VOLUNTEER FIREFIGHTERS

AND THEIR INTENTION TO REMAIN ACTIVE

October 27, 2014

UNIVERSITY OF TWENTE.

Master thesis Public Administration
Tamo Vogel

UNIVERSITY OF TWENTE.

Date
October 27, 2014

Presentation of a Master thesis about volunteer firefighters in the Netherlands and their intention to remain active within the fire service.

Author
Tamo Vogel, BSc.
tamovogel@hotmail.com

Study
Public Administration (track: Public Safety)

School
University of Twente
Enschede, the Netherlands

Under supervision of

Dr. A.J.J. Meershoek
Department of Management and Governance
University of Twente
Enschede, the Netherlands

Dr. J.S. Svensson
Department of Management and Governance
University of Twente
Enschede, the Netherlands

Preface

This report will present the results of a research towards the intention of Dutch volunteer firefighters to remain active. This master thesis is written to complete my Public Administration study at the University of Twente.

For me, being a volunteer firefighter myself, it has not been difficult to choose a topic for the master thesis. From the beginning on I aimed for a topic within the fire service, and even though the Public Safety track is more orientated towards crime and policing, my supervisors supported me in this desire. I came familiar with the problems that volunteer firefighters experience and wanted to contribute to the knowledge about volunteer firefighters and how fire brigades could improve the preservation of their volunteers.

It took me a while to finish this research project. I would like to thank my supervisors Guus Meershoek and Jörgen Svensson for their patience and their support. In particular I would like to thank Jörgen for his guidance regarding the statistical analysis of the data.

I would not have been able to finish this research without the fantastic support of my loving parents. I know how hard it has been for you and how patient you have had to be with me. Thanks for believing in me despite everything. I would also like to thank Martijn Boeijink. You gave me the opportunity to become a firefighter and already taught me so many things. I will keep learning from you. Thanks.

I hope you will enjoy reading this report.

Tamo Vogel

Eibergen, October 27, 2014

Summary

Volunteers play an important role within the Dutch fire service. In 2014, over 80 percent of the total population of firefighters are volunteers. There is concern that more active volunteers will decide to leave the fire service. Statistics do show that the population of volunteer firefighters in the Netherlands decreased with 1250 persons in the period from 2010 till 2014. This research provides more knowledge in the decision making process of volunteer firefighters and predicts how their decision to remain active is taken. In this research this decision is analyzed using the Theory of Planned Behavior.

The Theory of Planned Behavior holds that behavior is predicted by a persons' intention to perform the behavior or not. This intention is constructed by the attitude towards the behavior, the perceived norm which holds the social pressure to engage in the behavior, and the perceived behavioral control which is formed by beliefs about personal and external factors that facilitate or complicate the attempts to carry out the behavior. To analyze the intention of volunteer firefighters and how important each of its constructs are, a questionnaire was held among volunteer firefighters. In total 486 respondents participated in the questionnaire. The analysis on internal consistency found that the items which measured perceived behavioral control had to be divided into two separate variables, namely physical ability to remain active and the easiness of combining volunteer firefighting with other activities.
The logistic regression analysis showed that the adapted Theory of Planned Behavior is significant in the prediction of intention. Attitude is the most important variable in the construction of intention of volunteer firefighters to stay active. The second variable proved to be the perceived norm of a volunteer firefighter. The third strongest variable is the estimated physical ability and the last but still significant variable that influences intention is combining volunteer firefighting with other activities.

The results showed that overall intention to remain active is very high. However, almost one out of eight volunteer firefighters has a negative intention and for this group of volunteers it is likely that they will stop within the next few years. Most opportunity for improvement of intention lies in the variable perceived norm. Better appreciation and support by management of security regions and local politicians will most likely result in a better perceived norm. Also partners and employers are very important in developing a perceived norm to continue or not and especially the support of employers has opportunity for improvement. Volunteer firefighters already have high positive attitudes and are in general confident that they will be physically able to remain active. They are less positive about the easiness to combine volunteer firefighting with other activities. By decreasing the demands and obligations or adapting to a more flexible role, it will become easier for volunteers to combine their activities which would result in a higher intention to stay active.
Certain developments and background factors were also analyzed to assess their influence on intention and its four constructs. Most important factors are age and the experienced level of bureaucracy. Gender, time spend on volunteering and experiences with aggression, variable crews, rapid intervention vehicles and budget cuts did not have a significant relation with intention to stay active. There also was no difference in intention or its four constructs between firefighters who were already part of a regionalized fire brigade and those who were in the process of regionalization.

One of the recommendations of this research is to better appreciate and value volunteer firefighters and make them more involved in policy making. Secondly, the fire service should consider adapting to a more modern and flexible role of volunteering due to changes in society and demands and expectations of future volunteers. The last recommendation states that fire brigades have to try to further improve social support for their volunteers, for instance by more involving employers of their volunteers.

Samenvatting

Binnen de Nederlandse brandweer spelen vrijwilligers een grote rol. In 2014 is zelfs ruim 80 procent van de actieve brandweerlieden een vrijwilliger. Er zijn zorgen dat meer vrijwillige brandweerlieden voortijdig zullen stoppen met hun werk binnen de brandweer. Statistische gegevens laten inderdaad zien dat in de periode van 2010 tot 2014 het aantal vrijwilligers binnen de brandweer met 1250 is gedaald. Dit onderzoek en rapport geeft meer inzicht en kennis in de beslissing die vrijwilligers nemen over hun actieve toekomst binnen de brandweer. Deze beslissing wordt geanalyseerd met behulp van de Theory of Planned Behavior, vrij vertaald als de theorie van geredeneerd gedrag.

Volgens de Theory of Planned Behavior kan een gedraging voorspeld worden aan de intentie van een persoon om de gedraging uit te voeren. Deze intentie is opgebouwd uit de attitude (houding) vergeleken met de gedraging, de veronderstelde sociale norm en druk om de gedraging uit te blijven voeren en de veronderstelde controle die de persoon over het uitvoeren van de gedraging heeft. Om uit te vinden hoe deze intentie is en is opgebouwd is er een enquête gehouden onder brandweervrijwilligers. In totaal hebben 486 brandweervrijwilligers deel genomen aan het onderzoek. Uit de controle op interne consistentie van de resultaten bleek dat de vragen die controle over de gedraging bepaalden onvoldoende met elkaar samenhingen. Daarom is deze variabele vervangen door twee afzonderlijke variabelen, te weten de fysieke bekwaamheid en de mate waarin het werk binnen de brandweer gecombineerd kon worden met andere activiteiten.
Uit de logistische analyse bleek dat het aangepaste model van de Theory of Planned Behavior significant is in het voorspellen van intentie. Attitude bleek de meest belangrijke variabele, gevolgd door de veronderstelde sociale druk. Ook fysieke bekwaamheid en het combineren van activiteiten bleken een significante invloed te hebben op de variatie in intentie om actief te blijven.

Uit de resultaten bleek dat de intentie van brandweervrijwilligers om actief te blijven erg hoog is. Toch kwam naar voren dat bijna één op de acht vrijwilligers een negatieve intentie heeft en het waarschijnlijk is dat zij zullen stoppen. Het meest effectief is het om intentie te verbeteren door de veronderstelde sociale norm te verbeteren. Meer waardering en steun van de (leiding van) veiligheidsregio's en politiek zal een positief effect hebben op de intentie om actief te blijven. Ook de mening van partners en werkgevers blijken belangrijk te zijn en vooral een verbeterde relatie tussen de brandweerorganisatie en werkgevers zal resulteren in een hogere intentie. De attitude van vrijwilligers ten aanzien van het brandweerwerk is al erg positief en de vrijwilligers hebben over het algemeen veel vertrouwen in hun fysieke bekwaamheid. Minder positief zijn de vrijwilligers over het combineren van brandweerwerk en overige activiteiten. Door het verminderen van eisen en verplichtingen of het aanpassen naar een meer flexibele rol kan de brandweerorganisatie ervoor zorgen dat vrijwilligers hun activiteiten beter kunnen combineren en daardoor langer actief blijven.
Ook de invloed van bepaalde factoren en ontwikkelingen op intentie is onderzocht. Zo blijkt dat leeftijd en de ervaren (negatieve) bureaucratie een relatie hebben tot een verminderde intentie. Geslacht en ervaring met agressie, variabele voertuigbezetting, SIV-voertuigen en bezuinigingen hadden geen significante relatie met de intentie om actief te blijven als vrijwilliger. Ook is er geen verband gevonden tussen regionalisering en intentie of zijn vier construerende variabelen.

Een belangrijke aanbeveling van dit onderzoek is om er echt voor te zorgen dat vrijwilligers meer waardering en steun krijgen en hen meer betrokken te maken bij het opstellen van beleid. In de tweede plaats zal de brandweerorganisatie zich moeten beraden op hoe om te gaan met de toenemende vraag voor een meer moderne en flexibele vrijwilligersrol waarbij het traditionele op loyaliteit gebaseerde en lange termijn vrijwilligersschap onder druk zal komen te staan. De laatste aanbeveling geeft aan dat de brandweer moet proberen om de sociale steun die vrijwilligers ondervinden te vergroten door bijvoorbeeld hun werkgevers meer bij de brandweer te betrekken.

Table of contents

Table of figures

Introduction

Volunteers of all kinds are a popular subject among researchers with different theoretical backgrounds. Social scientists may focus on who volunteers or why people volunteer, where economic scientists try to estimate the economic value that volunteers represent. In this research volunteers are also the subject of discussion. This research focuses on a specific group of volunteers, namely volunteer firefighters in the Netherlands.

The fire service in the Netherlands is a changing and developing organization of great social importance. Within this organization volunteers have a long and important history. Were in the past many civilians had to cooperate and form a chain of people to extinguish fires using buckets, nowadays modern trucks with advanced materials and well trained and equipped personnel turn up. But even in these modern times the fire departments still largely depend on volunteers who are willing to train hard and respond to emergencies besides their daily work and social life. Of course the role of this volunteer and how they are used within the organization has changed over times, but the fire service in the Netherlands would not be able to provide the same level of service and security without these volunteers.

This research will focus on how Dutch volunteer firefighters think about their future. The decision they take about their active career is analyzed into more detail. A scientific model is presented that can help understand this decision and even predict the outcome of it. This model is based on the in social sciences commonly used Theory of Planned Behavior. To analyze the decision of volunteers about their future a questionnaire has been held among volunteer firefighters. In total 486 volunteer firefighters throughout the Netherlands participated in this study, which resulted in a lot of usable data. With this data is shown how attitude, perceived norm and perceived behavioral control influence the intention of volunteer firefighters to stay active or not. Also is analyzed if and how background factors and certain developments like regionalization and experiences with aggression influence the intention of volunteer firefighters.

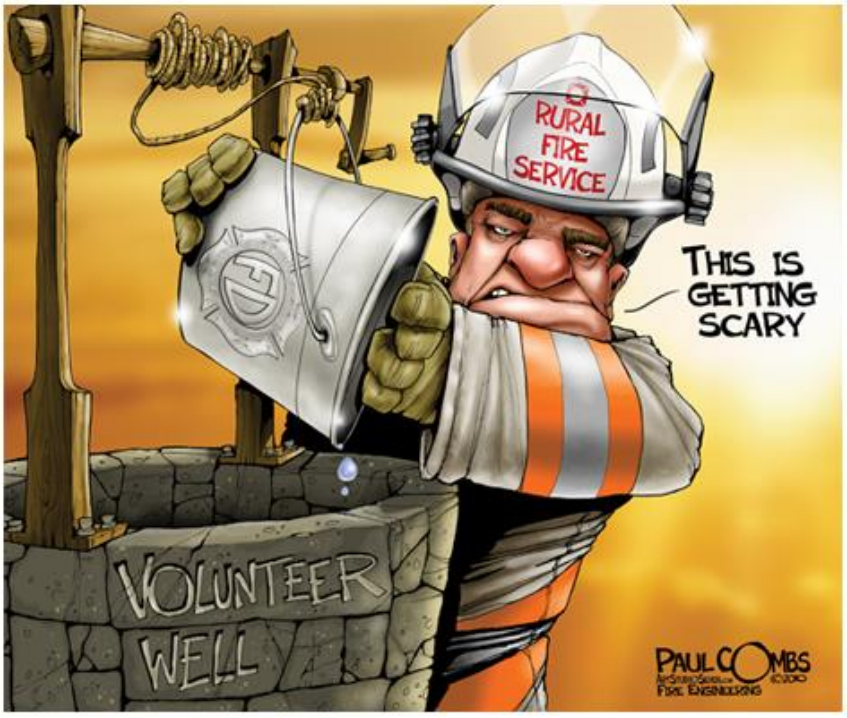
The next two chapters will explain why Dutch volunteer firefighters are the subject of this research and presents the problem statement with its related research questions. The third chapter sketches how the fire service in the Netherlands is organized with special attention to the role of volunteers within this organization. This chapter is followed by a literature review on volunteers in public organizations. Within this literature review can be found which process a volunteer goes through and what makes what makes them start volunteering, how commitment is influenced and what makes them leave. Chapter five presents the research method and gives information on how the questionnaire has been designed and analyzed. The results of the questionnaire are presented in chapter six and in the subsequent chapter these results are discussed into more detail. The most important conclusions are presented in chapter 8 and the report is finished with a chapter about some recommendations for fire brigades to better retain their volunteers.

1. Problem indication

In the Netherlands about 80 percent of the operational or active firefighters are volunteers. The volunteers are prepared to be “on-the-call” for 24 hours and 7 days per week, perform risky activities and are confronted with life and death situations. Since 2009 the overall number of volunteer firefighters in the Netherlands is decreasing (Statistics Netherlands, 2014). The recruitment of new qualified volunteers is often difficult and their education and training to become a fully prepared firefighter is costly and time consuming. That is why fire brigades try to keep the already trained and experienced volunteer firefighters active for as long as possible. If more active volunteer firefighters would decide to leave the fire service, many fire brigades will struggle to provide their basic fire and rescue services. Therefore it is important to analyze and monitor motivation and (dis-)satisfaction among the active volunteers.

In 2011 the political Socialist Party (Socialistische Partij, SP) in the Netherlands initiated a large enquiry among Dutch firefighters. Their research focused on many aspects to find out existing work-related problems and dissatisfaction. One of the main outcomes that gained a lot of media attention was the indication that almost one third of the firefighters thought about leaving the fire service (Raak, Palm, Sarwary, & Vries, 2011). The departure of one third of the volunteers would have far-reaching consequences for the fire service. Fire brigades will become understaffed and the safety of fire personal as well as the safety of the general public will be hard to guarantee.

This makes it even more important to look into the alarming statement of the SP research and to scientifically verify if this problem does exist. Above that there is a need for more knowledge and insight in the decision making process and intention of volunteer firefighters to stay active within the fire service. This research will try to provide this insight and knowledge.



Cartoon by Paul Combs (http://www.artstudioseven.com/index.htm)

2. Problem statement

Volunteers are important within our societies and many organizations, sport clubs and people depend on the dedication of these people to fulfill all kinds of tasks. The added value and necessity of volunteer work are commonly accepted even though it is hard to come up with an economic value of it. The importance of volunteering is mostly defined by immeasurable impacts as the contribution to social capital, social cohesion, personal development and empowerment (Czerwińska & Held, 2008). The importance and (presumed) value of their work are two important reasons why governments are keen on volunteers. Unfortunately, it is expected that in most western countries a decreasing trend in the number of volunteers will occur or continue (TNS Opinion and Social, 2010)& (Hustinx, Meijs, & Hoorn, 2007). Following existing literature on volunteering, this can be the result of several cultural changes. Aspects like changing patterns of life with more alternatives to spend free-time, the ageing of society, increasing individualization and therewith a decrease of social commitment and solidarity are frequently addressed to cause the decline in available volunteers (Hustinx, Meijs, & Hoorn, 2007) & (Thiessen, 2004). These causes are general and affect almost all organizations that use volunteers in their activities. To find out how a specific organization could increase the recruitment and preservation of volunteers one has to search for more organization specific causes, characteristics and developments.

There already is a reasonable amount of literature available regarding volunteer firefighters. Much literature focuses on why people became a volunteer firefighter or how they feel about their volunteer work. But if one takes a second look there is not much scientifically based research available that focuses on the decision making process of a volunteer firefighter about his or her active future. There is not a lot known about the psychological factors that influence the decision to stay active within or in other cases leave the fire service.

Therefore this research will aim to gain more knowledge in the decision making process of volunteer firefighters and to predict how the decision towards their future will be taken. To reach this objective the central question of this research is defined as follows:

Which factors influence the decision of Dutch volunteer firefighters to stay active within the fire service?

To find an answer to this question the following sub-questions are formulated:

- What role play volunteers in the Dutch fire service
- With which developments and issues are Dutch volunteer firefighters confronted?
- What causes volunteers to join, to stay and to leave public organizations?
- What is the intention of Dutch volunteer firefighters to remain active in the near future?
- How can volunteer fire brigades improve the retention of their volunteers?

The next chapter will start with answering the first two sub questions by providing information about the Dutch fire service and how volunteers play a role within this organization.

3. Dutch volunteer firefighters

The subjects of this research are volunteer firefighters in the Netherlands. This chapter will give information about the fire service in the Netherlands and the role of volunteers within this organization. The first paragraph will elaborate on the role of the fire service in the Netherlands and how it is organized. Then the role of volunteers in the Dutch fire service will be discussed. The third part of this chapter gives insight in the statistical trend of the number of Dutch volunteer firefighters. A small part of this chapter will zoom in on previous research about why people join or leave the Dutch fire service. After that recent developments will be discussed and this chapter is ended by a conclusion which summarizes the main findings of this chapter.

3.1 Fire service in the Netherlands

The fire service is not solely focused on extinguishing fires. This paragraph will introduce the function and broad usage of the fire service in the Netherlands and how the administrative responsibility of fire departments is arranged.

3.1.1 Role of the fire service organization

The fire service is among the police and ambulance services, one of the main emergency services in the Netherlands. Its tasks and responsibilities are established by Dutch legislation. Of course this legislation states that the fire service must try to prevent, confine and fight fires as good as they can. But it also states that the fire service plays an important role in reducing fire risks and in controlling dangers to human beings and animals during emergencies other than fires. Warning the population during emergencies and reconnaissance and decontamination at hazardous materials incidents are also by law assigned to the fire service. Finally the fire service must advise governmental agencies and other organizations on fire prevention and fire fighting and how to prevent, confine and control incidents with hazardous materials[1]. This shows that the fires service has an active role not only during emergencies but also in the prevention and reduction of fires and other dangers. They give advice, raise awareness and inspect permits and licenses. All of its activities can be placed into five categories. These are pro-action, prevention, preparation, repression and aftercare.

Volunteer firefighters are mostly active in the preparation and repression stage which contains the response to actual emergencies. Dutch firefighters are trained to respond to emergencies that are classified into four types of incidents:

1. Fighting fires
2. Technical rescue and technical assistance
3. Water-rescue
4. Assistance at incidents involving hazardous materials

This shows how versatile a fire fighter must be. Not only must they be able to rescue people and put out fires, but also have the knowledge and skills to free entrapped victims and deal with hazardous materials.

[1] See paragraph 4, article no. 25 from the act on security regions (http://wetten.overheid.nl/BWBR0027466/)

3.1.2 Organizational structures

The Dutch fire brigades have in recent history all been under the authority of local governments. A recent development shifted this authority from local governments to so called 'security-regions'. On the first of October 2010 the act on the security regions went officially into practice, creating 25 security regions in the Netherlands. In these regions different governmental organizations work together in the field of fire services, crisis- and disaster management, medical emergency services and in maintaining public order and security. The formal administration of these security regions is composed out of the mayors of the affiliated municipalities. A delegation of these mayors forms the executive management (Schat, 2010).

Regionalization results in changes for both fire brigades as for firefighters. They will no longer function under the authority of local government, but become part of one fire department within and under the control of the security region. All personnel including volunteer firefighters will be employed by security regions instead of municipalities. The Dutch parliament passed an amendment of the act on security regions on the 14th of February 2012. This amendment forced local governments to hand over 'their' fire brigades to the security regions in 2014 (NVBR, 2012) & (Ministry of Security and Justice, 2011). The regionalization and its expected effect on the volunteers will be elaborated in paragraph 3.5.1

Figure 1 | The 25 security regions (Aalst, 2013)

3.2 Role of volunteer firefighters

Volunteers play an important and unique role within the fire service. Unlike most volunteers in other professions, the volunteer firefighters perform life risking activities and are confronted with high impact and life and death situations. This paragraph will give more information on the role of volunteer firefighters within the Dutch fire service.

3.2.1 Employment of volunteers

Volunteers are within the fire brigades employed in three different organizational structures. The first and most used organizational structure are brigades where volunteers serve as the primary group of emergency responders. These volunteers are paged when an emergency in their area occurs, speed themselves to the fire station and respond to the emergency. There is a variety in ways these volunteers are used. Some fire brigades use a schedule or timetable through which volunteers are 'on-duty' or not. The ones who are on-duty are expected to make their way towards the fire station when there is a call. Then there are departments where all volunteers are free to come whenever there is a call. Some departments use a combination of both.

Secondly, there are fire brigades where fire stations are 24/7 staffed by career firefighters, but who use volunteers as a back-up or reinforcement. These brigades can primarily be found in larger cities. Normally the career-firefighters are first to be send to an emergency and handle most of the calls. The volunteers are mainly deployed when the career-firefighters are already occupied or during major and time-consuming incidents.

The third organizational structure also uses a combination of career-firefighters and volunteers. The difference is that these fire departments are staffed by career-firefighters only during working hours. During the day, volunteers might be used as an addition of the career-firefighters and are paged to complete the crew for a turnout. Some departments use volunteers to staff the fire station during the evening, night and weekend. During those hours a group of volunteers eat, sleep and spend their time together at the fire station.

3.2.2 Education and training

Before someone can be employed as a fire fighter, he or she must pass a medical and physical test. A newly hired volunteer will then receive extensive training to become a basic fire fighter (known as 'manschap A'). Most new volunteer firefighters follow the basic course during evening classes where it will take them about two and a half years to complete (Brandweer Nederland, 2013). The students are trained in fire fighting techniques, technical rescues, water-rescues and in hazardous materials response. After they complete this first course the firefighters may specialize themselves into certain areas or follow new courses to achieve a higher rank. Being a (volunteer) fire fighter comes with lifelong learning, and they are obligated to practice their skills on a regular basis during their active career.

3.2.3 Volunteer versus career firefighters

The fire service has two types of operational personal who respond towards emergencies, namely the volunteer firefighters and career firefighters. The most important difference between these two is that (most) volunteers have a main profession outside their work for the fire service, while working within the fire service is the main profession for the career firefighters. Most career firefighters can be found in the larger cities and areas where the number of incidents or turnouts[2] would place too

[2] By turnout is meant each incident the firefighters are paged for, for instance a fire-call or traffic accident.

much of a burden on volunteers. Besides the occupational difference, the requirements for both volunteer as career-firefighters are the same. Volunteer firefighters must pass the same physical tests as career firefighters and there is no difference in the basic training they receive. All firefighters are expected to meet the same requirements at the end of their training period. Therefore volunteer and career-firefighters are, at least in theory, interchangeable.

