5%	100,0%
		% in 13	3,1%	3,2%	4,0%	7,9%	4,4%
Sum		Number	64	94	75	63	296
		% in 22	21,6%	31,8%	25,3%	21,3%	100,0%
		% in 13	100,0%	100,0%	100,0%	100,0%	100,0%

7. Willingness to Pay Questions

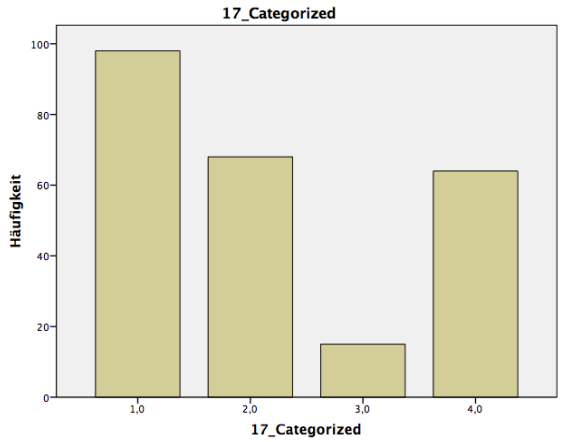
17_1

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	116	33,1	44,1	44,1
	2,0	147	42,0	55,9	100,0
	Sum	263	75,1	100,0	
Absent in	System	87	24,9		
Sum		350	100,0		



17_Categorized

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,0	98	28,0	40,0	40,0
	2,0	68	19,4	27,8	67,8
	3,0	15	4,3	6,1	73,9
	4,0	64	18,3	26,1	100,0
	Sum	245	70,0	100,0	
Absent in	System	105	30,0		
Sum		350	100,0		



Categories:

1: 0.5- 5 RM 2: 6-10 RM 3: > 10 RM 4: Annual Pass (RM= Malaysian Ringgit)

Cross Table 17_1*9

			9				
			1,0	2,0	3,0	4,0	Sum
17_1	1,0	Number	7	83	23	2	115
		% in 17_1	6,1%	72,2%	20,0%	1,7%	100,0%
	2,0	Number	18	93	32	4	147
		% in 17_1	12,2%	63,3%	21,8%	2,7%	100,0%
Sum		Number	25	176	55	6	262
		% in 17_1	9,5%	67,2%	21,0%	2,3%	100,0%

Cross Table 17_1*11

			11				
			1,0	2,0	3,0	4,0	Sum
17_1	1,0	Number	17	69	28	1	115
		% in 17_1	14,8%	60,0%	24,3%	0,9%	100,0%
	2,0	Number	43	67	33	4	147
		% in 17_1	29,3%	45,6%	22,4%	2,7%	100,0%
Sum		Number	60	136	61	5	262
		% in 17_1	22,9%	51,9%	23,3%	1,9%	100,0%

Cross Table 17_1*12_1

			12_1	
			1,0	Sum
17_1	1,0	Number	20	20
		% in 17_1	100,0%	100,0%
	2,0	Number	17	17
		% in 17_1	100,0%	100,0%
Sum		Number	37	37
		% in 17_1	100,0%	100,0%

Cross Table 17_1*12_12

			12_12	
			2,0	Sum
17_1	1,0	Number	21	21
		% in 17_1	100,0%	100,0%
	2,0	Number	16	16
		% in 17_1	100,0%	100,0%
Sum		Number	37	37
		% in 17_1	100,0%	100,0%

Cross Table 17_1*12_13

			12_13	
			3,0	Sum
17_1	1,0	Number	19	19
		% in 17_1	100,0%	100,0%
	2,0	Number	22	22
		% in 17_1	100,0%	100,0%
Sum		Number	41	41
		% in 17_1	100,0%	100,0%

Cross Table 17_1*12_14

			12_14	
			4,0	Sum
17_1	1,0	Number	26	26
		% in 17_1	100,0%	100,0%
	2,0	Number	30	30
		% in 17_1	100,0%	100,0%
Sum		Number	56	56
		% in 17_1	100,0%	100,0%

Cross Table 17_1*12_15

			12_15	
			5,0	Sum
17_1	1,0	Number	9	9
		% in 17_1	100,0%	100,0%
	2,0	Number	6	6
		% in 17_1	100,0%	100,0%
Sum		Number	15	15
		% in 17_1	100,0%	100,0%

Cross Table 17_1*12_16

			12_16	
			6,0	Sum
17_1	1,0	Number	14	14
		% in 17_1	100,0%	100,0%
	2,0	Number	13	13
		% in 17_1	100,0%	100,0%
Sum		Number	27	27
		% in 17_1	100,0%	100,0%

Cross Table 17_1*12_17

			12_17	
			7,0	Sum
17_1	1,0	Number	11	11
		% in 17_1	100,0%	100,0%
	2,0	Number	18	18
		% in 17_1	100,0%	100,0%
Sum		Number	29	29
		% in 17_1	100,0%	100,0%

Table on what people would pay to enter a separate, less crowded area

@17_1_Categorized

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1,00	57	16,3	73,1	73,1
	2,00	13	3,7	16,7	89,7
	3,00	8	2,3	10,3	100,0
	Sum	78	22,3	100,0	
Absent in	System	272	77,7		
Sum		350	100,0		

Categories:

1: 1-5 RM 2: 5- 10 RM 3: > 10 RM (RM= Malaysian Ringgit)

Personal Declaration

I hereby declare that the submitted thesis is the result of my own, independent work. All external sources are explicitly acknowledged in the thesis.

Zurich, 30. September 2016 Joëlle Linggi