3.2.4 Financial compensation

The term 'volunteer' is already often used in this research. Most people describe volunteering as work for an organization without being paid. In this research volunteering is defined as the free choice made by an individual or group to participate in the range of activities within a formal governmental organization, with a social purpose that benefits one or more others, without the necessity of the volunteer to personally benefit from it (this will be elaborated in chapter 4.2). By this definition one must understand that volunteering is a complex phenomenon and covers a wide variety of activities, organizations and sectors (Hustinx, Cnaan, & Handy, 2010).

Dutch volunteer firefighters do not meet the principle idea that volunteers do not receive financial compensation for their work. The volunteer firefighters are entitled to financial compensation. For every turnout[1] they receive a certain hourly wage. Each volunteer also receives an annual allowance and salary over the time they spend on education and practicing their skills (College van Arbeidszaken VNG, 2011). This might conflict with the public opinion about volunteer work and some argued to change the term volunteer fire fighter into part-time fire fighter (e.g. Hopmans & Olde (2006)). The term is debated not only because of the financial compensation they receive, but also because the job of volunteer fire fighter comes with demands and obligations like a permanent job. For now, the members of this research population are considered to be volunteers and their motivations and decisions will be analyzed from this point of view.

American firefighters (photo by Andrew Magill)

3.3 Number of volunteer firefighters

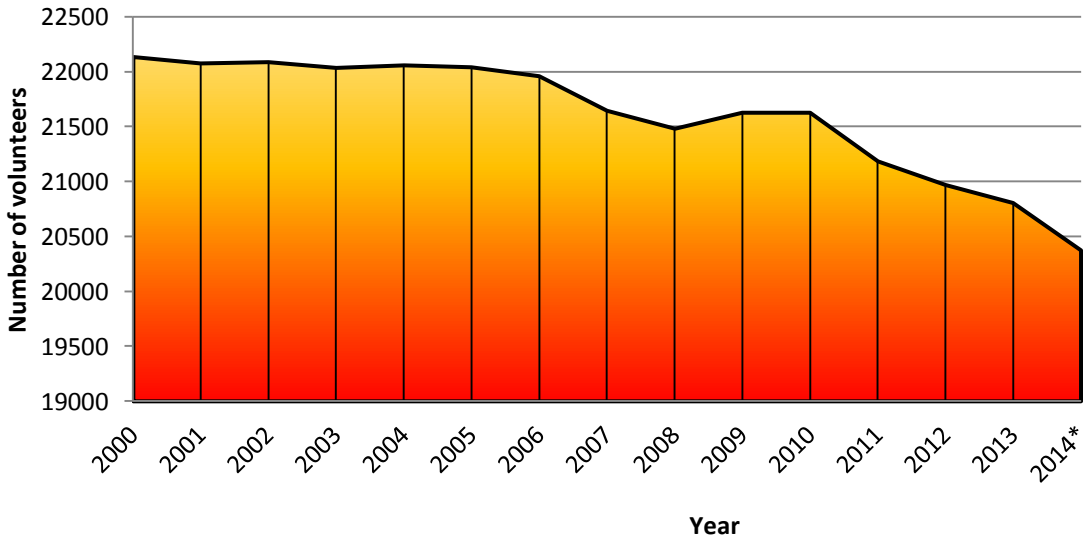
3.3.1 Statistics

Volunteer firefighters are active in each of the 25 security regions. This paragraph will give information about statistics involving volunteer firefighters and the trend in their number over the past few years.

The organization 'Statistics Netherlands' keeps track of all kind of statistics involving the fire service. These statistics involve aspects like the number and type of incidents, the number of victims related to fires and costs of the organization. They also provide information about the number of employees of fire brigades and security regions. Their latest report shows that on the first of January 2014 just over 29.500 persons are employed in within the fire service. This number includes both operational personnel with repressive functions and non-operational or administrative staff. The numbers indicate that volunteers play an important role within the Dutch fire service. If one considers the proportion of volunteer firefighters among operational personnel, it can be seen how important they are. In 2013 there were 20.795 active volunteer firefighters against 5.218 active career firefighters. This shows that over 80 percent of the operational firefighters are volunteers. The percentages of volunteers among operational personnel range from 28 percent in security region 'Amsterdam-Amstelland' towards almost 91 percent in 'North- and East Gelderland' (Statistics Netherlands, 2014).

Statistics Netherlands publishes numbers on volunteer firefighters since the year 2000. In the past few years there has been concern that there is a decline in the number of volunteer firefighters. The trend in the number of volunteer firefighters over the last fourteen years is visualized in the graph below.

Graph 1 | Number of volunteer firefighters in the Netherlands **(Statistics Netherlands, 2014)**



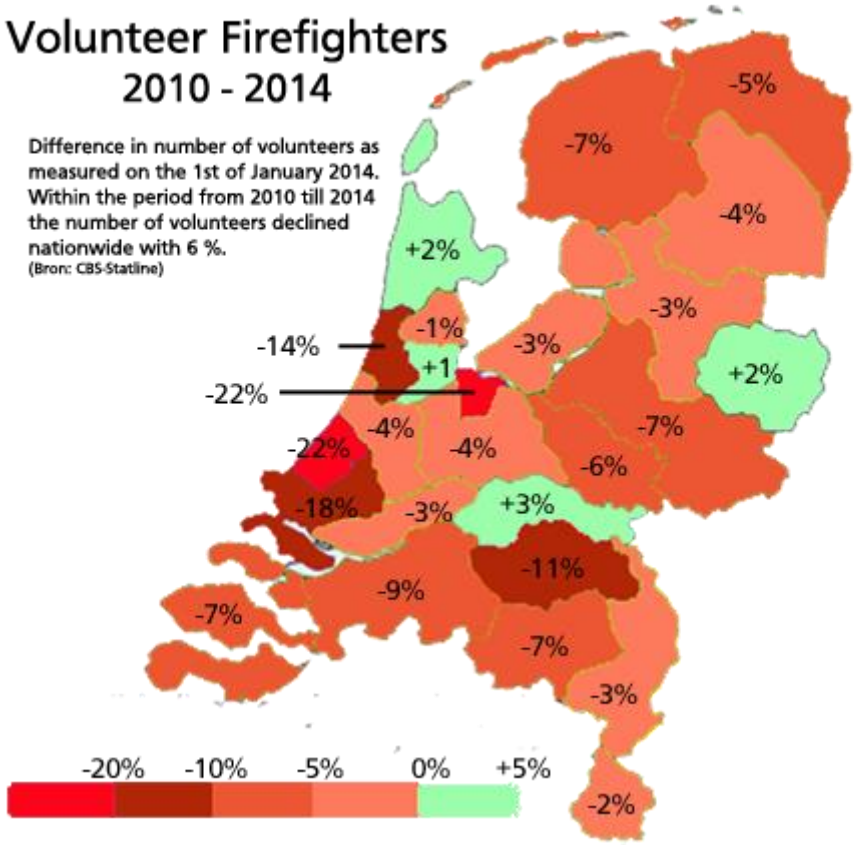
*provisional figure

This graph shows an overall negative trend over the period 2000 till 2014. In 2000, the total number of volunteer firefighters was 22.132. The (provisional) figure for 2014 shows that there are still 20.374 volunteer firefighters active. This means that from 2000 till now, the number of volunteers dropped with 1758, which is almost 8 percent. From 2000 till 2014 the number of career-firefighters among the operational personnel increased with 316 or 6.5 percent. The number of supporting staff and personnel increased with 744 or 22.4 percent in the period from 2005 to 2014 (Statistics Netherlands, 2014). The number of total callouts for the fire departments in the Netherlands increased from 2000 to 2012 with 4.000 incidents. This is an increase of almost three percent (Statistics Netherlands, 2013).

3.3.2 Less volunteer firefighters

Already in 2009 media published news about a dramatic drop in the number of volunteer firefighters in the Netherlands. They stated that from 2006 till 2009 over a thousand volunteers left their brigade (Algemeen Dagblad, 2009) & (NOS Journaal, 2009). Although the Ministry of Interior and Kingdom Relations proved this number to be wrong, they did state that in those years the number of volunteers dropped with 543 (Minstry of the Interior and Kingdom Relations, 2009). The statistics as discussed in chapter 3.3.1 show that the negative trend continues and even increases within the past few years. From 2010 to 2014 the number of volunteer firefighters dropped with over 1250 persons (Statistics Netherlands, 2014). Figure 2 displays the change over this period per security region. The variation in the number of active volunteers is mainly determined by the quantity of newly attracted personnel minus volunteers who left the brigade.

Figure 2 | Decrease in volunteer firefighters per security region **(Statistics Netherlands, 2014)**:



There is concern that that more and more firefighters will leave their brigade before the “official” retirement age. In 2011 a survey among both career as volunteer firefighters indicated that almost one third doubted their future within the fire service (Raak, Palm, Sarwary, & Vries, 2011, p. 12). High turnover among active volunteers can cause problems with regards to knowledge and experience a brigade needs to safely perform their tasks. Preventing turnover becomes even more important if it is difficult to find new volunteers. Van Dijk, Kleuver and Roorda (2005) analyzed the problems fire brigades had with the recruitment of new personnel. They held an enquiry among the management of 417 fire departments in the Netherlands and almost 250 fire brigades participated. They found that many brigades experienced a limited number of enrollments from newly interested persons and, due to an increasing percentage of commuters, people who are available during the day (Dijk, Kleuver, & Roorda, 2005).

3.4 Why people join and leave the fire brigade

Fighting fires and the rescue of people in distress results for firefighters themselves in excitement, adventure and challenges and at the same time it leads to high appreciation by others. These are important factors in the explanation on why people join the fire brigade. On the other hand status, social relationships and recognition within the community are important reasons to volunteer (Haverkamp, 2005). A study by Thiesen in 2004 showed that 43 percent of Dutch volunteer firefighters chose to join their brigade out of a desire to 'help people'. Excitement and social relationships between firefighters are also in this study important motives to join the fire brigade (Thiessen J. , 2004, p. 48).

Van Dijk, Kleiver and Roorda (2005) looked at the preservation of volunteers to their brigades. Their enquiry under the management showed that only 41 percent had no problems binding their personnel. They concluded that management saw the combination between a volunteers' main profession and the heavy time burden of the volunteer work as one of the main problems for their volunteers. Also growing bureaucracy and regulation limits individual freedom and therewith the pleasure in their work. The interviewed management saw differences between older members and new, younger personnel. They experience a growing individualization within the younger colleagues who spend more of their spare time in other activities, resulting in a less devoted force. External reasons for personnel to quit their job were age, moving out of their place of residence and liquidation of their post (Dijk, Kleuver, & Roorda, 2005). Haverkamp (2005) concluded also that an increase in work- and time burden is an important reason for volunteers to stop. This is partially caused by more demands over knowledge and competences. The support of employers, partners and authorities are indispensible for actual availability of volunteers (Haverkamp G. , 2005).

3.5 Developments and issues in volunteer fire fighting

Like any other profession fire fighting develops and changes over time. There are several important developments and issues which impact Dutch volunteer firefighters. This chapter will give information about these developments and issues.

3.5.1 Regionalization

One of the most important developments that impact all fire departments is the regionalization of the fire services. Chapter 3.1.2 about organizational structures already sketched the principles of this regionalization. Regionalization of fire departments and their brigades shifts the administrative responsibility from local governments or municipalities to so called 'security regions'. Establishing and maintaining fire services has been made a task of the management board of the security region. The idea of security regions arose out of a need for a bigger organizational scale. It is believed that security regions are better able to cope with a more complex society in which municipalities are believed to be too small to be able to perform all tasks required for sufficient disaster and crisis management. The need for multidisciplinary cooperation and the desire to increase the effectiveness and professionalism of emergency services resulted in the creation of 25 security regions. The act on security regions regulates the function and tasks of fire services and the demands that go with these tasks. It also regulates demands on response times and the essence and need of a policy plan, disaster management plan and risk profile for their region (Rijksoverheid, 2012) & (Ministry of Interior and Kingdom Affairs, 2010).

The most important alteration for fire services is the change in authority over the fire departments from municipalities to security regions. This change includes the authority over policy fields, but also over vehicles, materials and personnel thus including volunteer firefighters. Among many firefighters is concern that regionalization leads to a loss of the historically strong connection between the fire brigade and local communities. Raak and others (2011) found that in 2011 about 58 percent of the

firefighters saw regionalization as an undesirable development. They see it as a threat to their influence on local policy and own interests. It is felt that the distance between them and the policy makers is increasing and creates more misunderstanding due to a bureaucratic organization with less space for and recognition of volunteer fire firefighters (Raak, Palm, Sarwary, & Vries, 2011).

3.5.2 Budget cuts

Traditionally municipalities directly financed the fire service in their community. With the transition of the administrative responsibility to security regions, municipalities are still responsible for the financing of a sufficient fire service albeit in a more indirect way. Eventually all municipalities financially contribute to the security region who manages the internal distribution.

Because of the economic crisis municipalities have been confronted with budget cutbacks from the central government and a loss in revenues, fees and reserves. The cutbacks affect many policy areas and (non-)governmental organizations. In most regions it also affects the budget for the fire service. In certain occasions this has already resulted in the reductions off budgets, disposal of fire trucks and in some cases even the closure of complete fire stations and personnel. Some regions or municipalities also cut back the compensation of their volunteers. All these cutbacks and economy measures create commotion and agitation among volunteer firefighters (Dagblad van het Noorden (newspaper), 2013), (Gooi en Eemlander (newspaper), 2013), (EenVandaag (news report), 2013).

3.5.3 Crew on vehicles

Traditionally the fire truck that responds to an emergency is a standard vehicle. A standard vehicle is known as a 'tankautospuit' (pumper or truck) and carries six firefighters; a driver/pumper, a commanding officer and four firefighters. In the past few years some fire departments have experimented with fewer fire fighters on a standard vehicle. They reduced the minimum number of persons from six to four or two. Some departments take this a step further and make use of smaller vehicles with two persons on board. Sometimes these 'rapid intervention vehicles' are used in addition to a standard fire truck, but it also replaces the standard fire truck on certain (smaller) incidents.

Not all firefighters are positive about this development. The criticism is mainly based on their belief that it reduces the effectiveness and strike capability and threatens their own safety. Furthermore some see this development as a disguised cutback that negatively influences their satisfaction since they are less often needed for emergencies (Vakvereniging Brandweer Vrijwilligers, 2012). A research by the Dutch political Socialist Party found that almost 81 percent of the firefighters are against Rapid Intervention Vehicles (Raak, Palm, Sarwary, & Vries, 2011).

3.5.4 Aggression

Lately first responders are more often confronted with aggression and verbal abuse. Also volunteer firefighters can be confronted with aggression in their line of work. Aggression often has a huge impact on a first responder. Not only the actual confrontation with aggression but even the fear to be confronted with aggression can negatively influence the pleasure and work satisfaction of a first responder. For many firefighters status and high appreciation of others are important factors to volunteer. If they experience or fear aggression this might influence their motivation and commitment. In 2011 the research of Raak and others indicated that 60 percent of their research population experienced some sort of aggression during their work in the fire service (Raak, Palm, Sarwary, & Vries, 2011).

3.5.5 Burden on volunteers

Volunteer firefighters need to comply with education standards, take part in mandatory training exercises and are obliged to respond to their alarms. All of these activities are besides their main job, other hobbies and social activities. Because of that, being a volunteer fire fighter can place a significant burden on a person and his social environment. Already in 2005 research by Haverkamp (2005) and Van Dijk, Kleuver and Roorda (2005) emphasized the threat of an increasing time burden. They concluded that more demands on the knowledge and skills of volunteers make it more difficult for people to become or remain a volunteer fire fighter.

3.4.6 Bureaucracy

After some high impact incidents in the early years of the second millennium, both the government and the fire organization focused on further professionalization of the fire service. The freedom for local governments to construct policy within the frameworks has been limited. For instance the requirements on training and education became nationwide the same. The side effect of professionalization is an increased bureaucracy. Bureaucracy has taken on a negative meaning but it also enhances a standard way of dealing with employees. Within the fire service it is not so much the professionalization that causes agitation but more the amount and strictness in the application of protocols, rules and demands (Jolly, 2009, pp. 21,29).

3.5 Conclusion

In this chapter the role of volunteers within the Dutch fire service has been discussed. Different organizational structures make use of volunteers and in each of the 25 security regions are volunteer fire fighters active. Following the act on the security regions, every volunteer will be employed by the security region their brigade is part of. The volunteer fire fighters are mostly occupied with tasks that are part of the preparation and repression stage. They must train their skills and respond to fire incidents, but also (technical) rescue operations, water-rescues and accidents with hazardous materials. The Dutch volunteer firefighters are entitled to financial compensation.

Statistics about the number of volunteer firefighters in the Netherlands show a decline over the last fourteen years. From the year 2000 till now are about eight percent less volunteers active. Six percent of this decline occurred in the period from 2010 to 2014. At the same time the number of incidents increased from 2000 to 2012 with three percent. The decline varies per security region. Some regions saw a small increase in their number of volunteers while others have twenty-two percent less volunteers within their fire service as compared to four years earlier. High turnover among active volunteers can cause problems with regards to necessary knowledge and experience a brigade needs to safely perform their tasks. It can jeopardize the continuity of the fire service. Preventing turnover becomes more important if it is getting more difficult to find new volunteers.

A brief part of this chapter looked at previous studies that focused on reasons for people to join the fire service. Common denominators are excitement, adventure, appreciation by others, social relationships and to help someone in need. The binding of volunteers is influenced by appreciation, limited time in combination with more demands and individualization of younger volunteers.

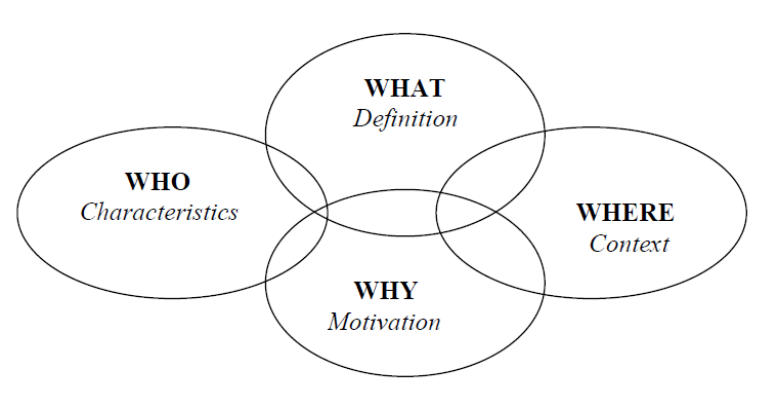
Like any other profession fire fighting develops and changes over time. One of the most important changes is the regionalization of the fire brigades. Some fire fighters see it as a threat to their influence on local policy and own interests. Another issue which affects the fire service are budget cuts. The budget cuts create commotion and agitation among volunteer firefighters. Other developments that affect volunteers in a supposedly negative way are changes in the minimal number of firefighters on a standard fire truck, increased experiences with aggression, more time burden and growing demands and bureaucracy within the fire service.

4. Volunteers in Public Organizations

4.1 Introduction

Volunteers play an important role in many public organizations. These organizations would not be able to deploy many of their activities without these volunteers. The fire service in the Netherlands is a public organization, as are schools, most care institutions, many sport clubs and the like. Literature on volunteering mostly focuses on one of the four W's; the what, where, who and why of volunteering.

Figure 3 | The W's of volunteering (Bussell & Forbes, 2001, p. 245)



This chapter will discuss literature on volunteers in public organizations. The aim is to answer what causes volunteers to join, to stay and to leave public organizations. First the concept of volunteering will be discussed resulting in a definition about volunteering in public organizations. The second part will discuss several trends in volunteering, differentiating between statistical trends, causes for trends and new forms of volunteering. The third part will give some basic insight in the process a volunteer undergoes. After the process is sketched, literature on why people volunteer is discussed. The two following paragraphs will discuss how commitment of volunteers is influenced and why volunteers leave their organizations. The exit of a volunteer is strongly related to commitment and the motives of a person on why he or she became a volunteer in the first place. For the readability of this report these three aspects are separated but one should try to understand them in a more interrelated process.

The chapter ends with a more extensive explanation on the Theory of Planned Behavior which is used to analyze the decisions of volunteer firefighters about their active future. The formulated hypotheses that result from this theory precede a conclusion which summarizes the main findings of the literature study.

4.2 Concept of volunteering

The definition of 'volunteer' and related concepts like 'volunteering', 'volunteerism' and 'voluntarism' are controversial. Ask several persons on their perception off volunteering and you will probably receive different answers. It is likely that those answers encompass aspects like 'unpaid work', 'charitable' or 'helping others'. Even among scholars who studied volunteerism and its aspects is little consensus as to what is, and what is not volunteerism (Brudney, 1999, p. 220).

After analysing extensive literature on volunteering, Cnaan and others (1996) conclude that the volunteer concept is constructed by four factors. The first is the degree to which the decision to volunteer is a free or non-forced choice. Secondly the nature of remuneration or compensation, if any, received by the volunteer plays a role. This can range from nothing at all to a stipend or minimal pay given to participants. The third principle is the context and supervision under which the volunteer activity takes place. The fourth and last principle beholds the intended beneficiaries of the activity. For instance the aim of volunteering can be to help strangers, friends or themselves (Brudney, 1999, pp. 221-222). Together these four dimensions classify the degree to which an activity is seen as a volunteering activity. It illustrates how broad and complex this phenomenon is as it spans a wide variety of types of activities in many different organizations and sectors (Hustinx, Cnaan, & Handy, 2010).

Following the four principles, volunteering in public organizations is for this research defined as the free choice made by an individual or group to participate in the range of activities within a formal governmental organization, with a social purpose that benefits one or more others, without the necessity of the volunteer to personally benefit from it. This definition has been used throughout the search and examination of existing literature on volunteering.

Firefighters in action (photo by UK Ministry of Defense)

4.3 Trends in volunteering

Volunteers are valuable for every society and many people, organizations, clubs and even companies depend on volunteers and their activities. It seems that nowadays less volunteers are available than earlier, which may lead to difficulties in providing certain services. Changing patterns of life, ageing of society, increasing individualization and a suspected decrease of social commitment and solidarity are often mentioned to be factors that lead to the decline in volunteers (Hustinx, Meijs, & Hoorn, 2007).

4.3.1 Statistical trends

There is a supposed negative trend in the attraction of volunteers (Dekker, Hart, & Faulk, 2007). This comes forward when statistics are reviewed, although its extent can be questioned and variations are large between different volunteering activities.

In 2006 a publication stated that there is a general negative trend perceptible since 1990 in the Netherlands (Breedveld, Broek, Haan, Harms, Huysmans, & Ingen, 2006). Reports of the Central Bureau of Statistics in the Netherlands also show a small but almost insignificant drop of about three percent in the participation of volunteers over the period 1997-2008 (Centraal Bureau voor de Statistiek, 2009). A recent study by the VU University Amsterdam showed that from 2010 to 2012, the number of Dutch people who participated in volunteer activities decreased by another three percent. The same study investigated the time people spend volunteering. This remarkably showed that from 2010 to 2012 active volunteers spend on average 4 hours per month more time volunteering (Bekkers, 2013).

Not only statistics in the Netherlands show a downward trend in volunteering. The Bureau of Labor Statistics from the United States published in a report that the volunteer rate for 2013 was the lowest it has been since it was first measured in 2002 (United States Department of Labor, 2014). Dekker, Hart and Faulk (Dekker, Hart, & Faulk, 2007) analysed several international studies and found that the overall outcome implies an almost steady amount of volunteers over the past decade. They did expect more difficulties in the attraction and preservation of volunteers.

4.3.2 Causes for trends

Besides trends in the absolute number of volunteers or the average time people spend volunteering it is useful to look for possible causes for changes in volunteering. Dekker and others (2007) examined several developments that negatively impact the number of volunteers. One of the main developments they found is an on-going reduction in the spare time of people. The total working population is working more hours than before. This is mainly caused by a growing number of women, who are more frequent volunteering than man[3], who have full-time jobs. Besides this development people have nowadays more ways to spend their free time. In other words, voluntary work has to deal with a lot more competition than before (Dekker, Hart, & Faulk, 2007).

Other factors that negatively influence the number of volunteer candidates are aging of society, an increased number of foreigners and strengthened by new ways of communication like the internet, a growing individualization in society (Dekker, Hart, & Faulk, 2007) & (Thiessen J. , 2004). Part of the individualization is that potential volunteers want to know if the 'job' suits their interests and if it is possible to plan it in their busy schedule. There is a need for a more flexible volunteer role (Muller, Helsloot, & Berghuijs, 2007). The competition and busy schedules makes it more important than before to match important motivations of volunteers to their voluntarily activities. More of this will be discussed in the next few chapters.

[3] (United States Department of Labor, 2014)

Dekker and others (2007) sketched a picture of the future volunteer. They state that individualization leads to a further weakening of traditional organizations that are based on long-term group loyalty. Present volunteers will be more focused on projects and more adapted for changing roles. He or she will look at their often full diary and will be guided in their voluntary activities by what moves them in each individual life phase. Lifestyle will become more and more important as a motivation for participating (Dekker, Hart, & Faulk, 2007, pp. 115).

4.3.3 New forms of volunteering

Haski Leventhal (2010) explains recent trends in volunteering which are briefly mentioned in this section. Major changes as advanced technology, popular social media and globalization transform the world of volunteering. The technological revolution and social media led to higher levels of online volunteering and globalization positively influences international volunteering.

One of the fastest growing areas of volunteering is corporate volunteering. In corporate volunteering, the companies encourage their employees to give time and expertise as volunteers, and volunteer activities can be undertaken within or outside the employee's official workload and time. Another form of volunteering that becomes more popular is episodic volunteering, where people move from a collective style of volunteering to a more reflexive and flexible volunteering act. Episodic volunteering is a volunteering act in a quick and uncommitted manner.

E-volunteering is a modern volunteering variant that becomes more and more popular. E-volunteering (also known as online or virtual volunteering) is when people volunteer while using computers and internet. This is a more flexible form of volunteering and makes organizations more accessible. An example is the classification of twittered pictures through a website and mobile application after typhoon Yolanda brought destruction to the Philippines[4].

The last two emerging trends that Haski Leventhal addresses are family volunteering and voluntourism. Family volunteering is when people volunteer together with other direct family members and it combines volunteering with family obligations. Voluntourism is when people volunteer outside their own county, either as a combined trip or exclusively for the purpose of helping others (Haski-Leventhal, 2010).

4.3.4 Summary

Volunteering is an evolving concept. Statistical trends in volunteering show that overall there is a small negative trend recognizable in the number of volunteers. However the statistical trends differ per volunteering activity and context. Other trends show that volunteering has to deal with more competition and therewith people demand a more flexible role of volunteering. Individualization leads to more short-term or project volunteering and weakens traditional forms of volunteering. These trends in combination with new technologies result in new forms of volunteering like e-volunteering or voluntourism.

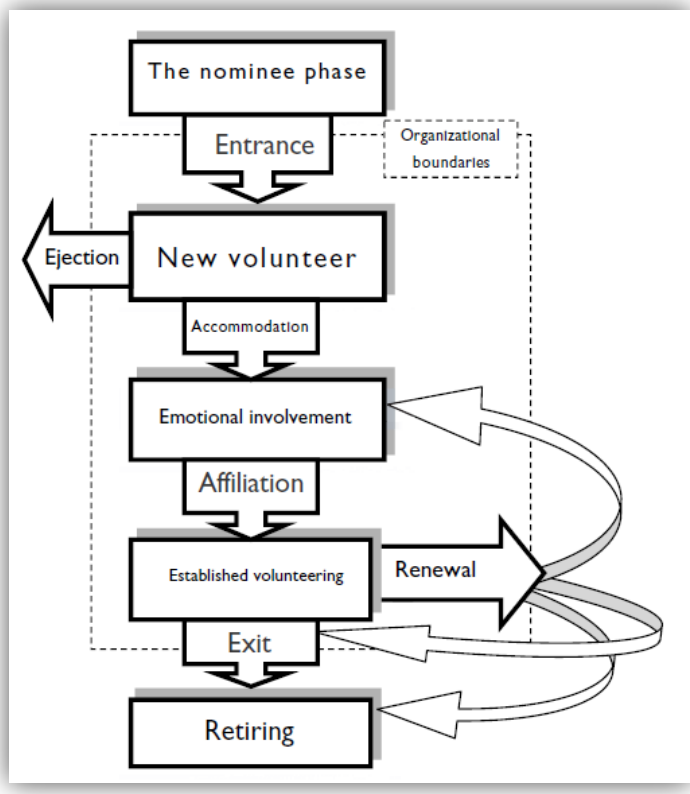
[4] see http://www.irevolution.net/2013/09/18/micromappers/ or www.micromappers.com for more information

4.4 The volunteering process

To understand why somebody is volunteering, it is useful to gain more knowledge and understanding in the process a volunteer undergoes. This paragraph will elaborate on this process and the different stages and transitions involved.

Every person in an organization or company goes through different stages during their career. Each member goes through a process in which one learns the job, gets familiar with organizational values and goals and becomes an effective and involved member. This process is called organizational socialization (Haski-Leventhal & Bargal, 2008, pp. 68-69). Omoto and Snyder (2002) applied this concept of organizational socialization to volunteers and differentiated between three stages in the volunteer process. Their three stages involve the choice to start volunteering, a stage where they gain experience and a final stage where a volunteer weighs the consequences of and commitment towards future volunteering (Omoto & Snyder, 2002). Haski-Leventhal and Bargal (2008) expended this process and developed the comprehensive Volunteer-Stages and Transition Model. Their model consists out of five stages with transition-points between them.

Figure 4 | The Volunteer Stages and Transition Model (Haski-Leventhal, 2008):



The VSTM marks two individual and important decision points. The first point is when someone decides to start volunteering. A person, who is then not ejected due to a mismatch between the volunteer and organization or unfavourable attitudes from their social environment, transfers in the third and fourth stage by experiencing events and processes. The second decision point can be found in the fourth stage. It is a decision that the volunteers regularly make about their commitment and whether or not to continue volunteering. Renewal plays an important role at this decision point. Volunteers who do not go through 'renewal', may experience burnout, low motivation and become somewhat indifferent. Renewal can occur by taking up new roles, taking some time off or find new energy and motivation through self-reflection on their volunteer career, achievements and usefulness. Eventually volunteers will (and without renewal, prematurely) get into the fifth and last stage and leave the organization (Haski-Leventhal & Bargal, 2008).

4.5 Why people volunteer

As seen in the previous paragraph the process of volunteering starts with the decision of an individual to start volunteering. While only a few wonder why someone undertakes gainful employment, many ask why one would volunteer. Personal characteristics are often the scope of research on volunteers. These characteristics are very much related to the context and specific type of volunteering and are therefore left outside the scope of this literature review. In this section will be specifically looked at why people volunteer. It is important to have knowledge in the motivation of people to volunteer. If individuals' motivations to volunteer are known, volunteer positions can be structured and promoted as means to fulfil these motivations.

4.5.1 Factor models and functional approaches

Early studies came with a two- or three factor model. Within the two factor model scholars distinguished the motivation to volunteer between altruistic and egoistic motives (Horton-Smith, 1981). Persons who are altruistic motivated volunteer without the aim to profit or personally benefit in any way. But it was soon discovered that volunteering is also a self-rewarding activity that enhances pleasure, life satisfaction and well-being, gaining knowledge or enhancing one's career (Esmond & Dunlop, 2004) & (Burns, Reid, Toncar, Fawcett, & Anderson, 2006). The three-factor models included motives originating from social obligation for volunteering (Fitch, 1987)& (Esmond & Dunlop, 2004, p. 12).

In a more recent study Hustinx, Cnaan and Handy (2010) differentiate between a symbolic (sociological) and functional (psychological) perspective. From a symbolic perspective the motives to volunteer are an expression of certain values and beliefs as part of a larger set of cultural understandings (Hustinx, Cnaan, & Handy, 2010, p. 420). For instance teenagers, whose parents volunteer, are more likely to volunteer since they have gained motivational attributions as part of a larger set of cultural understandings passed on to them by their parents (Wilson, 2000, p. 218). The functional or psychological approach treats motives as an expression of pre-existing needs and dispositions and thus preceding the action instead of being constructed through interaction (Hustinx, Cnaan, & Handy, 2010, p. 421). A central premise of the functional approach is that the same behaviour may serve different functions for different individuals. For each individual, volunteering serves certain psychological needs and reflects certain personality traits (Hustinx, Cnaan, & Handy, 2010, p. 419).

Clary, Snyder and colleagues combined several theories and developed a functional theory on volunteering including a comprehensive multifactor model. This multifactor model measures the motivation to volunteer and is known as the Volunteer Functions Inventory (VFI) (Clary, et al., 1998)& (Clary & Snyder, 1999). The VFI is a functional approach to assess six functions potentially served by volunteerism. This functional approach assumes that the decision to volunteer is a rational process and the decision to volunteer is preceded by an evaluation of the benefits derived from it (Greenslade & White, 2005, p. 157). The six categories of motives for volunteering within the VFI are:

1. **Values**: altruistic and humanitarian based motives
2. **Understanding**: to learn or exercise knowledge and skills
3. **Social:** motives forthcoming out of normative influences or to create social relationships.
4. **Career:** volunteering to gain career related benefits or experience.
5. **Protective:** volunteering to reduce negative feelings or to address personal problems.
6. **Enhancement of esteem:** motives based on psychological development like the ego's growth and development, and involve positive strivings of the ego and ones self-esteem.

The VFI is used in many studies to examine the motives of people to volunteer and proved to be a reliable model providing valid results ((Switzer, Switzer, Stukas, & Baker, 1999) & (Luong, 2006)).

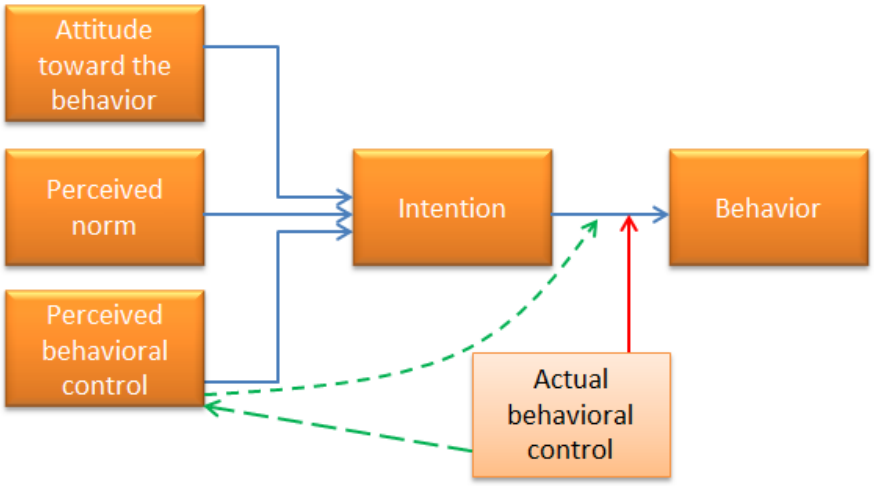
4.5.2 Theory of Planned Behaviour

Instead of focusing on motives for volunteering, other researchers try to gain insight in the decision making process when people start volunteering. One of the more distinctive movements within the volunteering literature bases the choice to start volunteering on the rational choice theory. Following this theory, an individual will undertake a volunteering activity when his or her valuation of the external and individual benefits exceeds its costs (Handy, Cnaan, Brudney, Ascoli, & Meijs, 2000). A stigma attached to some kinds of volunteering (e.g. volunteering in a nursing home involves sponging the elderly) makes it therefore harder to recruit people since they will estimate the individual costs high. On the other hand parents are for example more likely to volunteer at schools or sports clubs since their children are directly benefiting from it, and thus the valuation of the benefits are higher than for other volunteer work (Wilson, 2000, p. 222).

Another frequently used theory to explain why people volunteer is Ajzen's Theory of Planned Behaviour. This theory focuses on the decision making process of an individual. It holds the value that people approach different kinds of behaviour in much the same way and that the same limited set of constructs can be applied to predict and understand any behaviour of interest (Fishbein & Ajzen, 2010, p. 2). Individuals are usually quite rational and make systematic use of information available to them. In other words, under normal conditions people consider the implications of their actions before they decide to engage or not engage in a given behaviour (Ajzen & Fishbein, 1980, p. 5)

The theory of planned behaviour holds that specific behaviour can be explained or predicted by a person's intention to perform it. The intention to perform or not perform certain behaviour is constructed by three determinants (see figure below).

Figure 5 | The Theory of Planned Behavior (Fishbein & Ajzen, 2010):



The first determinant is the attitude toward the behavior. This refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question. The second predictor is perceived norm (or subjective norm). This refers to the perceived social pressure to perform or not perform the behavior. The third construct of intention is perceived behavioral control which refers to the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles. More information about the Theory of Planned Behavior can be found in chapter 4.8.

Warburton and Terry (2000) used the Theory of Planned Behavior (TPB) to examine the predictors of volunteer decision making among older people in Australia. They found a strong relation between intention to perform the behaviour and the self-reported behaviour. Intention was in turn predicted by attitude, perceived norm and perceived behavioural control. Warburton and Terry (2000) found perceived norm as a significant predictor of volunteer intentions which is contrary with expectations that most behaviours are predicted more strongly by attitudes then subjective norms (Warburton & Terry, 2000, p. 254). Okun and Sloane (2002) used the TPB to predict volunteer enrolment of college students. Attitude, subjective norm and perceived behavioural control were significant predictors of intention to volunteer. They found that perceived behavioural control had the strongest influence on intention scores. Intention subsequently was the only significant predictor of volunteer enrolment (Okun & Sloane, 2002, p. 248).

4.5.3 Summary

This paragraph looked at why people volunteer. Early literature showed that altruistic beliefs and values are important motives for volunteering. A frequently used instrument to examine motives of volunteering is the Volunteering Functions Inventory. It is an instrument that helps to gain insight in motives and can be used to match these motives with available volunteer work. Other researchers focused more on the decision making process to explain why people start volunteering. The theory of planned behaviour is an effective and reliable instrument to explain and predict the decision of people to start or continue volunteering. It differentiates between attitudes, perceived norm and perceived behavioural control and how these factors influence a persons' intention towards the behaviour in question.

Photo by Alexander Kaiser (www.pooliestudios.com)

4.6 Commitment to volunteering

The previous paragraph discussed motives for people to volunteer and briefly zoomed in on the decision of people to volunteer. This chapter will look at some perspectives and theories about the commitment of volunteers.

4.6.1 Commitment as time-related process

Commitment can be seen as a psychological attachment to an organization which one develops over time. This happens to paid employees and the organization they work for, but also to volunteers and their organizations. Organizational commitment is expressed by one's willingness to work hard for the organization, intention to stay and identification with its goals (Haski-Leventhal & Bargal, 2008, p. 69). High commitment prevents someone from leaving an organization, where low commitment will make it easier or even stimulate a person to leave the organization. Commitment can be measured by the frequency and length of volunteering, but also by the intention to stay (Haski-Leventhal & Bargal, 2008, p. 69).

The Volunteer Stages and Transition Model (see chapter 4.4) from Haski-Leventhal and Bargal (2008) already gave some information about commitment of volunteers. In the beginning commitment is low and needs to be formed. When volunteers experience a meaningful event or actually help they become emotionally involved volunteers. Over time they become more experienced and the volunteer work is an established part of their life. They know what to expect from their work and are highly skilled and knowledgeable (Haski-Leventhal & Bargal, 2008). But it is in this phase that most volunteers develop fatigue and sometimes even burn out. Maslach (2001) found that volunteers in this stage significantly more express tiredness, cynicism and less emotional involvement. They were no longer as empathetic and loving as in the previous stage and rather expressed detached concern. Haski-Leventhal and Bargal (2008) elaborate this point and show that with experience, everything became predictable, routine and even boring. Many volunteers in this stage felt as if they had 'seen it all'. What helped re-motivate the established volunteers was the arrival of new enthusiastic volunteers with new ways of doing things. But most helpful was the renewal transition through which the studied volunteers experienced renewed energy to continue. This renewal can take place when a person takes up a new role within the organization, by self-reflection on the volunteer work and its value or by taking some time off (Haski-Leventhal & Bargal, 2008, pp. 90-93).

4.6.2 Benefits and commitment

Haski-Leventhal and Bargal (2008) see commitment as a time-related process. Other approaches link commitment more towards the benefits one receives from their work. Pynes (2009) makes a distinction between intrinsic and extrinsic rewards. Intrinsic rewards result from the (volunteer) work itself like satisfaction, being challenged or a sense of accomplishment. Extrinsic rewards are benefits granted to the volunteers by their work or the organization. Examples of extrinsic rewards are attention and appreciation of the behaviour from others, results from done labour or monetary rewards. High intrinsic and extrinsic rewards will increase the commitment of a volunteer to the organisation (Pynes, 2009) & (Gidron, 1984). Social relations also influence commitment. Volunteers are more committed if their friends and family supported and appreciated them in their work (Snyder, Omoto, & Crain, 1999, p. 1180).

4.7 Why volunteers leave

The previous two paragraphs discussed literature on why people volunteer and how commitment is influenced. Once an individual starts volunteering, it is important for the profiting organization to retain him or her. Effort, time, money, education and other resources are invested in newcomers making it important that they remain involved and effective volunteers. The life expectancy of a volunteer organization depends not only on its ability to enlist volunteers but also to retain them. As discussed earlier volunteer roles are changing and people become more flexible. Therefore it is expected that it will become more difficult to retain volunteers. Excessive dropout is costly and can be fatal to the organization. Dropout is therewith one of the most basic problems volunteer organizations face. This section will give some insight in why people stop volunteering for an organization. However, like on the reasons why people volunteer, dropout is related to context, time and circumstances. Therefore this section will elaborate on general observed causes for dropout.

4.7.1 Time related process

The volunteer stages and transition model gives a clear image of the volunteering process (see chapter 4.4). This model differentiates between two kinds of turnover in which they explain it as a time related process. The first point of turnover is ejection of new volunteers either by the organization or volunteers in the early stages of their career. This early rejection is more common than someone might expect. Early rejection is often caused by an unsuitable person, a mismatch between the organization and the volunteer or unfavourable attitudes from their social environment. Also people who undergo intense training before they can start might reach motivational saturation in the earliest stage of their volunteer process and then drop out (Haski-Leventhal & Bargal, 2008, p. 84)& (Yanay & Yanay, 2008, pp. 69-72).

The second point of turnover is after a longer period of volunteering. Over time every volunteer will get to the point where he or she asks themselves if they want to continue. Burnout, detachment, fatigue and less emotional involvement arise over time or when volunteers are no longer challenged. Without some form of renewal this will lead to the exit of the volunteer. This renewal can take place when a person takes up a new role within the organization, by self-reflection on the volunteer work and its value or by taking some time off (Haski-Leventhal & Bargal, 2008, pp. 93-94). It is expected that this period will shorten since more people are nowadays looking for flexible volunteering opportunities and participate more in short term activities ((Dekker, Hart, & Faulk, 2007, p. 115).

4.7.2 Low commitment as predecessor

Strongly related to the exit of a volunteer is his or her commitment which is influenced by personal characteristics and by experiences and outcomes of the volunteer work. Chapter 4.6 gave information about how commitment is constructed and influenced. One can state that a person with low commitment is more likely to stop volunteering than someone with high commitment. This low commitment is often caused by a disjunction between a volunteers' motives and the actual work assigned ((Snyder & Omoto, 1992, p. 229) & (Blake & Jefferson, 1992)). An example is a volunteer who expects to directly work with the needy and make a difference in their lives. If he or she ends up being mostly occupied with administrative tasks, its commitment and motivation will become less which can subsequently result in terminating their volunteer career.

4.7.3 Relation with the organization

In other cases retention is not so much caused by a discrepancy between "ought" and "actual" experiences, but by the relationship with the organization. The reason behind this has to do with the so-called psychological contract between the volunteer and organization. A new volunteer constructs a psychological contract on expectations and beliefs about its relationship with the organization. This is based on first impressions, the organization's image and former experiences. In other words the psychological contract addresses what employees feel they owe the organization and what they feel the organization owes them. If this contract is broken it results in disappointment, low commitment and feeds intentions to leave (Haski-Leventhal & Bargal, 2008, p. 78).

Volunteers expect recognition from the organization, want a feeling of belonging to it and have an opportunity to influence its business. They need attention and it is very important that the organization values them and sometimes even gives them the feeling of being unable to cope without them. A lack of support as experienced by volunteers will create turnover (Yanay & Yanay, 2008). Therefore it is important to give volunteers from the beginning on sufficient and accurate information about their tasks, the expectations and the organization itself to minimize the chance of mismatch between volunteer and volunteer work.

Hustinx (2010) found that volunteers may exit if too many wrongful demands are put on them and their expectations are not met by the organization. Organizations must find the right balance between workload and freedom for individual responsibilities and initiatives. Many volunteers base their decisions to quit on their low feelings of satisfaction with, recognition by and appreciation off the organization (Hustinx, 2010, pp. 248-249). In a study by Tang and others (2010) was found that volunteers who felt better supported and received a stipend were active for a longer period of time. Problems with supporting professional staff and administration were important reasons for turnover.

4.7.4 External factors

But sometimes even volunteers with high commitment and a good relationship with the organization prematurely drop out. In these cases turnover is often caused by external factors. In many cases time issues with their job, family or participation in other leisure activities are a reason to quit (Hustinx, 2010, p. 245). Also a change in living circumstances such as job or place of residence often results in the dropout of a volunteer despite his high commitment (Yanay & Yanay, 2008). Also a decline in physique or mental problems can lead to departure. Another external factor that is underestimated is the departure of a valued co-volunteer. Especially close friends or volunteers who started volunteering in the same period are affected by this. It makes people reflect on their own role and future within the organization. This can lead to additional turnover which possibly creates a vicious circle of departing volunteers (Blake & Jefferson, 1992).

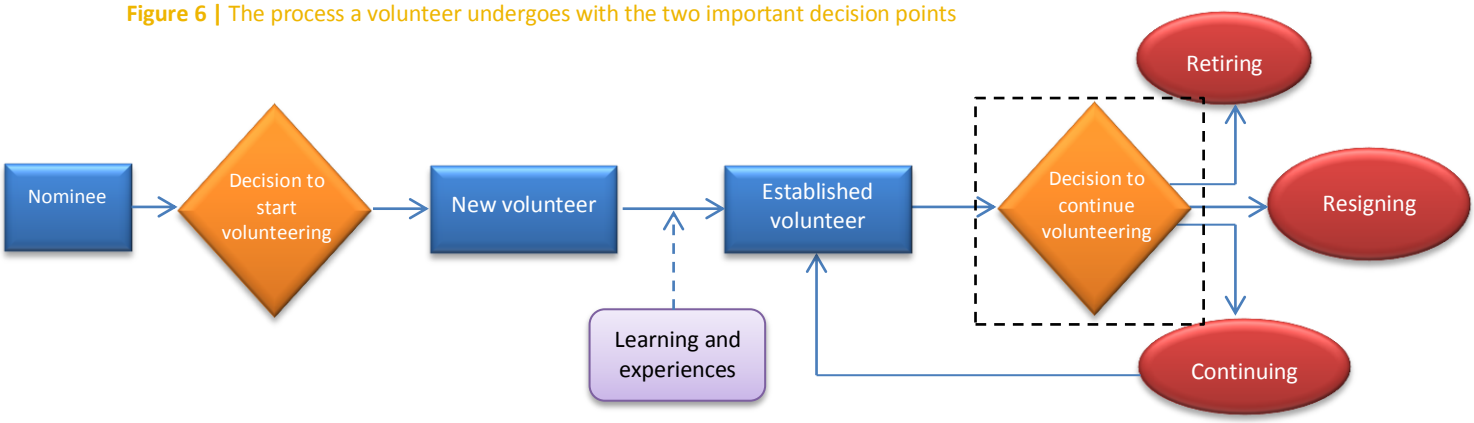
4.7.5 Summary

This paragraph focused on why volunteers leave their organization. If a person prematurely exits, an organization should be concerned and analyse why this happened. Reasons for departure differ in their context, time and circumstances. However some common causes can be identified throughout the literature. A common cause is a mismatch between expectations about the volunteer work and actual experiences. Not only actual experiences but also the relationship with the organization plays an important role in the explanation of early turnover. Therefore it is important that the organization gives volunteers from the beginning on sufficient and accurate information about their tasks, the expectations and the organization itself to minimize the chance of mismatch between volunteer and volunteer work. They need to value their active volunteers, find the right balance between workload and individual freedom and recognize the importance of their tasks. But sometimes external factors like changes in personal life, job or place of residence lead to the departure of highly motivated and committed volunteers.

4.8 Theory of Planned Behavior

The objective of this research is to gain more knowledge and insight in the decision making process of Dutch volunteer firefighters about their active future and which factors influence this decision. The decision points of a volunteer are clearly visualized within the Volunteer Stages and Transition Model (see chapter 4.4). The figure below shows the first decision a person makes is to join the fire brigade as a volunteer. The second decision point is about whether the volunteer firefighter continues his active career or not. This research will focus on this second decision and tries to predict and gain more insight in the construction of this decision.

Figure 6 | The process a volunteer undergoes with the two important decision points



The literature review about volunteers in public organizations gave directions for which theories could be used. This paragraph will elaborate on why the theory of planned behavior is used and how it functions.

4.8.1 Theory of Planned Behavior versus Volunteer Functions Inventory

To understand the determinants of volunteering two main theoretical approaches have emerged, namely the Theory of Planned Behavior (TPB) by Ajzen (1991) and the Volunteer Functions Inventory (VFI) by Clary and Snyder (1998). These two theories have been explained in chapters 4.5.1 and 4.5.2. As can be read in those paragraphs both theories are used in the explanation on why people volunteer, but these theories are also used in the prediction of volunteer retention.

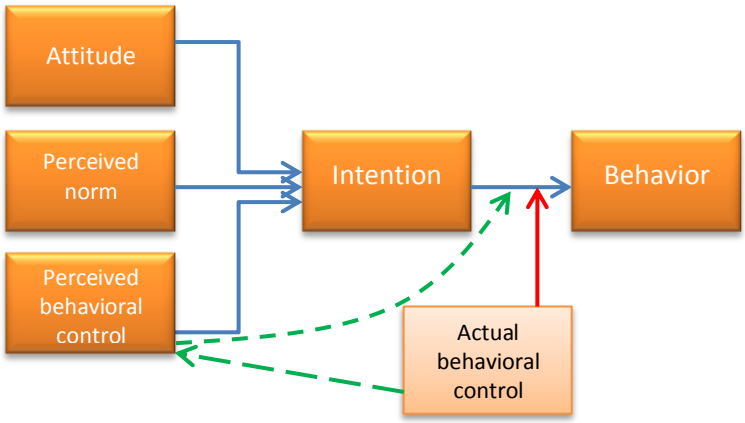
The TPB holds that intention is the immediate antecedent of actual behaviour (Greenslade & White, 2005)& (Warburton & Terry, 2000). Following the TPB, people stop volunteering if the constructed intention towards future volunteering is negative due to a negative attitude and/or perceived norm and/or perceived behavioural control. The VFI theory holds that volunteer behaviour is preceded by a cognitive evaluation of the benefits derived from volunteering. The VFI states that people maintain volunteering if they perceive volunteering as fulfilling one or more of the six motivational functions. Greenslade and White (2010) compared the predictive validity of the VFI-theory with that of the Theory of Planned Behaviour. They found that the TPB accounted for significantly more variance in volunteer behaviour than did the VFI. They state that the TPB is a more powerful predictor of volunteerism behaviour than the VFI within predictive studies (Greenslade & White, 2005, pp. 165-168). A study by Chacon and others (2007) also showed that the best predictor of duration of volunteering is behavioural intention. They state that intention functions as a kind of catalyst capable of summarizing the influence of different variables (Chacon, Vecina, & Davila, 2007, p. 638).

Due to its better predictive capabilities the Theory of Planned Behavior is used to analyze the decision of volunteer firefighters about their future.

4.8.2 How it works

The Theory of Planned Behavior (TPB) is widely used to assess and predict behavioral decisions (Fishbein & Ajzen, 2010)& (Ajzen, 1991). The TPB holds that intentions to perform behaviors of different kinds can be predicted with high accuracy from attitudes toward the behavior, perceived norms and perceived behavioral control. Intentions together with the perceptions of behavioral control, account for considerable variance in actual behavior. The intentions are assumed to capture motivational factors that influence a behavior and as a general rule, one can say that the stronger the intention to engage in a behavior, the more likely should be its performance. The TPB can be schematically presented as follows:

Figure 7 | Schematic representation of the Theory of Planned Behavior



The TPB holds three conceptually independent determinants of intention. These determinants are:

Attitude: The attitude is the result of the beliefs a person holds about the positive and negative consequences he or she expects to experience if they perform the behaviour. These behavioural beliefs are an assessment of the individual's beliefs about the costs and benefits of volunteering.

Perceived norm: The perceived norm is the experienced social pressure to engage in the behaviour. It is constructed by beliefs about approval or disapproval of the behaviour by important individuals or groups in their lives, but also of beliefs that these referents themselves perform the behaviour in question (Fishbein & Ajzen, 2010, pp. 21,133).

Perceived behavioural control: The last and third determinant is the perceived behavioural control which is formed by beliefs about personal and external factors that facilitate or complicate the attempts to carry out the behaviour. This control is defined as the extent to which people believe that they are capable of performing a given behaviour and that they have control over its performance (Fishbein & Ajzen, 2010, pp. 20-21,154-155).

As a general rule, the more favorable the attitude and perceived norm with respect to their work as a volunteer firefighter and the greater the perceived behavioral control, the stronger should be its intention to continue volunteering within the fire service (Ajzen, 1991, pp. 187-190). Besides a strong intention the actual behavioral control is important to explain variance in behavioral performances. The actual behavioral control refers to the extent to which a person has the skills, resources and other requirements needed to perform a given behavior. Perceived behavioral control can serve as a proxy of actual control and can be used for the prediction of behavior (Ajzen, 1991, p. 184).

The relative importance of attitude, perceived norm and perceived behavioral control in the prediction of intention is varies across behaviors and situations. This research will try to find out which and how these three constructs influence the decision to stay active as a volunteer firefighter.

4.9 Hypotheses

The aim of this research is to gain knowledge in the decision making process of volunteer firefighters and to predict how the decision about their future will be taken. The previously introduced central question of this research is as follows:

Which factors influence the decision of Dutch volunteer firefighters to stay active within the Dutch fire service?

Within the literature review about volunteers in public organizations is concluded that the Theory of Planned Behavior is a reliable method to answer this question. By making use of this theory, the following hypotheses are formulated:

The first hypothesis focuses on the attitude of volunteer firefighters:

1. H_1 = a positive attitude has a significant positive influence on the behavioral intention to stay active as a firefighter

The second hypothesis focuses on the perceived norm for firefighters:

2. H_2 = A positive perceived norm has a significant positive influence on the behavioral intention to stay active as a firefighter

The third and final hypothesis focuses on behavioral control

3. H_3 = A positive perceived behavioral control has a significant positive influence on the behavioral intention to stay active as a firefighter

By testing these three hypotheses insight will be given in how the decision about their active career as volunteer firefighters is constructed and made. When these hypotheses are tested the background factors and developments within the Dutch fire service are taken into account.

4.10 Conclusion

Within the formulated definition of volunteering this chapter focused on the theoretical background of volunteers and volunteering. Generally literature and statistics show a negative trend in the overall number of volunteers, even though this negative trend is often relatively small and differs per organization or context. These days volunteering has to cope with a 24 hour society and more competition than ever before. This results in the demand for a more flexible role of volunteering. At the same time individualization leads to more short-term or project volunteering and weakens traditional forms of long lasting volunteering relationships between the volunteer and organization. In combination with new technologies these trends result in new forms of volunteering like e-volunteering and voluntourism.

The Volunteer Stages and Transition Model gave a clear picture of the volunteering process. It defines several stages and two important decision points. The first point is when someone decides to start volunteering while the second point focuses on the decision to continue or stop volunteering.
The volunteer functions inventory is a multifactor model that explains the decision of people to volunteer in six motivational categories. By using the VFI an organization can examine what motivated their volunteers and therewith improve the attraction of new volunteers and matching them with appropriate tasks.
Rational choice theories focus more on the actual decision making process. They state that the choice to volunteer is the result of an evaluation of the costs and benefits involved. A much used theory to gain insight in and predict behavioral choices is the Theory of Planned Behavior. By this theory the intention to engage in a voluntary activity is made up by someone's attitude towards volunteering, the perceived norm to engage in the activity and the perceived behavioral control over the activity.

When someone starts volunteering he or she develops commitment towards the volunteer activity and the organization they work for. The in- and decrease of commitment is a time-related process but is also the result of experiences, benefits and valuation of their work by others. High commitment prevents someone from leaving where low commitment will make it easier or even stimulate a person to leave the organization.

It is important to retain suitable volunteers for as long as possible. In some cases turnover happens in the early stages of volunteering. This is often the result of a mismatch between the volunteer and the organization. Therefore it is important to give volunteers from the beginning on sufficient and accurate information about their tasks, the expectations and the organization itself to minimize the chance of mismatch.
Over time every volunteer will get to the point where he or she asks themselves if they want to continue. Burnout, detachment, fatigue and less emotional involvement arise over time. If volunteers at this point do not go through renewal by taking up new roles, some time off or through self-reflection, they will drop-out.
Another important reason for drop out which is not so much time-related is caused by a breach of the psychological contract between the volunteer and organization. The psychological contract addresses what employees feel they owe the organization and what they feel the organization owes them. A breach results in disappointment and sometimes frustration. Related to this is drop out because of a lack of recognition an appreciation from the organization.
Even if commitment is high and the relation with the organization and staff is good external factors can cause early turnover. This happens more frequent than one might think. Examples of external factors are changes in job or place of residence.

Within this research the Theory of Planned Behaviour (TPB) is used to assess and predict the decision of volunteer firefighters about their future. Literature showed that the TPB has better predictive capabilities and accounts for a significantly greater variance compared to another much used theory, the Volunteer Functions Inventory. The TPB holds that intentions to perform behaviors of different kinds can be predicted with high accuracy from attitudes toward the behavior, perceived norms and perceived behavioral control. By choosing the TPB as the theory to analyze the decision of volunteer firefighters about their future the following hypotheses were defined:

1. a positive attitude has a significant positive influence on the behavioral intention to stay active as a firefighter

2. A positive perceived norm has a significant positive influence on the behavioral intention to stay active as a firefighter

3. A positive perceived behavioral control has a significant positive influence on the behavioral intention to stay active as a firefighter

Firefighter in action (photo by UK Ministry of Defense)

5. Research Method

This chapter will provide information on how this research is designed and how data is obtained and analyzed. It will give insight in the response on the questionnaire and representativeness of the respondents. The internal consistency of items that have to form one scale is determined which results in an adapted model of the Theory of Planned Behavior.

5.1 Research type

Literature and statistics have been used to sketch a picture of volunteer firefighting in the Netherlands and to find a theory that can be used to answer the central question of this research, the Theory of Planned Behavior. To apply the TPB and answer the central question a quantitative research is carried out by developing and executing a survey and analyzing its collected data. The survey has been held in the form of a questionnaire. Since this research aimed to reach a relative large population throughout all parts of the Netherlands the questionnaire was accessible through the internet. The online survey made it also easier to collect, organize and analyze the data from respondents. A small amount of qualitative data is gathered by presenting an open ended question within the survey where the respondent could give his opinion about the present and future situation of volunteer firefighting in the Netherlands.

5.2 Data collection

The main part of the questionnaire has been designed on the theory of planned behavior. More information about the construction of this questionnaire can be found in chapter 5.5. The questionnaire has been held online by making use of Google Forms. By using this online tool a form can be created and responses are collected in a Google Docs spreadsheet. Respondents had four weeks to participate in the study and fill out the form. Each respondent was invited indirect through their security region or (local) fire brigade. Their answers were collected in a Google Docs spreadsheet which could be exported to an Excel-file. The Excel file was imported into SPSS creating the basic datasheet that has been used for further analysis.

5.3 Research population

The population within this research consists out of active volunteer firefighters in the Netherlands. By active is meant volunteer firefighters who respond to and have active duties or tasks during actual emergencies. There are no restrictions on which department or security region the respondents are active. There are also no predefined restrictions on rank, gender, age or years of service. By this definition the total population of volunteer firefighters in the Netherlands for 2013 consisted of 20.795 persons[5].

5.4 Response and representativeness

From within this population a sample is drawn. The survey has been distributed through contacts within the fire service. Most security regions and many fire brigades have been asked per e-mail for their cooperation with this research. The majority of security regions did not respond or were unwilling to forward the invitation to their volunteers. On an individual base the fire brigades were more willing to participate in the research. All who positively reacted were asked to forward an invitation to their volunteer firefighters. The survey itself was conducted via the internet.

[5] (Statistics Netherlands, 2014)

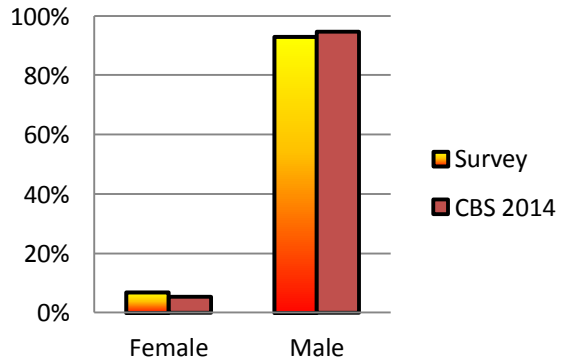
Respondents could access the survey through a direct link that was only announced within the invitation. In total 486 persons filled out the online survey. It is unknown how many volunteers were exactly reached and read the invitation. It is known that the distributed link to the online questionnaire was 754 times clicked. This indicates that at least 64 percent of the persons that clicked on the link actually filled out the questionnaire and submitted their answers. However since data about the total number of reached persons is unavailable a reliable response rate cannot be calculated.

In total 486 persons filled out the survey. In a first analysis ten respondents were removed because they answered too few questions of the survey. Therewith 476 cases were taken into account within the deeper analysis of the results.

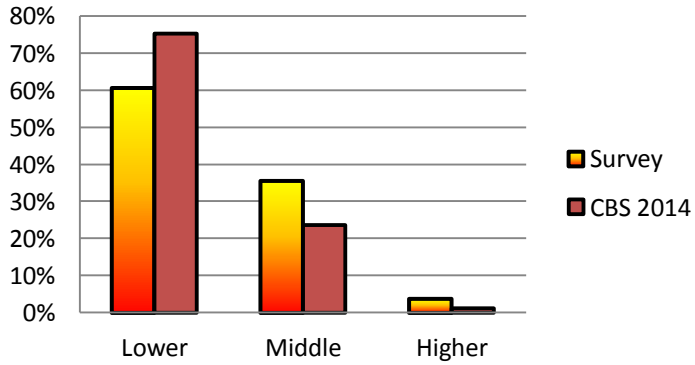
It is likely that volunteers who are more actively involved within the fire service are more inclined to participate in the survey. Therewith there is a chance that already less motivated volunteers are somewhat underrepresented in the results. On the other hand it could be that skeptic volunteers are more willing to fill out the survey to agitate against certain developments within the fire service. This could result in more negative results regarding external factors like regionalization or budget cuts.

Some parameters of the survey can be compared with statistics about the total population of Dutch volunteer firefighters. The statistics of the CBS[6] show that 94,7 percent of the Dutch volunteer firefighters are male against 5,3 percent females. Of the respondents 93 percent was male and 7 percent female. This inclines to a minor overrepresentation of females, but gender wise the survey population forms a good representation of volunteer firefighters in the Netherlands.
The CBS also gives information about the rank of operational personnel. They show that 75 percent is lower ranked (up to "hoofdbrandwacht"), 24 percent is middle ranked (brandmeester) and 1 percent of the volunteer firefighters has a high rank (hoofdbrandmeester or higher). Of the respondents within the survey 61 percent has a lower rank, 36 percent has a middle rank and 4 percent has a high rank. It shows that lower ranked personnel are underrepresented in the results. It can be that middle and higher personnel were more motivated to participate in the survey since they are in general more involved in the development and implementation of new policies. It is expected that the effect of underrepresentation of lower personnel will be minor. In the end all of them are volunteers dealing with the same developments within their own brigade, regardless their rank.

Graph 2| Representativeness of gender



Graph 3| Representativeness of rank



[6] (CBS; Brandweerpersoneel: beroeps en vrijwilligers, rangniveau, opleiding, regio; 2014)

Not all security regions were willingly to participate in the survey. In total volunteers out of sixteen from the twenty-five security regions have participated, some by an invitation through their security region, others by an invitation through their own fire brigade. This makes it more difficult to generalize the results of this survey for all security regions since differences in policies and developments between the regions do exist. Some security regions are more represented than others. For instance a relatively large response of 21 percent is from 'Zeeland'. On contrary, the relative percentage in 2014 for 'Zeeland' compared to the sixteen security regions is 8 percent. The results of this research will therefore sketch the bigger picture of volunteer firefighters in the Netherlands and will take certain general developments into account. If a security region would like to gain a more detailed insight in the particular situation of their volunteers, this research can serve as an indicator, guideline and framework.

Table 1 | Origin and representativeness of respondents

Security region	Participants	Percentage in research	Percentage by CBS[1]
1. Groningen	26	5%	5%
3. Drenthe	1	0%	5%
4. IJselland	27	6%	6%
5. Twente	8	2%	5%
6. Noord- en Oost-Gelderland	30	6%	9%
7. Gelderland-Midden	22	5%	6%
8. Gelderland-Zuid	19	4%	6%
9. Utrecht	32	7%	11%
10. Noord-Holland Noord	33	7%	5%
11. Zaanstreek-Waterland	39	8%	5%
14. Gooi en Vechtstreek	1	0%	2%
16. Hollands Midden	20	4%	7%
19. Zeeland	100	21%	8%
22. Brabant-Zuidoost	25	5%	6%
23. Limburg-Noord	36	7%	6%
24. Zuid-Limburg	56	12%	4%
Unknown	1	0%	-
Total	**476**	**100%**	**100%**

5.5 Construction of questionnaire

To measure the constructs of the Theory of Planned Behavior a survey has been held among volunteer firefighters in the Netherlands. This survey has been held in the form of an online questionnaire. The questionnaire including all its questions can be found in appendix I.

5.5.1 Background factors

To analyze how certain background factors and developments influence the intentions of volunteer firefighters they have been incorporated within the questionnaire. Questions have been asked about the following factors:

- Age
- Gender
- Years of service
- Rank
- Security region

Their experience with certain developments has been assessed by asking them about:

- Experience with variable staffing of vehicles
- Use of rapid intervention vehicles within their fire brigade
- Experiences with aggression
- Experienced budget cuts
- Time spend as volunteer firefighter

Also their evaluation of bureaucracy within the fire service has been assessed. This has been done by administrating three questions derived from a research on the concept of bureaucracy by Richard Hall (1963). The calculated Cronbach's Alpha for these three items is 0,737 and the mean of these three questions gives an indication about the experienced level of bureaucracy for each volunteer. The following questions were scored on a 7-point Likert scale ranging from "that is not true" towards "that is true":

- Within our fire brigade is room for own initiatives
- We have a strong say in the decision making process within our fire brigade
- In general, the process of decision making and implementation takes a long time

The background questions were presented to the respondent in the first part of the questionnaire.

5.5.2 Constructing theory of planned behavior questionnaire

The four constructs of the Theory of Planned Behavior have been assessed by designing a specific questionnaire. All of the questions used were direct measures for intention, attitude, perceived norm or perceived behavioral control. The questions were aimed on the target behavior; active volunteer firefighting in the Netherlands. The questions are based on experiences of the author of this research (who is a volunteer firefighter), conversations with other volunteer firefighters, literature and examples within the book of Ajzen and a manual about constructing theory of planned behavior questionnaires within the health services (Fishbein & Ajzen, 2010)& (Centre for Health Services Research, 2004). All of the 'TPB-questions' were presented in a second part of the survey. The questions were mixed to minimize the effect of related answers. The questionnaire including all its questions can be found in appendix I. The variables that resulted from the questions can be found in the next paragraph.

Target Behavior:
The target behavior is described as 'continue to work (*action*) as a volunteer firefighter (*target*) within the Dutch fire service (*context*) for the next 5 years (*time*)'.

Scores:
The questions regarding the Theory of Planned Behavior were all answered using a 7-point Likert scale ranging from "I totally disagree" with value -3 to "I totally agree" with value +3. The neutral value is therewith 0. Although using the same scoring scale, the questions were not asked in the same manner. Eight questions were negatively formulated to increase the validity of the scores. In the analysis these scores have been recoded for comparing possibilities. The relative importance of support by partner, family members, friends, employer and colleague-firefighters is measured by a separate question where the respondent indicated their importance on a five point scale from totally unimportant to very important. How this is taken into account within the analysis will be explained in the next paragraph.

5.6 Variables

The four constructs intention, attitude, perceived norm and perceived behavioral control were measured by multiple items. In the following table can be found which item was designed to measure which variable. Also the Dutch translation has been given. The third column gives information about the corresponding question within the actual questionnaire (see appendix I).

Table 2 | Overview of items within the questionnaire

Intention		**Question**
Measured by:	**Dutch:**	**No.:**
Wants to stay active	Wil vrijwilliger blijven in komende 5 jaar	15
Hopes to stay active	Hoopt nog zeker 5 jaar actief te zijn	23
Intends to stop[I]	Is van plan om binnen 5 jaar te stoppen	33
Attitude		**Question**
Measured by:	**Dutch:**	**No.:**
Useful	Zinvol	16
Burdening[I]	Belastend	17
Important	Belangrijk	18
Stimulating *(a positive challenge)*	Uitdagend	24
Pleasure	Leuk	25
Knowledge *(enhancing knowledge)*	Kennis opdoen	26
Dangerous[I]	Gevaarlijk	30
Satisfying	Voldoening	31
Social contacts *(improving social contacts)*	Sociale contacten	32
Perceived norm		**Question**
Measured by:	**Dutch:**	**No.:**
Expectancy of acquaintances	Verwachting van omgeving	21
Support of local community	Steun lokale gemeenschap	22
Opinion of partner[II]	Mening van partner	34
Opinion of family members[II]	Mening van familieleden	35
Opinion of friends[II]	Mening van vrienden	36
Opinion of employer[II]	Mening van werkgever	37
Opinion of colleague volunteer firefighters[II]	Mening van brandweercollega's	38
Support of management of security region	Steun van leiding veiligheidsregio	40
Support of local politics	Steun vanuit lokale politiek	41
Quitting of colleague volunteer firefighters[I]	Stoppen van brandweercollega's	43
Perceived Behavioral Control		**Question**
Measured by:	**Dutch:**	**No.:**
Combination with other obligations[I]	Combineren met andere verplichtingen	19
Expectancy of closure of fire station[I]	Verwachting sluiting brandweerpost	20
Expectancy about reducing number o. volunteers[I]	Verwachting minder vrijwilligers nodig	27
Physical abilities	Fysiek vermogen	28
Personal control over decision	Zelf bepalen over toekomst	29
Decision outside own control[I]	Geen controle over beslissing	42

[I] Reverse items have been re-coded in the analysis.
[II] Questions of support by that are multiplied by the indicated importance of these actors to the respondent

The questions in the main part of the questionnaire aimed to measure one of the four variables from the TPB, namely intention, attitude, perceived norm and perceived behavioral control. To analyze if the questions did measure the same variable their Cronbach's alpha has been calculated. This resulted in questions that could be used to form a scale for each of the four TPB-variables. The next paragraph will gain more insight in the internal consistency of these four variables.

SPSS was used to compute the mean value for each variable for every respondent. The importance of the variables attitude, perceived norm and perceived behavioral control on the dependent variable intention have been calculated with a regression analysis. The regression analysis is carried out using the software program SPSS. A logistic regression analysis is carried out to find how variables influence intention and if they have a significant influence.

The relative importance of the opinion of partner, family, friends, employer and colleague-firefighters is calculated by multiplying the score for opinion by their importance as experienced by the respondent. The respondent scored the importance of the following actors:

1. Partner
2. Family members
3. Friends
4. Employer
5. Colleague firefighters

The respondents scored their importance on a five point scale ranging from totally unimportant to very important and corresponding values of 1 till 5. For the five questions a new variable is calculated by multiplying the score of support with the score of importance:

$$Opinion_n = Support\ score_n \cdot \left(\frac{Importance\ score_n - 1}{4}\right)$$

5.6 Data analysis

To analyze the collected data a statistical software program called SPSS has been used. With SPSS certain background factors were arranged into categories and negatively formulated questions were recoded to make them comparable to the positively formulated questions. Also SPSS has been used to compute new variables, calculate Cronbach's Alpha and to carry out the logistic and linear regression analysis.

5.7 Internal consistency

The questionnaire was designed to find respondents' intentions, attitudes, perceived norm and perceived behavioral control towards their future within the volunteer fire brigade. Each of these variables is composed by answers to several different questions. On forehand three questions were designed to measure intention, nine questions to measure attitude, ten questions to measure perceived norm and six questions were designed to measure perceived behavioral control.

To compute the variables intention, attitude, perceived norm and perceived behavioral control, the internal consistency of their corresponding questions should be analyzed. If items are not internally consistent it would be undesirable to combine them into one scale. The internal consistency is measured by calculating Cronbach's alpha for each variable and analyzing the corresponding correlation matrix. The desired value for Cronbach's Alpha should be 0.7 or higher, indicating that items form a good scale.

5.7.1 Intention

The predictor of behavior is the intention to perform the behavior in question. The underlying construct of the Theory of Planned Behavior is that intention is constructed by a persons' attitude, perceived norm and perceived behavioral control towards the behavior. To measure intention of volunteer firefighters to stay active in the near future, three different questions have been incorporated in the questionnaire:

Table 3 | Items measuring intention

Variable	Question no.
1. Wants to stay active	15
2. Hopes to stay active	23
3. Intends to Stop*	33

**Reverse items have been re-coded in the analysis*

The Cronbach's alpha coefficient for these three items is 0,907 indicating a high and desired level of internal consistency for the 'intention' scale. The item-total statistics show that the deletion of one of the three items is not necessary since that would not result in an improvement of Cronbach's Alpha. The correlation matrix indicates that the items correlate very well, but that this correlation is not too high (>0,900).

For these reasons it is accepted that the three items can be used to compute a value for intention.

5.7.2 Attitude

The second variable to be analyzed is attitude towards the behavior. The items that were designed to measure the attitude towards their active career as volunteer firefighters can be found in the table below. The second column gives information about the corresponding question within the questionnaire (see appendix I):

Table 4 | Items measuring attitude

Variable	Question no.
1. Useful	16
2. Burdening*	17
3. Important	18
4. Stimulating *(a positive challenge)*	24
5. Pleasure	25
6. Knowledge *(enhancing knowledge)*	26
7. Dangerous*	30
8. Satisfying	31
9. Social contacts *(improving social contacts)*	32

**Questions assessing a negative aspect. These have been re-coded in the analysis.*

To analyze the internal consistency of these nine items their Cronbach's alpha is calculated using SPSS. For these nine items the Cronbach's alpha is 0,663 which is below the desired value of 0,700. A more thorough analysis shows that Cronbach's Alpha can be significantly improved with the removal of the items 'Dangerous' and 'Burdening'. The more items that have to form one scale, the higher should be Cronbach's Alpha. Nine items is relatively much and a value below 0,700 is therefore not accepted. This means that the items 'Dangerous' and 'Burdening' are deleted in the computing of 'Attitude'. With the removal of these two items Cronbach's Alpha for the remaining seven items is 0,797 indicating a consistent scale.

5.7.3 Perceived norm

The third variable to be analyzed is the perceived norm and its corresponding items can be found in the table below. The questionnaire measured the perceived norm by ten questions.

Table 5 | Items measuring perceived norm

Variable	Question no.
1. Expectancy of acquaintances	21
2. Support of local community	22
3. Opinion of partner*	34
4. Opinion of family members*	35
5. Opinion of friends*	36
6. Opinion of employer*	37
7. Opinion of colleague volunteer firefighters*	38
8. Support of management of security region	40
9. Support of local politics	41
10. Quitting of colleague volunteer firefighters	43

**These scores are multiplied by the score for motivation to comply*

The Cronbach's alpha for these ten items is 0,759, which indicates a good internal consistency between them. The more detailed results showed that Cronbach's alpha can be slightly improved if the item 'Quitting of colleague volunteer firefighters' is deleted. The quitting of a colleague volunteer firefighter and its influence on perceived norm seems to be different than for the other items. The

supposed relation might be less strong or even non-existing as was on forehand expected. The role of colleague volunteer firefighters is already assessed by their expected opinion. It seems unnecessary to keep both questions in the further analysis and since there is no convincing reason to retain this question, item number 10 is deleted when computing a value for perceived norm. Cronbach's alpha for the remaining nine items that form the perceived norm scale therewith becomes 0,776.

5.7.4 Perceived Behavioral Control

The fourth variable to be analyzed is perceived behavioral control. The questionnaire aimed to measure the perceived behavioral control by six questions.

Table 6 | Items measuring perceived behavioral control

Variable	Question no.
1. Combination with other obligations*	19
2. Expectancy of closure of fire station*	20
3. Expectancy about reducing number off volunteers*	27
4. Physical abilities	28
5. Personal control over decision	29
6. Decision outside own control*	42

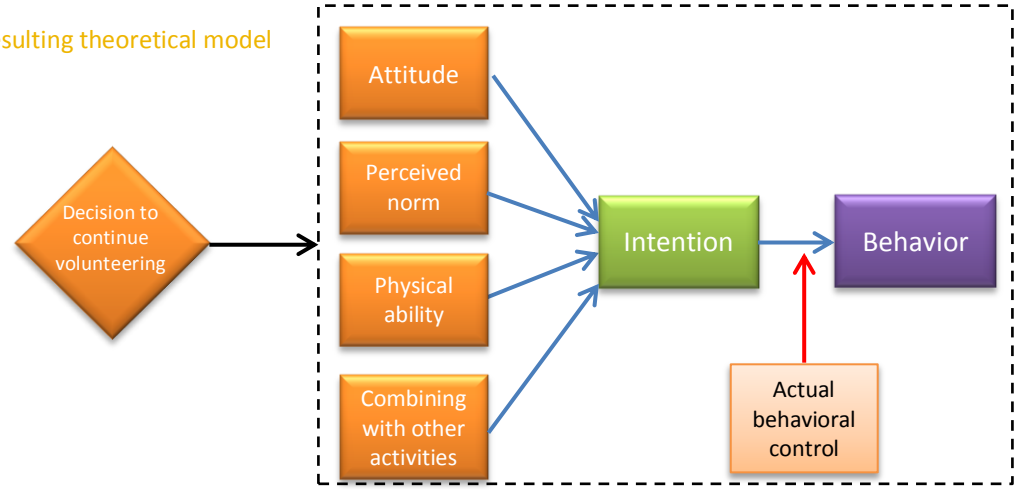
**Reverse items have been re-coded in the analysis.*

To analyze the internal consistency of these items their Cronbach's alpha is calculated. For these six items the Cronbach's alpha is 0,393 indicating a low internal consistency between the items. The deletion of a few items could only marginally improve Cronbach's alpha but would never exceed 0,480. A second look at the questions indicates some problems. It seems that questions 5 and 6 do not assess the perceived behavioral control but are more about the actual behavioral control of the decision. This is also the case for questions 2 and 3. Only question 1 and question 4 are about the perceived behavioral control of the respondent. That is, these questions do measure the extent to which the respondent expects to be able to carry out the behavior in question for the coming five years. Therefore the other four questions are kept outside the further analysis. The Cronbach's alpha for the remaining two items (item 1 and 4) is 0,101. This indicates that it is not possible for these two items to form one scale. Therefore these two items are separately taken into account within the regression analysis and replace one item for 'Perceived Behavioral Control'.

5.8 Resulting model

By testing the internal consistency of the items the model of the Theory of Planned Behavior as used in this research is somewhat altered. Intention is measured by the mean value of three items, attitude by the mean of seven items, perceived norm by the mean of nine items and perceived behavioral control is replaced by two independent items. This results in the following theoretical model:

Figure 8 | Resulting theoretical model



6. Results

This chapter presents the results of the questionnaire. First will be presented how the respondents score on intention, attitude, perceived norm, physical ability and combining activities. The second paragraph will test the hypothesis that come from the adapted Theory of Planned Behavior. The last paragraph gives insight in how background factors and developments within the fire service influence intention, attitude, perceived norm, physical abilities and combining activities.

6.1 Theory of Planned Behavior

6.1.1 Intention of volunteer firefighters

The respondents scored their intention to stay active as a volunteer firefighter for the next five years on three items. The results show that most volunteer firefighters have an extreme high intention to stay active for the next five years. A staggering number of 256 of the 476 respondents (53 percent) score the maximum value 3 for their intention. In comparison, only 13 volunteer firefighters scored the minimum value of 13. The mean value for the respondents regarding their intention lays at 1,98, which is a high score on the scale from -3 to +3.

In total 11,6 percent of the respondents score for intention below 0,00. This indicates that they do not have the intention to stay active as a volunteer firefighter within the next five years. The more negative this value is, the stronger is their intention to stop volunteering. From the respondents 2,5 percent scored the neutral value of 0,00. For these respondents cannot be said that they intend to stay active but also not that they want to stop volunteering within the next five years. The remaining 85,9 percent scores for intention above 0,00. This implies that they have the intention to stay active as volunteer firefighters within the next five years. Also here applies that the higher this value is the stronger is their intention to stay active. In a plot the results show the following distribution.

Graph 2 | Distribution of intention scores

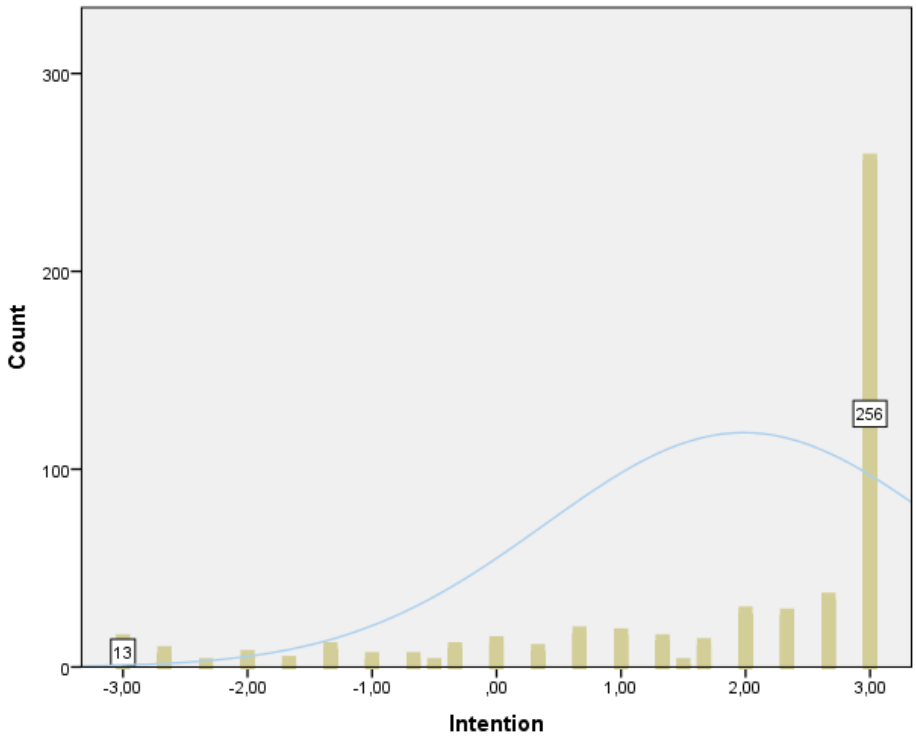


Table 7 | Descriptive statistics for 'intention'

	N	Mean	Std. Deviation
Intention	476	1,98	1,60

The graph shows that intention is not normally distributed but has a high number of observed values at its maximum right end. The variable intention is more distributed like a dichotomous variable with either a maximum intention or not. By translating the scores on the interval scale towards a dichotomous score, any score below three is brought under the dichotomous score of 0 and all scores of 3 are brought under the dichotomous score of 1.

6.1.2 Attitude

The attitude of the respondents towards their work as volunteer firefighters was scored on seven items. The mean value for attitude lies with 2,27 at the right end of the possible interval. Sixteen percent (76 cases) of the respondents scored with 3,00 the maximum value for attitude. The minimum value lies with -0,29 just below the neutral value of 0. About 99 percent of the respondents have a positive attitude (attitude > 0) towards their work as volunteer firefighters. Only two respondents have an overall negative attitude towards volunteer firefighting.

That attitude scores are relatively positive can also be seen in the figure below. This figure indicates how often categorized values for attitude are present. For 120 respondents lies the attitude value between 2,80 and 3,00. With a frequency of 73 another high bar can be found in the range between 1,80 and 2,00.

Graph 3 | Distribution of 'attitude' scores

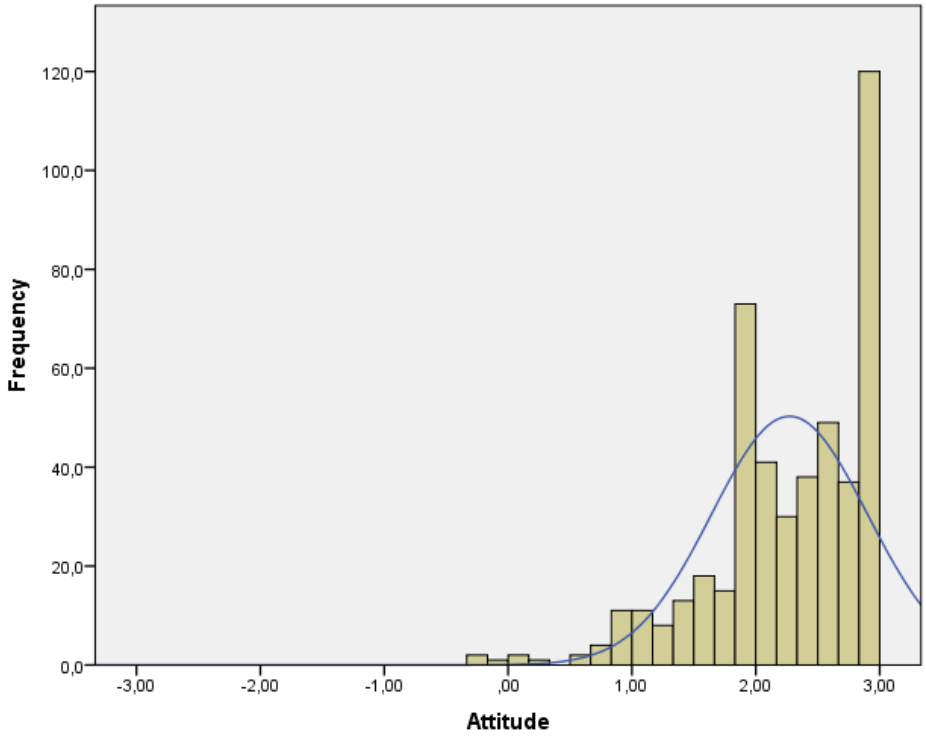


Table 8 | Descriptive statistics for 'attitude':

	N	Mean	Std. Deviation
Attitude	476	2,27	0,62

The following table gives the descriptive statistics for the seven items that formed the scale for attitude:

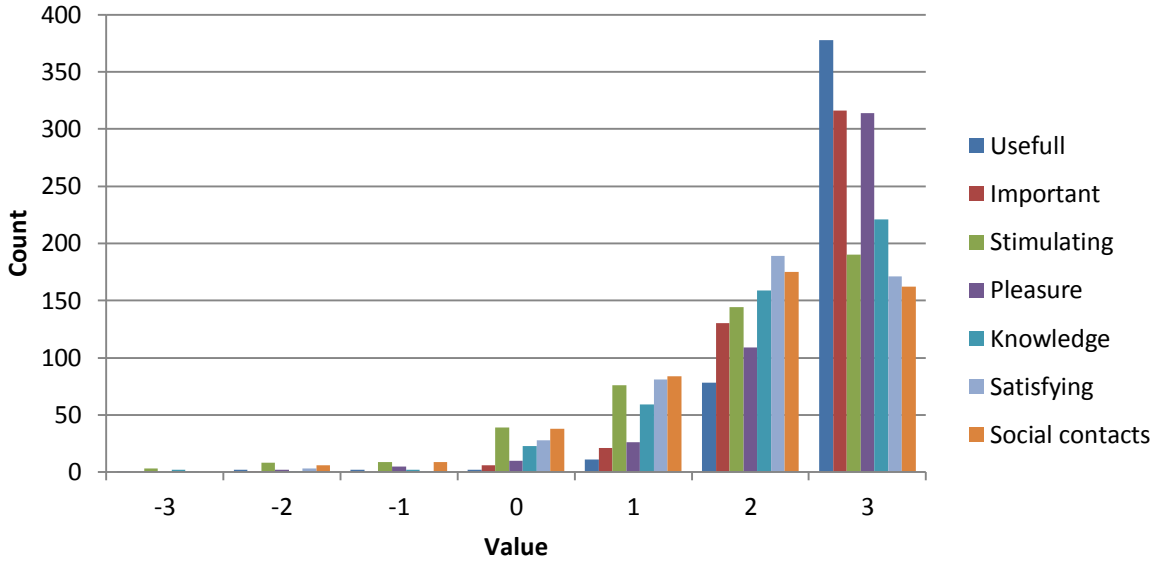
Table 9 | Descriptive statistics for items measuring 'attitude'

	N	Minimum	Maximum	Mean	Std. Deviation
Usefull	474	-3	3	2,73	,68
Important	474	-2	3	2,59	,67
Stimulating	469	-3	3	1,92	1,22
Pleasure	466	-2	3	2,53	,84
Knowledge	467	-3	3	2,21	,96
Satisfying	474	-3	3	2,03	,97
Social contacts	474	-2	3	1,90	1,09

For all seven items applies that they have a positive mean. The highest score is reached for the variable 'Useful'. The lowest mean, but with 1,90 on a -3 to +3 scale still a high score, is for the variable 'social contacts'.

In the figure below can be seen how the seven 'attitude-items' scored on their -3 to +3 Likert-scale. As shown by the calculated mean values for each item, most items score very high. Almost every respondent finds their work as volunteer firefighter useful. They also believe their work is important and it gives them much pleasure. The only two items that do not have the highest count at the maximum value of three are 'satisfying' and 'social contacts'. Even though firefighters get satisfaction from their work as volunteer firefighters but its mean value is lower than the overall mean value for attitude. The only two variables that score a mean value below 2, but who still score relatively high, are 'stimulating' and social contacts'.

Graph 4 | Individual score of the seven items that measured 'attitude'



6.1.3 Perceived norm

The perceived norm as experienced by the respondents was measured on a nine-item scale. The mean value for perceived norm is 0,8850. This indicates that, on average, the respondents experience a positive social pressure to stay active as volunteer firefighters. The maximum score that was reached by a respondent was 2,83 and the lowest value for perceived norm was -1,86. About 83 percent of the respondents have a positive perceived norm (perceived norm > 0) . The neutral value of 0 was present for about 2 percent of the respondents and the remaining 15 percent indicate a negative perceived norm towards their future as volunteer firefighting.

In the figure below can be seen how often values for perceived norm are present. The bars represent how often categories with a width of 0,2 are present. With a frequency of 54 the largest category is for respondents who have a perceived norm that lies between 1,00 and 1,20.

Graph 5 | Distribution of 'perceived norm' scores

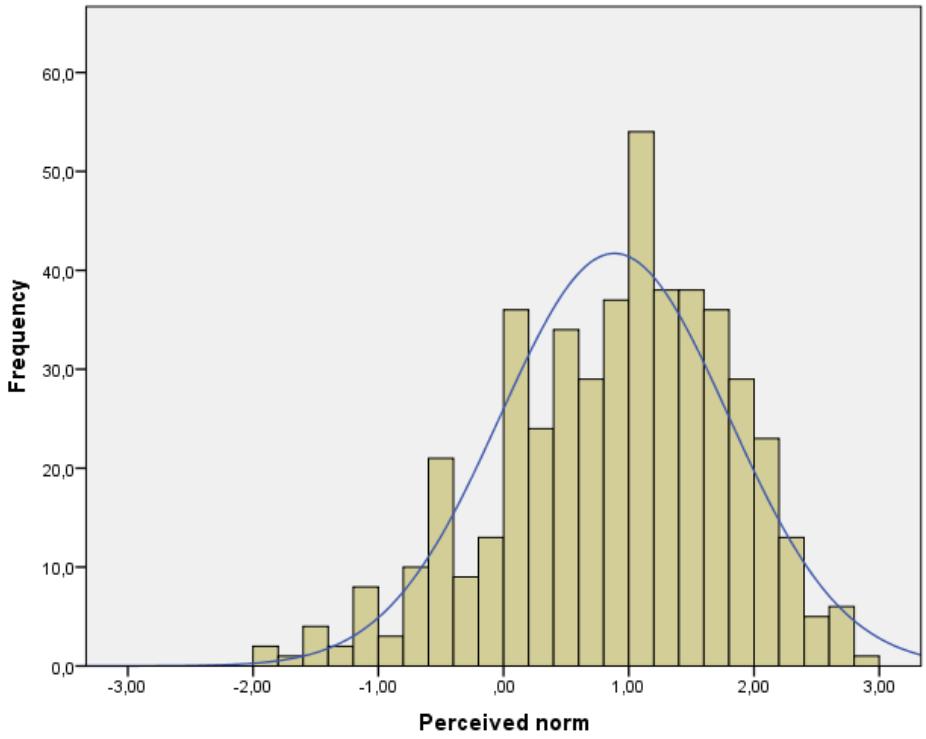


Table 10 | Descriptive statistics for 'perceived norm'

	N	Mean	Std. Deviation
Perceived norm	476	0,885	0,91

The perceived norm scale is constructed by the mean of nine items. The descriptive statistics for these nine items can be found in the table below.

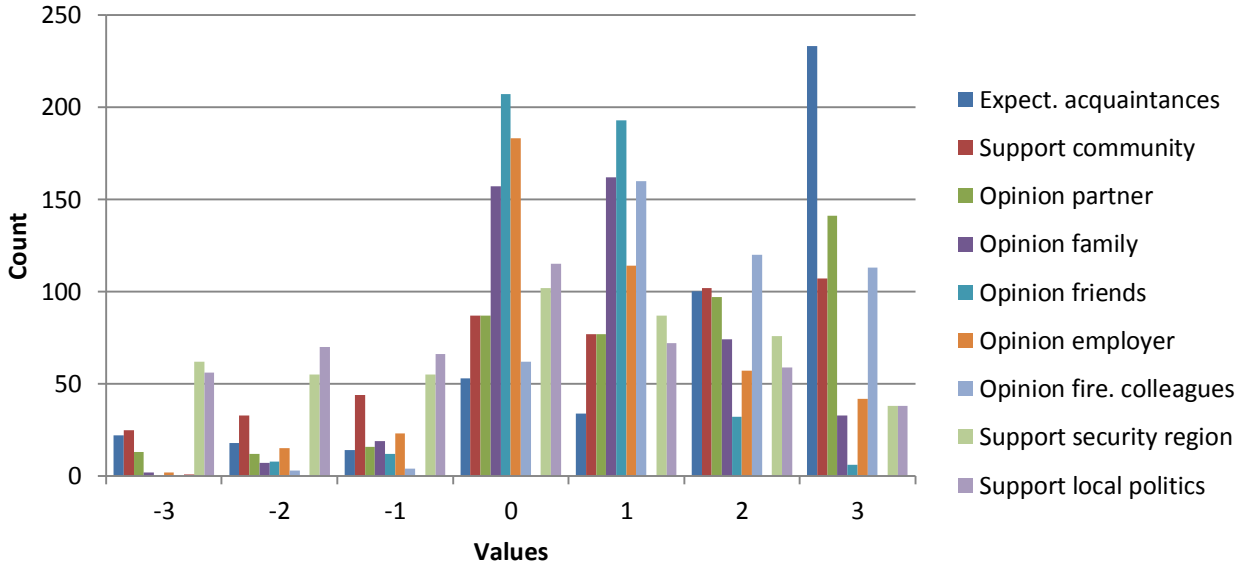
Table 11 | Descriptive statistics for items measuring 'perceived norm':

	N	Minimum	Maximum	Mean	Std. Deviation	Motivation to comply
Expectancy of acquaintances	474	-3	3	1,72	1,72	-
Support of local community	475	-3	3	,88	1,76	-
Opinion of partner	443	-3	3	1,42	1,53	0,91
Opinion of family members	454	-3	3	,97	1,09	0,57
Opinion of friends	458	-2,25	3	,71	,85	0,42
Opinion of employer	436	-3	3	,79	1,22	0,68
Opinion of colleague volunteer firefighters	462	-2,25	3	1,75	1,01	0,75
Support of management of security region	475	-3	3	,004	1,81	-
Support of local politics	475	-3	3	-,14	1,77	-

The table above shows that the opinion of colleague volunteer firefighters has the highest mean value. Also the mean value for the expectancy of acquaintances is high. It seems that the support by the management of the security region is not high. Its mean value lies with 0,004 just above the neutral value of 0. The support by local government or politicians lies even below 0, which indicates that the firefighters do not feel support from local government.

The figure below shows how the nine perceived norm items score on the -3 to +3 Likert scale. The highest count at the maximum value of 3 is for expectancy by acquaintances. This indicates that most firefighters feel social pressure since people they know expect them to continue as a firefighter. The support from within the community is relatively evenly distributed over the positive scores. The highest count for negative scores is created by support from the security region and local politics. The influence of friends is relatively neutral with high counts for the scores 0 and 1.

Graph 6 | Individual scores for the items that measured 'perceived norm'



6.1.4 Physical abilities

The third factor that is taken into account within the adapted model of the Theory of Planned Behavior, are the physical abilities of volunteer firefighters to stay active within the next five years. This variable was a substitute for perceived behavioral control. The respondents scored their own expectations about the physical ability on a -3 to +3 Likert scale. With 2,24 the mean score is high indicating that most volunteer firefighters do not expect to be unable to continue their work as volunteer firefighters due to problems or an inadequate physique. Of the respondents, 56 percent estimate no problems at all with a maximum score of 3. Another 34 percent are with a score of 1 or 2 also positive about their physical abilities. 18 respondents, which is just below 4 percent, score neutral. The remaining 6 percent have a negative outlook regarding their physical ability to stay active as a volunteer firefighter for the next 5 years. Only 3 respondents reported the minimum score of -3.

Graph 7 | Distribution of scores on 'physical ability'

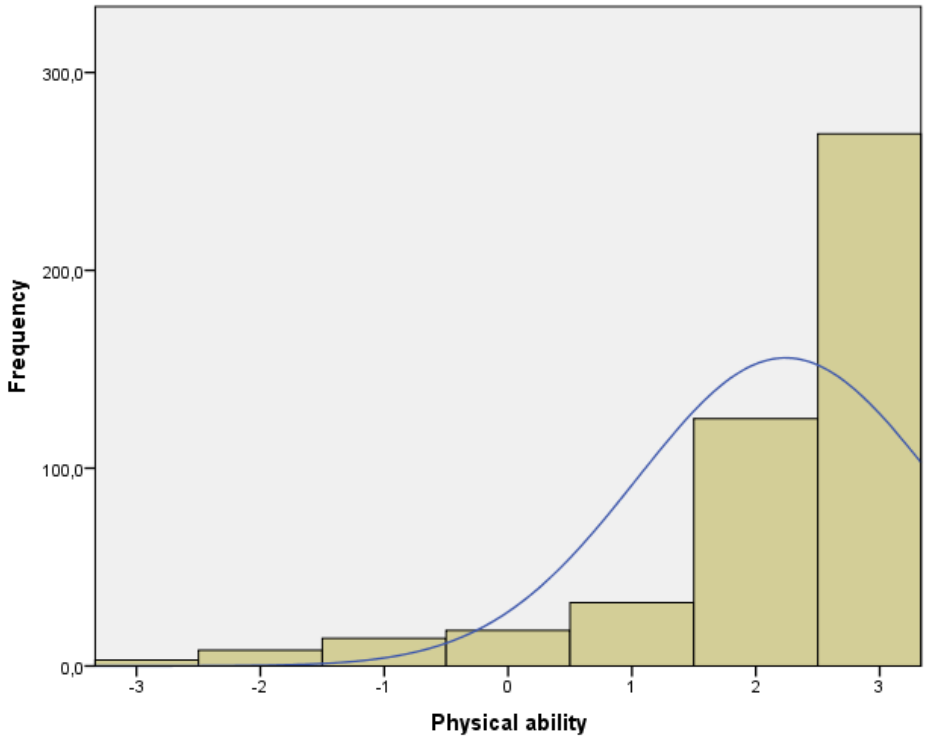


Table 12 | Descriptive statistics for 'physical ability'

	N	Minimum	Maximum	Mean	Std. Deviation
Physical ability	475	-3	3	2,24	1,201

6.1.5 Combining activities

The fourth factor that is taken into account within the adapted Theory of Planned Behavior is how easy volunteer firefighters can combine their volunteer work with other activities. They could score this on a -3 to +3 Likert scale. By scoring -3 they state that it will most likely be impossible to combine their work as volunteer firefighter with other activities, where the score of +3 indicates the opposite. The mean score of the respondents for this variable is 0,64 close to the neutral value of 0. Therewith it indicates that in general the volunteer firefighters estimate that it will be possible to combine their work as volunteer firefighter with other activities for the next five years.

Of the respondents 11,5 percent see no problems at all and reported the maximum score of +3. With a frequency of 120, another 25 percent indicate a score of 2 which implies they see little problems in combining their activities with volunteer firefighting. 18 percent filled out a score of 1 and 16 percent (76 respondents) score neutral. In total 28,5 percent score negative on this variable, which indicates that they do expect to experience difficulties in combining activities. 19 percent scores -1 and 7,5 percent sees more problems within the near future and score -2. The minimum score of -3 which indicates that the respondent thinks it will become impossible to combine volunteer firefighting with other activities, is present for 2 percent of the respondents.

Graph 8 | Distribution of scores on 'combining activities'

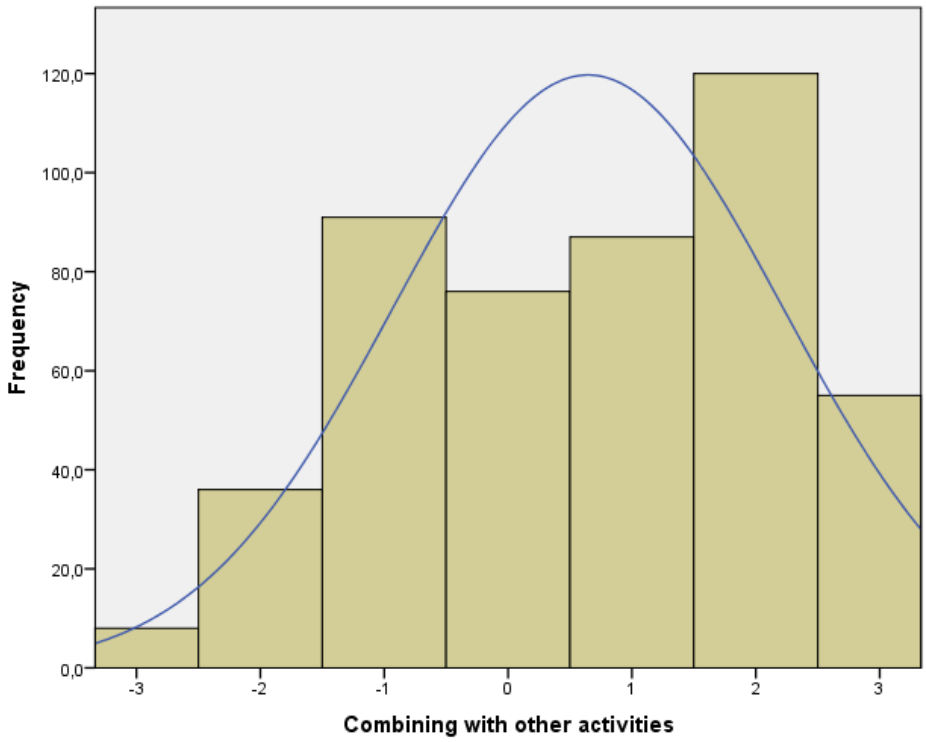


Table 13 | Descriptive statistics for 'Combining activities'

	N	Minimum	Maximum	Mean	Std. Deviation
Combining activities	476	-3	3	,64	1,576

6.2 Testing hypotheses

Chapter 4.9 presented three hypotheses that come from the Theory of Planned Behavior. These were:

1. H_1 = a positive **attitude** has a significant positive influence on the behavioral intention to stay active as a firefighter
2. H_2 = A positive **perceived norm** has a significant positive influence on the behavioral intention to stay active as a firefighter
3. H_3 = A positive **perceived behavioral control** has a significant positive influence on the behavioral intention to stay active as a firefighter

Due to problems with internal consistency, hypothesis number three is divided in two sub hypotheses (see chapter 5.7.4 and 5.8). These two hypotheses are:

3a. H_{3a} = A positive perception of **physical abilities** has a significant positive influence on the behavioral intention to stay active as a firefighter.
3b. H_{3B} = A positive perception of **combining volunteer firefighter with other activities** has a significant positive influence on the behavioral intention to stay active as a firefighter

To test these four hypotheses a logistics regression analysis has been carried out.

6.2.1 Logistics regression analysis

The distribution of the scores on 'intention' showed the need for logistics regression analysis. For this purpose the scores on intention were recomputed with score 1 for all respondents with maximum intention and score 0 for all respondents with less than the maximum value. The variables 'attitude', 'perceived norm', 'physical ability' and 'combining with other activities' were taken into the regression analysis as the independent variables with 'intention' as the dependent variable.

Nagelkerke r^2 is calculated and its value of 0,446 indicates a relatively good fit of the model. It implies that an approximate variance of 44,6 percent in the outcome is accounted for by the four variables attitude, perceived norm, physical ability and combining activities. The table below shows the variables in the regression equation.

Table 14 | Variables in regression equation with intention as dependent variable

	B	S.E.	Wald	df	Sig.*
Attitude	1,527	,245	38,93	1	,000
Perceived norm	,765	,156	23,95	1	,000
Physical ability	,517	,117	19,41	1	,000
Combining activities	,149	,076	3,80	1	,025
Constant	-5,319	,630	71,38	1	,000

*one sided significance

Attitude, perceived norm, physical ability and combining activities are all statistically significant (sig. ≤ 0,05). The Wald statistics indicates the relative importance of each independent variable in the prediction of the logit, which is in our case the maximum intention to continue volunteering. These values show that 'attitude' is the most important variable, followed by perceived norm, physical ability and in the last place combining activities.

The regression equation that can be formed from the β-coefficients can be used to estimate how large the chances are that someone has the (maximum) intention to continue volunteering. This chance is calculated as follows:

$$P_n = \frac{1}{1+ e^{Logit_n}}$$

The logit is determined with the regression equation that comes from the logistic regression analysis:

$Logit_n = \beta_0 + \beta_1 \cdot X_1 + \beta_2 \cdot X_2 + \beta_3 \cdot X_3 + \beta_4 \cdot X_4$

β_0= constant = -5,319
β_1= coefficient attitude=1,527
X_{1_n}= attitude score for respondent n
β_2= coefficient perceived norm = 0,765
X_{2_n}= perceived norm score for respondent n
β_3= coefficient physical ability =0,517
X_{3_n}= physical ability score for respondent n
β_4= coefficient combining activities = 0,149
X_{4_n}= combining activities score for respondent n

$Logit_n$ = -5,319 + 1,527·attitude$_n$ + 0,765·perceived norm$_n$ + 0,517·physical ability$_n$ + 0,149·combining activities$_n$

6.2.2 Hypothesis 1

The first hypothesis is about the influence of attitude on intention:

H_1 = a positive **attitude** has a significant positive influence on the behavioral intention to stay active as a firefighter

The logistic regression analysis shows that attitude of a volunteer firefighter regarding his or her work has a significant influence on the intention to stay active within the next five years (p = 0,000). It made also clear that this relation is positive since the β-coefficient for attitude is 1,527. This means that if the attitude of a person is more positive so will be his or her intention to stay active. With its high β-coefficient 'attitude' and the highest Wald-value, attitude is the largest contributor of the four variables that were taken into account. Hypothesis H_1 is not rejected and therewith accepted.

6.2.3 Hypothesis 2

The second hypothesis is about the relation between perceived norm and intention:

H_2 = A positive **perceived norm** has a significant positive influence on the behavioral intention to stay active as a firefighter

The multiple regression analysis shows that the perceived norm a volunteer firefighter experiences has a significant influence on the intention to stay active (p = 0,000). The relation between perceived norm and intention is positive since the coefficient for perceived norm is 0,765. Hypothesis H_2 is not rejected and therewith accepted.

6.2.4 Hypothesis 3

The third hypothesis consisted out of two 'sub-hypothesis'. The first one is about the relation between physical abilities and intention where the other is about the relation between intention to stay active and the combination of volunteer firefighting with other activities:

H_{3a} = A positive perception of **physical abilities** has a significant positive influence on the behavioral intention to stay active as a firefighter.
H_{3B} = A positive perception of **combining volunteer firefighter with other activities** has a significant positive influence on the behavioral intention to stay active as a firefighter

The logistic regression analysis showed that hypothesis H_{3a}, physical abilities, is significant regarding the intention to stay active as a volunteer firefighter (p = 0,000). The coefficient of 0,517 makes it clear that also this relation is positive. Therewith hypothesis H_{3a} is not rejected and therewith accepted.

The remaining hypothesis H_{3B}, which is about the combination of volunteer firefighting with other activities and its influence on intention to stay active, is also significant (p = 0,025). That 'Combining with other activities' has the lowest influence on 'intention' is shown by its relatively low valued β-coefficient of 0,149. Hypothesis H_{3B} is not rejected and therewith accepted.

Firefighters in action (photo by UK Ministry of Defense)

6.3 Influential factors

The previous paragraph showed the perceived results of how intentions to stay active as a volunteer firefighter are influenced by attitude, perceived norm, physical ability and the perceived ability to combine activities. Chapter three discussed some important developments within the Dutch fire service. This chapter will look whether these developments and some background factors are related to intention, attitude, perceived norm, physical ability and combining activities.

For comparing capabilities a multiple one-step linear regression has been carried out instead of a logistic regression analysis. The independent variables are divided into two series. The first series contains personal background factors like gender, age and time spend volunteering. The second series contains variables that are more organization specific like experience with variable crews and bureaucracy. Independent variables with category results (like gender and experiences with aggression) were put into the analysis using dummy-variables. The dependent variables within this analysis are intention, attitude, perceived norm, physical ability and combining activities. The results of the analysis (standardized β-coefficients) are presented in table 15 and table 16. The coefficients within the tables give information about the importance of some of the background factors and developments. A positive value indicates a positive relation between the background factor or development and the variable of the Theory of Planned Behavior. If this relation or difference is significant the value is printed bold:

Table 15 | Influence of personal background factors and developments on adapted Theory of Planned Behavior
Numbers are standardized β-coefficients

Dependent variables: / Independent variables:	Intention (n = 471)	Attitude (n = 471)	Perceived norm (n = 471)	Physical ability (n = 464)	Combining activities (n = 468)
Gender**					
male = 0 / female = 1	0,055*	-0,011*	0,026*	-0,034*	-0,049*
Age					
per year increasing	**-0,474**	**-0,113**	**-0,180**	**-0,281**	0,079*
Time spend on volunteering					
per hour more per week	0,044*	0,060*	0,041*	0,033*	-0,053*
Rank**					
lower rank = 0 / middle + high rank = 1	**0,111**	-0,056*	-0,018*	-0,035*	-0,041*
Aggression**					
never = 0 / once or twice = 1	-0,043*	-0,013*	-0,016*	-0,078*	-0,043*
never = 0 / multiple times = 2	0,019*	-0,042*	-0,020*	-0,083*	-0,038*

* Values (light grey) that indicate a non-significant relation between factor and dependent variable.
** Variables with categories instead of scales have been analyzed using dummy-variables.

The analysis shows that female firefighters have overall a more positive intention than their male colleagues but this difference is not significant. Gender proved to be not significant on any of the four variables. Age seems to be the most important personal background factor. Age has a significant influence on intention to stay active. The negative β-coefficient indicates that the older a volunteer firefighter is, the lower is his or her intention to stay active. The standardized β-coefficient even shows that age had the largest contribution in the explained variance of intention compared to the

other items. Age has also a significant and negative influence on attitude, perceived norm and physical ability. No significant influence was found on combining activities. Time spent on volunteering did not have a significant influence on any of the variables. It does show that the more hours a volunteer spends on volunteering, the more problems it experiences with combining activities even though its value of -0,053 is not significant. Rank was taken into account using a dummy-variable that differentiated between lower ranks (aspiranten, manschap A and manschap B) and higher ranks (bevelvoerders, officieren). The analysis showed that the difference between the intention of lower ranked respondents and that of higher ranked respondents was significant. It indicated that respondents with a higher rank have a higher intention than lower ranked respondents. A remark must be made that this is largely caused by a low intention for 'manschap B' firefighters since 'aspiranten' and 'manschap A' volunteers have the highest intentions within the ranks. The experience with aggression during their volunteer work has no significant influence on any of the five dependent variables.

A second linear regression analysis analyzed how organization specific factors and developments influence the five dependent variables of the adapted Theory of Planned Behavior. The results are displayed in the table below.

Table 16 | Influence of organizational developments on adapted Theory of Planned Behavior
Numbers are standardized β-coefficients

Dependent variables: / **Independent variables:**	**Intention** (n = 475)	**Attitude** (n = 475)	**Perceived norm** (n = 475)	**Physical ability** (n = 468)	**Combining activities** (n = 472)
Regionalization**					
not regionalized = 0 / regionalized = 1	0,056*	-0,007*	0,016*	0,003*	0,025*
Bureaucracy					
	-0,164	**-0,244**	**-0,346**	-0,067*	-0,015*
Variable crews**					
no = 0 / yes = 1	-0,014*	0,015*	-0,003*	-0,041*	0,068*
Rapid intervention vehicles**					
no = 0 / yes = 1	0,069*	-0,004*	0,059*	0,071	-0,032*
Budget cuts**					
no = 0 / yes = 1	0,006*	0,020*	-0,006*	**0,115**	-0,066*

* Values (light grey) that indicate a non-significant relation between factor and dependent variable.
** Variables with categories instead of scales have been analyzed using dummy-variables.

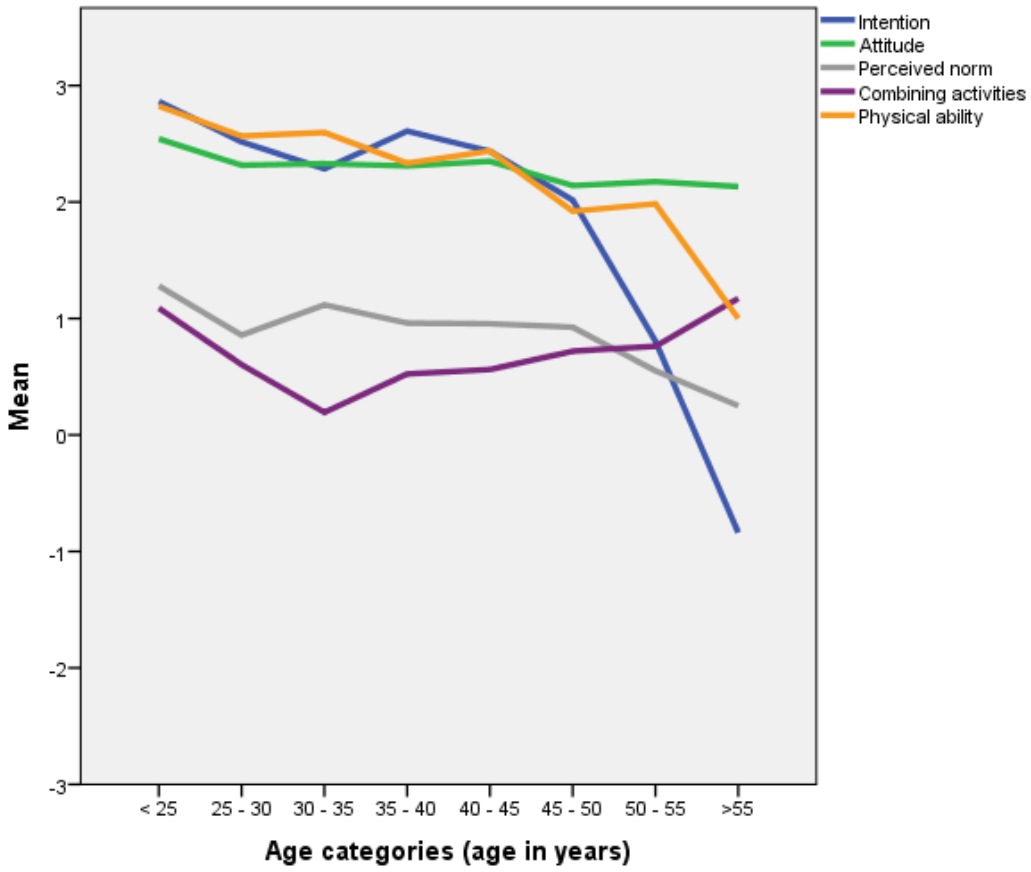
Respondents who were part of a regionalized fire brigade have a slightly higher intention to stay active, but regionalization did not have a significant influence on any of the four variables. On the other hand bureaucracy has a significant and negative influence on multiple dependent variables. If a volunteer experiences more problems with bureaucracy his or her intention, attitude and perceived norm tend to be decrease. The experience of respondents with variable crew on vehicles and rapid intervention vehicles did not show a significant difference. The last item which measured if a respondent experienced budget cuts only has a significant influence on physical ability.

The results show that age and bureaucracy are the most important items within the background factors and developments. Their influence on intention, attitude, perceived norm, physical ability and combining activities are visualized in a graph. This is also done for the variable rank to visualize the remark that the rank 'manschap B' influences the results.

Age

Graph 9 indicates that intention is at its highest for volunteers under the age of 25. Interesting is that volunteers between 35 and 45 years have a higher intention than their colleagues between 30 to 35 years of age. Intention drops after the 45 till 50 years category. Perceived norm is following almost the same curve as intention. Overall it decreases when age increases. Age had a significant negative influence on the physical ability of a volunteer, and this negative relation can also be seen in graph 9. No significant influence was found for age on combining volunteer firefighting with other activities. A drop can be seen for respondents who are between 30 and 40 years. After this category, it seems easier to combine volunteer firefighting with other activities with a maximum value for respondents who were 55 years or older.

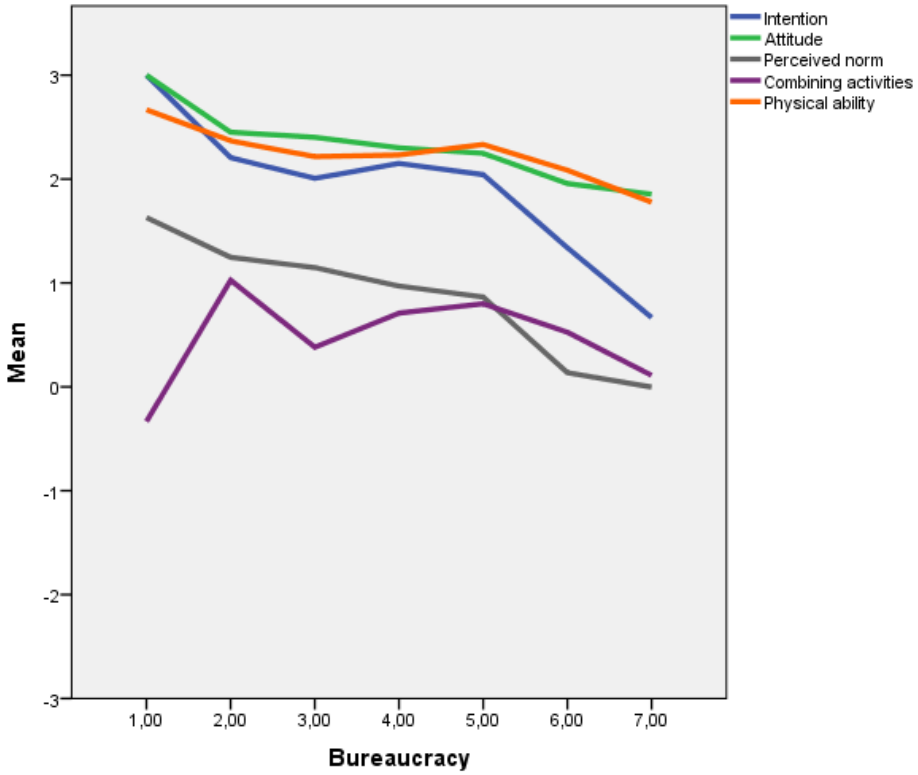
Graph 9 | Age versus the Theory of Planned Behavior variables.



Bureaucracy

The level of bureaucracy people experience has a significant and negative influence on intention, attitude and perceived norm. Graph 10 on page 59 confirms this statement. How bureaucracy has been measured can be found in chapter 5.5.1. Overall Intention shows a negative trend if a volunteer experiences a more negative level of bureaucracy. Attitude and perceived norm do also show that they decrease if more (negative) bureaucracy is experienced. There is a steep decline for all three variables after the value '5' for bureaucracy. Combining activities and physical ability do not show a relation with the level of bureaucracy which came also forth from the multiple regression analysis.

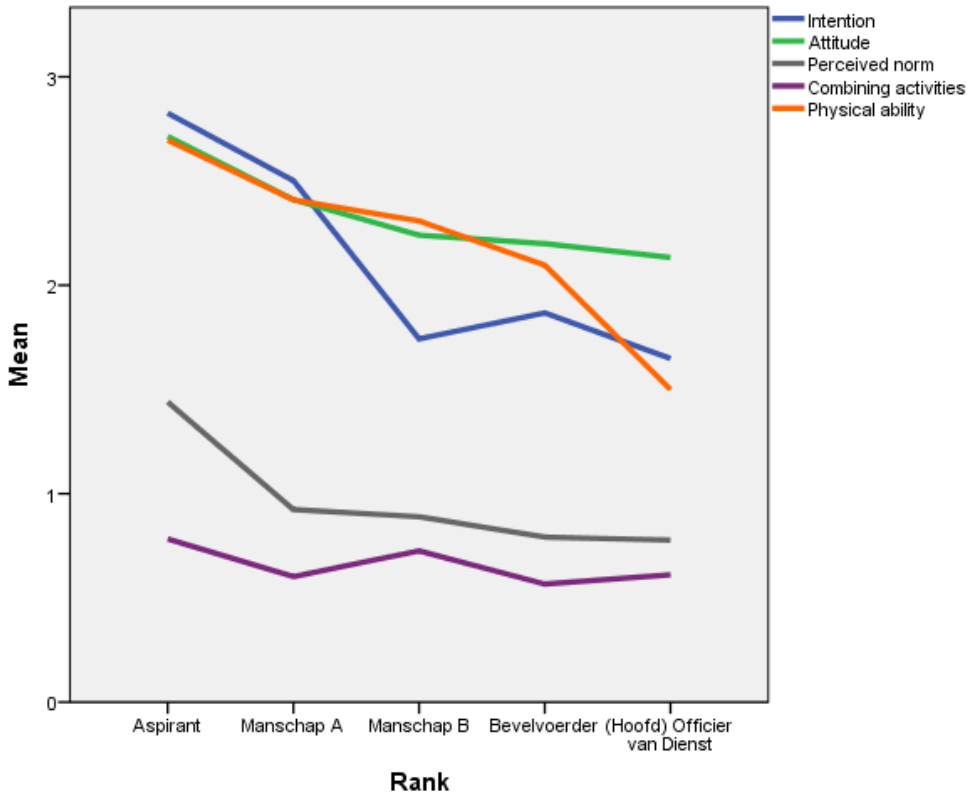
Graph 10 | Experienced bureaucracy versus the Theory of Planned Behavior variables.



Rank

The difference between intention for lower ranked volunteers and higher ranked volunteers also indicated to be significant. A remark has already been made that this is mainly due to a low intention for the rank 'manschap B'. As can be seen in the figure, intention is highest for new volunteers (aspirant) and basic firefighters (manschap A). Intention drops for leading firefighters (manschap B) but then inclines for the next rank, single company officers (bevelvoerders).

Graph 11 | Rank versus the Theory of Planned Behavior variables.



7. Discussion

The previous chapter presented the results of the questionnaire on the variables of the Theory of Planned Behavior. This chapter will discuss these results and give meaning to them. First the validity of this research will be questioned. Then the quality of the adapted model of Theory of Planned Behavior for volunteer firefighters and their intention will be discussed. This includes comments on the four variables attitude, perceived norm, physical ability and combining activities. A few remarks on the results of intention are also presented. After that the important background factors and developments are taken into account. This chapter ends with the comments about future research.

7.1 Validity of research

The questionnaire among volunteer firefighters within the Netherlands is important within this research. The asked questions made use of reliable 7-point Likert scales and are all related to firefighting. It is expected that the most important and influential persons for volunteer firefighters are taken into account. The calculated values for three of the four constructs from the Theory of Planned Behavior showed that internal consistency of these scales is good. The only item that gave trouble has been perceived behavioral control. The on forehand designed questions did not show enough internal consistency to combine them into one scale. Therefore this scale has been replaced by two separate items which resulted in an altered version of the Theory of Planned Behavior. However, the alteration still resulted in a significant model and the adaption even gives more insight in some of the problems that volunteer firefighters experience. The respondents formed a good representation of the population but not all security regions are represented. The respondents gave enough reliable information to sketch a general picture of the Dutch volunteer firefighter, but local policies and situations can be that important that one must understand that this general picture can be very different for a specific fire brigade. To give more insight about volunteers within a specific security region this research could be repeated and adjusted with local situations and developments[7]. Non-response is always a difficult subject within researches. One remark of the non-response has to be made. It could very well be that volunteers who in practice already have low motivation or a negative intention did not feel the need to participate in this research. Therefore it is very good possible that the results give a somewhat more positive image about the intention of Dutch volunteer firefighters than it is in practice.

7.2 Adapted model of Theory of Planned Behavior

Within this research the Theory of Planned Behavior (Fishbein & Ajzen, 2010) has been used to assess the intention of Dutch volunteer firefighters to remain active. The resulting model (chapter 5.8) replaced perceived behavioral control by two separate variables, namely physical ability and combining activities. Together with attitude towards volunteer firefighting and the experienced perceived norm to stay active as a volunteer firefighter these items form the adapted model of Theory of Planned Behavior. Following the extensive literature on the reliability of the Theory of Planned Behavior it was expected that these four variables would explain a significant portion of the variance in intention of volunteer firefighters to stay active. By testing the hypotheses this assumption was confirmed and the adapted model proved to be a significant and reliable method to estimate and explain intention to remain active. All four variables proved to be significant and the whole model did explain a relatively large portion of the variance in intention (see chapter 6.2).

[7] Appendix III gives some more insight in the results per security region

Many studies that apply the Theory of Planned Behavior on a specific behavior find that attitude is the most important variable in the formation of intention. Also this research found that attitude towards volunteer firefighting is the most important of the four variables. The attitudes of Dutch volunteer firefighters regarding their volunteer work are in general already very positive. This makes sense since the volunteer work itself (firefighting) keeps fulfilling many of the reasons that made people join the fire brigade in the first place. Important reasons to start volunteering like the desire to help people in need and the excitement of the job (Haverkamp, 2005) will always be around due to the nature of this volunteer work. It is the experience of these aspects which results in a high sense of usefulness, importance and gives them pleasure and satisfaction. All these aspects (among others) make up the attitude of a person regarding volunteer firefighting. There is still some room for improvement. The results indicate that attitude could be further improved by making the volunteer work more stimulating. This can be related to the in chapter 4.4 discussed Volunteer Stages and Transition Model (Haski-Leventhal & Bargal, 2008). Within that model is made clear that volunteers who take up new roles or skills are more stimulated and are less likely to exit. It could be that volunteers within the fire service do not have enough opportunities to take up new roles or skills which could explain the relatively low score for stimulation.

The second important and significant variable that came forth from the regression analysis is perceived norm. The results show that the overall perceived norm for volunteer firefighters to continue is positive but has enough opportunity to be further improved. The fire service in general usually receives a lot of support from the society. An international research even concluded that firefighters are the most trusted group of profession (GFK Verein, 2014). It is therefore somewhat surprising to see that volunteer firefighters do not experience a high level of support from within their local community. It could be that the fire service is a too much inwards orientated organization and therefore volunteer firefighters have too little positive and supportive experiences with society. Another important observation is the low valuation of support by the management of the security region and local government. The literature review on why volunteers leave (chapter 4.7.3) expressed the importance of a good relation between a volunteer and its organization. A lack of support and recognition by the organization will result in low commitment, agitation and eventually even the exit of volunteers. Organizations in general could improve the relationship with their volunteers by giving them attention, appreciation and even a certain level of autonomy within the volunteer tasks. The remarks of some respondents do underline this observation and one even states that touch with the management is lost due to their lack in personal contact and interest. The fire service must understand the importance of this subject and try to improve the relationship with their volunteers. This could significantly improve the perceived norm of volunteer firefighters.
As expected the volunteer firefighters find the opinion of their partners very important in their decision to remain active. Also expected is the importance of the opinion of colleague volunteers. In general firefighters have a strong mutual bond sometimes referred to as a brotherhood which is characterized by loyalty, support and solidarity. But with the loyalty and solidarity also comes the risk that if one colleague volunteer stops, more will follow his or her example. Also notable is the relatively low support from employers, especially since the motivation to comply with employers is relatively high. The support of employers is important for fire brigades since their volunteers are often called away from their work to respond to emergencies. Often mentioned explanations for the low support are the costs of the absence of an employee for a relatively high number of automatic fire alarms and training purposes. Many fire brigades do not have a policy regarding the employers of their volunteers. By building a relationship with employers and making clear arrangements or maybe even directly compensate employers, their support could be improved. At least fire brigades should not simply lean on the goodwill of employers.

The third variable that explains the intention to remain active is the physical ability of volunteer firefighters. The significance of this relation was expected since all firefighters already have to pass a

periodical physical and medical test. In general volunteer firefighters think their physique is good enough to remain active. The significant relation shows that volunteers with a lower perception of their physical ability have, in general, a lower intention. To increase this variable and therewith intention, fire brigades could take two measures. The first is to lower the physical demands but the nature of the work demands a good physique and therefore this measure is not desirable. On the other hand fire brigades could make arrangements to increase the physical ability of their volunteers. By creating opportunities and actively stimulating volunteers to participate in sports or physical activities, fire brigades could improve the physique of volunteers.

The fourth significant variable within the adapted model is the ability to combine their volunteer work within the fire service with other activities. On forehand there was the expectation that the relatively high time burden of firefighting is one of the main problems for volunteers. The results of this study do confirm that almost thirty percent of the volunteer firefighters struggle that much to combine their activities that it negatively influences their intention to remain active. It could be that more and more firefighters will experience trouble with combining their activities since existing literature on volunteering in general already points out that volunteering has to deal with busy schedules and more competition in spending (free) time than ever before (see chapter 4.3.2). The significant relation between intention to remain active and combining activities also indicates a future risk. The relationship between the fire service and volunteers is relatively traditional and based on long term group loyalty. But the changing society with increasing individualization demands for a more flexible role of volunteering and weakens that long term relationship between an organization and volunteer. Therewith it is very good possible that problems with combining activities in the future will lead to more volunteer turnover than nowadays is expected or experienced. Fire brigades should consider measures to increase the intention of volunteer firefighters by making it easier for them to combine their volunteer work with other activities like family, work and sports. Volunteer firefighters will understand and accept that emergencies do not only happen when they have time but less demands on and more freedom in the way they have to exercise could improve the easiness in combining activities.

7.3 Intention of volunteer firefighters

A research by Raak and others (2011) indicated that one third of the total population of firefighters thought about leaving the fire brigade, which led to this research. This research shows that about 55 percent of the participating volunteer firefighters have thought about leaving the fire brigade[8]. Intention to carry out a behavior is a stronger predictor of actual observed behaviors than single thoughts. The research indicated that overall, volunteer firefighters have a strong intention to stay active within the fire service for the next five years. It shows that even volunteers who have thought at a certain point in time about leaving the fire brigade still can hold a positive intention to remain active. The more accurate results of this research indicate that almost one out of eight volunteer firefighters have a negative intention. One can state that these volunteers are more likely to stop volunteering than that they will remain active for the next 5 years. If this percentage is extrapolated to the total number of volunteer firefighters in the Netherlands, this could mean that almost 2400 volunteer firefighters have the intention to stop. The concern that the downward trend in volunteer firefighters will continue seems therewith justified, especially since it becomes more difficult to attract new volunteers. If the fire service will not be able to retain their volunteers and fails to deal with competition and the adaption towards a more flexible role of volunteering, they could be in danger to provide the same level of security in the future as they do now.

[8] see appendix II, page 82

7.4 Influential factors

It is useful to analyze how intention, perceived norm, attitude and perceived behavioral control differ for several characteristics of Dutch volunteer firefighters and developments within the fire service. The results of some important background factors and developments have been presented in chapter 6.3. This paragraph will discuss some of the important results and their implications.

7.4.1 Age

Age is one of the most influential factors on intention to remain active and its four constructs. The logical assumption is confirmed that the older a volunteer firefighter gets, the lower his or her intention to stay active becomes. Only a few of the firefighters who are 51 years or older intend to stay active for five more years. If fire departments would like more volunteers above the age of 50 to stay active for a longer period of time, they will have to invest a lot of effort in their persuasion. It is remarkable that the intention for volunteers between the ages of 35 and 45 are higher than those of their colleagues who are between 25 and 35 years old. This could indicate that these younger volunteers already express the assumption that new generations look for more short-term volunteering opportunities and will not be as long active as preceding generations. The attitude is relatively stable for all ages but as expected the physical ability decreases as age increases. It is important to see that volunteers between the age of 30 and 40 years have most trouble with combining volunteerism and other activities like work and family. This makes sense since many of these volunteers will have families with little kids, demanding jobs and an active social life. It is this group who are most likely to benefit from a more flexible role of volunteering because it would give them more freedom in combining activities. On the other hand are older volunteers more capable of combining their volunteerism for the fire service with other activities.

7.4.2 Bureaucracy

Bureaucracy was found to have a significant relation with intention to remain active. The more negative a person is about the experienced bureaucracy, the lower is his intention, attitude and perceived norm. Bureaucracy in itself can deliver effective working procedures and clarity for employees. But it seems that the bureaucracy within the fire service has taken a turn for the worse. The experienced increase in distance between management (of security regions) and firefighters and lack of influence on policy making could be important causes for negative feelings about bureaucracy. Bureaucracy is also caused by a strong urge within the fire service for professionalization resulting in an increase of protocols, rules and demands. If employees, and in this case volunteer firefighters, can no longer understand the bureaucracy it will result in agitation. This could be why there is a negative relation between bureaucracy and attitude towards firefighting: The work in itself is rewarding but the rules and demands that come with it make it less attractive.

7.4.3 Rank

Also rank had a significant influence on intention was rank. Already has been indicated that the positive regression coefficient does sketch a somewhat wrong picture. The graph that was plotted showed that leading firefighters (manschap B) had the lowest intention of all ranks. This can be related to the Volunteer Stages and Transition Model which states that volunteers who do not go through renewal experience low motivation and in some cases burnout. The mean value of active years for single company officers (bevelvoerders) lies higher than that of leading firefighters, but their intentions are also higher. An explanation could be that the single company officers took on a new role when they moved from leading firefighter to single company officer and have more influence on policy making. To what extent these assumptions are true falls outside the scope of this research.

7.4.4 Other background factors and developments

Volunteer firefighters often mention regionalization as a negative development. However no significant relation with any of the five variables was found. An explanation could be that some volunteers fear a loss on (local) policy influence and a less social organization while in practice this difference might be lower than expected. Regionalization could also impact the experienced bureaucracy and therewith indirectly influences intention, attitude and perceived norm. Firefighters within regionalized fire brigades do score more negative on the bureaucracy scale. Security regions should consider the negative image that a large group of volunteers hold about them. It seems that volunteers mostly fear loss of influence. This can be solved by embedding volunteers opinions in the decision making process. Also freedom for local fire stations to implement policies on for instance the training and education of firefighters could decrease the experienced loss of influence. Security regions should always try to work as transparent as possible and have to acknowledge that communication is vital to explain policy changes and create support.

The statistical analysis did not show an explicit relation between the use of variable crews or rapid intervention vehicles and intention to remain active, even though a negative relation was somewhat expected. Regarding variable crews it could be that volunteers are still able to respond to emergencies when, due to whatever reason, they are not able to fully occupy the fire truck. This could also apply to the rapid intervention vehicles. Another reason could be that the use of rapid intervention vehicles is relatively new and its impacts are not yet visible.

A large group of volunteer firefighters does experience the effects of budget cutbacks within their fire department. But these budget cutbacks do not, at least for so far, negatively influence their intention, attitude or perceived norm. However, almost 18 percent of the respondents think that their fire station is subject to closure within five years[9]. Another fifty percent of the volunteers expect that within five years less volunteer firefighters are needed[10]. Even though budget cutbacks do not influence the personal intention to remain active, it could be that they have a strong impact on the actual control of a volunteer regarding his intention to remain active.

7.5 Future research

The Theory of Planned Behavior holds that intention is preceding and predicting behavior. The discussed literature proved that intention is indeed a reliable and strong predictor of actual behavior, but the strength of this relation can differ per context, population and time. There is no previous research that used the theory of planned behavior on the intention to continue as a volunteer firefighter and afterwards measured how decisions were taken. Therefore it is not exactly known how strong the relation between intention and actual behavior is for volunteer firefighters. Future research could aim to gain more insight in the relation between the intentions of volunteer firefighters and actual observed behaviors. This will provide more exact information how reliable this theory is within the specific context of volunteer firefighters and their future. This can be done by conducting a follow up research among the respondents and asking if they are still active or not. Therewith one can assess the strength of the relation between intention and actual behavior.

Another implication of future research has to do with the measurement of the variables. This research made use of direct measures to assess the attitude of respondents. Future research could try to gain more insight in the attitude towards volunteer firefighting by taking not only the evaluation of the attribute into account but also the strength of the specific behavioral beliefs. For instance future research could ask how useful a volunteer firefighter thinks his or her work is, but also try to find out how important this specific aspect is.

Already mentioned within the limitations of this research is the construction of the variable perceived behavioral control. Even though the two variables in this research proved to be significant, future research could try to build a more comprehensive scale to better measure and assess the variable perceived behavioral control.

[9] Results that come from questionnaire (Appendix II, question 20, page 74)

[10] Results that come from questionnaire (Appendix II, question 27, page 75)

8. Conclusion

This research gave insight in how Dutch volunteer firefighters think about their future and which factors influence their decision to stay active within the Dutch fire service. The literature review led to the application of the Theory of Planned Behavior to answer this question. Needed data was gathered by conducting a questionnaire among volunteer firefighters throughout the Netherlands. The analysis of the collected data results in the conclusion that the adapted model of Theory of Planned Behavior explains how the intention to remain active as a volunteer firefighter is constructed. The four variables attitude, perceived norm, physical ability and combining activities are all significant in the explanation of variance in intention of volunteer firefighters. Within this research is therewith concluded that:

- Almost one out of eight volunteer firefighters (11,6 percent) holds a negative intention towards their active future within the fire service. For this group of volunteers it is more likely that they will stop with their volunteer work than that they will remain to be active within the next five years.

- The attitude of a volunteer firefighter towards his work within the fire service is a significant and important factor in the construction of his or her intention to stay active as a volunteer firefighter.

- The perceived norm, which beholds the social support that a volunteer firefighter experiences regarding his work within the fire service, is a significant and important factor in the construction of his or her intention to stay active as a volunteer firefighter.

- The physical abilities of volunteer firefighters are a significant factor in the construction of his or her intention to stay active as a volunteer firefighter.

- Problems with combining volunteer firefighting with other activities like work, family and other hobbies are for volunteer firefighters a significant factor in the construction of his or her intention to stay active as a volunteer firefighter.

The logistic regression analysis showed that attitude is the most important variable in the construction of intention. The second most important variable in the formation of intention proved to be the perceived norm of a volunteer firefighter. The third strongest variable is the estimated physical ability of a volunteer firefighter. The last but still significant variable that influences intention is combining volunteer firefighting with other activities.

By improving the four variables that influence intention, volunteer firefighters will develop a higher intention to stay active and are therewith more likely to remain active volunteers within the next few years. The attitude of volunteer firefighters is already very positive and there is not much room for further improvement. It seems to be most effective to improve attitude by increasing satisfaction, social contacts and better stimulate volunteer firefighters. The overall perceived norm of volunteer firefighters is also positive, even though it is not as positive as attitude. The perceived norm does provide room for further improvement. Better appreciation by management of security regions and local politicians will most likely result in a better perceived norm. Partners of volunteer firefighters are very important in developing a perceived norm to continue or not. The same applies to employers of volunteer firefighters and their support has enough space to be further improved. Volunteer firefighters are in general positive about their physical abilities to be a firefighter. There is

relatively little room for further improvement of this factor but by increasing physical capabilities of their volunteers, intentions to stay will most likely become higher. The last variable which is about combining volunteer firefighting with other activities has also a positive value. Even though its influence is not as big as the other three variables, there is opportunity to improve this variable. By decreasing the demands and obligations or adapting to a more flexible role, it will become easier for volunteers to combine their activities.

Certain developments and background factors influence intention to remain active and its four constructs. Each factor has a negative or positive relation with the variables but only a few of these relations proved to be statistically significant. The following conclusions can be drawn from this analysis:

- Age and experienced level of bureaucracy are important factors with a significant and negative relation on one or more of the variables intention, attitude, perceived norm, physical ability and combining activities.

- Gender, time spend on volunteering and experiences with aggression, variable crews, rapid intervention vehicles and budget cuts do not show a significant relation to intention, attitude, perceived norm or combining activities.

- There is no significant difference in intention or its four constructs for volunteers who were already part of a regionalized fire brigade and those who were in the process of regionalization.

Firefighters in action (photo by UK Ministry of Defense)

9. Recommendations

Many recommendations can be read in this report. Not only the literature review provides information on how to deal with volunteers in public organizations but also the discussion and conclusion give direction on how volunteer firefighters can better be retained. The following recommendations summarize some of the most important points. Of course their effectiveness will differ per individual volunteer, context and time, but it is expected that in general these recommendations will improve the retention of volunteer firefighters.

1. Appreciate and value volunteers

This seems to be obvious but it is one of the most important and often neglected aspects of managing volunteers. In the case of volunteer firefighters and the recent shift of administrative responsibility towards security regions, it will be especially the management of these security regions who are able to improve the retention of volunteers by more appreciating and valuating their volunteers. By being more involved and showing more personal interest and contact, the experienced gap between volunteers and management can be closed. Appreciation and valuation are not only improved by kind words and deeds of managers but also by formalizing the role of volunteers within the organization. By embedding the role of volunteers in the decision making process and leaving room for autonomy or to locally give interpretation on policies, volunteers will be more actively involved, feel taken more seriously and therewith better valuated and appreciated by the management.

2. Adapt to a more modern and flexible role of volunteering

The fire service must prepare its organization for a changing role of volunteers in society. The time people are prepared to put into volunteer work is expected to be reduced and spare time has to deal with more competition than before. More volunteers will be increasingly focused on projects and more adapted for changing roles. This in combination with the (growing) demands and obligations within the fire service will lead to conflicts. For instance a more flexible training schedule will make it easier for firefighters to combine their volunteer work with other activities which will improve their intention to stay active. Also the increasing individualization of society will further weaken the traditional volunteer-organization within the fire service which is based on long-term group loyalty. It is expected that new generations will not be as long active within one organization as older generations. By creating a more modern role of volunteering, fire brigades should consider the psychological contract between the volunteer and organization to better understand each other's expectations and demands.

3. Increase support from the social environment of volunteer firefighters

The study showed that intention to stay active can be further improved if people perceive more social support from within their social environment. Partners are an important group but also employers are indicated to be important in the perceived norm of volunteer firefighters. Fire brigades need to have a good relationship with the employers of their volunteers and must understand that it is important to maintain or even improve the support of these employers.

References

Aalst, J.-W. v. Veiligheidsregio's. *www.imergis.nl.* Imergis.

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes, 50*, 179-211.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior.* Englewood Cliffs, NJ: Prentice-Hall.

Algemeen Dagblad. (2009, September 15). Brandweer is niet leuk meer; vrijwilligers weg. *Algemeen Dagblad*.

Bekkers, R. (2013). Geven van tijd: vrijwilligerswerk. In T. G. Schuyt, *Geven in Nederland 2013. Giften, Nalatenschappen, Sponsoring en Vrijwilligerswerk.* (p. Chapter 6). Amsterdam: Reed Business Education.

Blake, R., & Jefferson, S. (1992). *Defection-Why?: An Insight Into the Reasons for Volunteers Leaving.* York, Engeland: Jefferson Research.

Brandweer Nederland. (2013). *Leergang Manschap A.* www.brandweer.nl.

Breedveld, Broek, V. d., Haan, D., Harms, Huysmans, & Ingen, V. (2006). *De tijd als Spiegel; Hoe Nederlanders hun tijd besteden.* Den Haag: Sociaal Cultureel Planbureau.

Brudney, J. (1999). Effective Use of Volunteers: Best Practices for the Public Sector. *Law and Contemp. Probs., 62*, 219-255.

Burns, D., Reid, J., Toncar, M., Fawcett, J., & Anderson, C. (2006). Motivations to volunteer: The Role of Altruism. *International Review on Public and Non Profit Marketing, 3*(2), 79-91.

Bussell, H., & Forbes, D. (2001). Understanding the volunteer market: The What, Where, Who and Why of Volunteering. *International Journal of Nonprofit and Voluntary Sector Marketing, 7*(3), 244-257.

Centraal Bureau voor de Statistiek. (2009, December 15). *Maatschappelijke participatie.* Retrieved January 06, 2010, from CBS Statline: statline.cbs.nl

Centre for Health Services Research. (2004). *CONSTRUCTING QUESTIONNAIRES BASED ON THE THEORY OF PLANNED BEHAVIOUR: A MANUAL for HEALTH SERVICES RESEARCHERS.* Newcastle upon Tyne, United Kingdom: University of Newcastle.

Chacon, F., Vecina, M., & Davila, M. (2007). The Three-Stage Model of Volunteers' Duration of Service. *Social Behavior and Personality, 35*(5), 627-642.

Clary, E. G., & Snyder, M. (1999). The Motivations to Volunteer: Theoretical and Practical Considerations. *Current Directions in Psychological Science, 8*(5), 156-159.

Clary, E. G., Snyder, M., Ridge, R. D., Copeland, J., Stukas, A. A., Haugen, J., et al. (1998). Understanding and assessing the motivations of volunteers: A functional approach. *Journal of Personality and Social Psychology, 74*(6), 1516-1530.

Cnaan, R. A. (1996). Defining Who Is a Volunteer: Conceptual and Empirical Considerations. *Nonprofit & Voluntary Sector Q., 25*(364).

Cnaan, R., & Goldberg-Glen, R. (1991). Measuring motivations to volunteer in human services. *Journal of Applied Behavioral Science, 27*, 269-284.

College van Arbeidszaken VNG. (2011). Rechtspositieregeling Vrijwilligers bij de Gemeentelijke Brandweer 2011. In V. v. Gemeenten, *Car-uwo* (p. Chapter 19). Den Haag: SDU Uitgevers.

Czerwińska, K., & Held, M. (2008). *Putting volunteering on the economic map of Europe.* Brussels, Belgium: European Volunteer Center.

Dagblad van het Noorden (newspaper). (2013, September 24). *Schrappen brandweer schokt Diever.* Retrieved from http://www.dvhn.nl/nieuws/drenthe/article10488883.ece/Schrappen-brandweer-schokt-Diever

Dekker, P., Hart, J. d., & Faulk, L. (2007). *Toekomstverkenning Vrijwillige Inzet 2015.* Den Haag: Sociaal en Cultureel Planbureau.

Dijk, B. v., Kleuver, J. d., & Roorda, W. (2005). *Vinden en binden van vrijwilligers bij de brandweer in 2005.* Amsterdam: DSP-groep.

Dijk, B. v., Kleuver, J. d., & Roorda, W. (2005). *Vinden en binden van vrijwilligers bij de brandweer in 2005.* Amsterdam: DSP-groep.

EenVandaag (news report). (2013, march 11). *Bezuinigingen: vrijwillige brandweer op de schop*. (Tros) Retrieved from http://www.eenvandaag.nl/binnenland/45089/bezuinigingen_vrijwillige_brandweer_op_de_schop

Esmond, J., & Dunlop, P. (2004). *Developing the Volunteer Motivation Inventory to Assess the Underlying Motivational Drives of Volunteers in Western Australia.* Perth, Australia: Community Link and Network Western Australia Inc.

Fishbein, M., & Ajzen, I. (2010). *Predicting and Changing Behavior: the reasoned action approach.* New York: Psychology Press.

Fitch, R. (1987). Characteristics and motivations of college students volunteering for community service. *Journal of College Student Personnel, 28*, 424-431.

GFK Verein. (2014, April 25). *Brandweerlieden genieten in Nederland het meeste vertrouwen, politici het minste .* Retrieved oktober 27, 2014, from GFK: http://www.gfk.com/nl/news-and-events/press-room/press-releases/paginas/brandweerlieden-genieten-meeste-vertrouwen.aspx

Gidron, B. (1984). Predictors of retention and turnover among service volunteer workers. *Journal of Social Service Research, 8*(1), 1-16.

Gooi en Eemlander (newspaper). (2013, July 20). *Vrijwilligers kritisch over brandweertop Gooi.* Retrieved from http://www.gooieneemlander.nl/regionaal/gooivechtstreek/article23600503.ece

Greenslade, J., & White, K. (2005). The Prediction of Above-Average Participation in in Volunteerism: A Test of the Theory of Planned Behavior and the Volunteer Functions Inventory in Older Australian Adults. *The Journal of Social Psychology, 145*(2), 155-172.

Hall, R. H. (1963). The Concept of Bureaucracy: An Empirical Assessment. *American Journal of Sociology, 69*(1), 32-40.

Handy, F., Cnaan, R., Brudney, J., Ascoli, U., & Meijs, L. (2000). Public Perception of "Who is a Volunteer": An Examination of the Net-Cost Approach from a Cross-Cultural Perspective. *Voluntas, 11*(1), 45-65.

Haski-Leventhal, D. (2010). *VOLUNTEERABILITY, RECRUITABILITY AND RECENT TRENDS IN VOLUNTEERING.* Kensington, Australia: Centre for Social Impact, UNSW.

Haski-Leventhal, D., & Bargal, D. (2008). The Volunteer Stages and Transistions Model: Organizational socialization of volunteers. *Human Relations, 61*, 67-102.

Haverkamp, G. (2005). *Samenvatting "Vuur als Gemeenschappelijke Vijand".* Den Haag: Reed Business Information.

Haverkamp, G. (2005). *Vuur als gemeenschappelijke vijand (summary).* Den Haag: Reed Business Information bv.

Hopmans, K., & Olde, C. d. (2006). *Onderzoek Beschikbaarheid Brandweer Regio IJssel-Vecht.* Utrecht: Van Doorne Huiskes en Partners.

Horton-Smith, D. (1981). Altruism, volunteers, and volunteerism. *Journal of Voluntary Action Research, 10*, 21-36.

Hustinx, L. (2010). I Quit, Therefore I Am?: Volunteer Turnover and the Politics of Self-Actualization. *Nonprofit and Voluntary Sector Quarterly, 39*(2), 236-255.

Hustinx, L., Cnaan, R., & Handy, F. (2010). Navigating Theories of Volunteering: A Hybrid Map for a Complex Phenomenon. *Journal for the Theory of Social Behaviour, 40*(4), 410-434.

Hustinx, L., Meijs, L., & Hoorn, E. t. (2007). *Geleid vrijwilligerswerk: Over het vrijwilligerspotentieel van de Nederlandse Samenleving in 2015.* Leuven: Katholieke Universiteit Leuven, Centrum voor Sociologisch Onderzoek.

Jolly, D. (2009). *De Brandweervrijwilliger Als Klant: een onderzoek naar de factoren die vrijwilligers binden.* Utrecht, Netherlands: TiasNimbas Business School.

Luong, F. &. (2006). *Volunteer resources at the local level: Motivations volunteering and the connection to burnout, dedication, and retention of firefighters.* Adelaide, Australia: Work and Stress Research Group, University of South.

Maslach, C. S. (2001). Job burnout. *Annual Review of Psychology*(52), 397 - 422.

Ministry of Interior and Kingdom Affairs. (2010). *Dutch Security Regions Act Part I.* Den Haag, Netherlands.

Ministry of Security and Justice. (2011). *Wijziging van de Wet veiligheidsregio's in verband met de oprichting van het Instituut Fysieke Veiligheid en in verband met de volledige regionalisering van de brandweer.* Den Haag: Kamerstuk Tweede Kamer der Staten Generaal.

Minstry of the Interior and Kingdom Relations. (2009, Oktober 15). Antwoorden op kamervragen. *2009Z16587*. Den Haag.

Muller, E., Helsloot, I., & Berghuijs, J. (2007). *Brandweer: studies over organisatie, functioneren en omgeving.* Deventer: Kluwer.

NOS Journaal. (2009, September 15). Leegloop bij vrijwillige brandweer.

NVBR. (2012, February 14). *Wetsvoorstel regionalisering en IFV aangenomen door Tweede Kamer.* Retrieved from Nederlandse Vereniging voor Brandweerzorg en Rampenbestrijding (NVBR): http://www.nvbr.nl/algemene_onderdelen/bovenbalk/zoeken-0/zoeken/@31460/wetsvoorstel/

Okun, M., & Sloane, E. (2002). Application of Planned Behavior Theory to Predicting Volunteer Enrollment by College Students in a Campus-Based Program. *Social Behavior and Personality, 30*(3), 243-250.

Omoto, A. M., & Snyder, M. (2002). Considerations of Community : The Context and Process of Volunteerism. *American Behavioral scientist*(45), 848-853.

Pynes, J. (2009). *Human Resources Management for Public and Nonprofit Organizations.* San Fransisco: Jossey-Bass.

Raak, R. v., Palm, I., Sarwary, S., & Vries, E. d. (2011). *De Brandweer Aan Het Woord.* Den Haag: SP-tweede kamerfractie en SP Wetenschappelijk Bureau.

Rijksoverheid. (2012). *Wet veiligheidsregio's (WVR).* Retrieved Mei 12, 2012, from Veiligheidsregio: http://www.rijksoverheid.nl/onderwerpen/veiligheid-regionaal/veiligheidsregio

Schat, E. (2010, Januari). Regionalisering. Een koploper en een 'dwarsligger'. *Brand&Brandweer, 34*(1), 18-21.

Snyder, M., & Omoto, A. (1992). Who helps and why? The psychology of AIDS volunteerism. *Helping and Being Helped*, 213-239.

Snyder, M., Omoto, A., & Crain, L. (1999). Punished for their good deeds: stigmatization of AIDS volunteers. *American Behavioral Scientist, 42*(7), 1175-1192.

Statistics Netherlands. (2013, November 29). *Brandweer; brand- en hulpverleningsmeldingen.* Retrieved August 9, 2014, from Statline (Statistics Netherlands CBS): http://statline.cbs.nl/StatWeb/publication/?DM=SLNL&PA=37441&D1=0-2,5-6,9,12&D2=0&D3=15-27&HDR=T&STB=G2,G1&VW=T

Statistics Netherlands. (2014, May 27). *Brandweerpersoneel: beroeps en vrijwilligers, rangniveau, opleiding, regio.* Retrieved August 09, 2014, from Statline (Statistics Netherlands CBS): http://statline.cbs.nl/StatWeb/publication/?DM=SLNL&PA=71482ned&D1=0-2,5,8-9,12,15-16&D2=0,17-41&D3=a&HDR=T&STB=G1,G2&VW=T

Switzer, C., Switzer, G., Stukas, A., & Baker, C. (1999). Medical Students' motivations to volunteer. *Journal of Prevention and Intervention in the Community*(18), 53-64.

Tang, F., Morrow-Howell, N., & Choi, E. (2010). Why do older adult volunteers stop volunteering? *Ageing & Society, 30*, 859-878.

Thiessen, J. (2004). *Boeien, Binden en Behouden van Vrijwilligers.* Weert: Nibra (scriptie Master in Crisis and Disaster Management).

Thiessen, J. (2004). *Boeien, Binden en Behouden van Vrijwilligers; een onderzoek naar de beschikbaarheid van vrijwilligers voor hulpverleningsorganisaties in 2015.* Master of Crisis and Disaster Management.

TNS Opinion and Social. (2010). *EUROBAROMETER 73 - Public Opinion in the European Union - Volume 2.* Brussels, Belgium: European Commission.

United States Department of Labor. (2014, February 25). *Volunteering in the United States, 2013*. Retrieved march 03, 2014, from Bureau of Labor Statistics: http://www.bls.gov/news.release/volun.nr0.htm

Vakvereniging Brandweer Vrijwilligers. (2012). *Brandweer Vrijwilligers: Balans tussen preventie en repressie, De gewaagde avonturen van voertuigexperimenten.* Leusden: Publicatiereeks Vakvereniging Brandweer Vrijwilligers.

Warburton, J., & Terry, D. (2000). Volunteer Decision Making By Older People: A Test of a Revised Theory of Planned Behavior. *Basic and Applies Social Psychology, 22*(3), 245-257.

Wilson, J. (2000). Volunteering. *Annual Review of Sociology, 26*, 215-240.

Yanay, G., & Yanay, V. (2008). The Decline of Motivation? From Commitment to Dropping out of Volunteering. *Nonprofit Management & Leadership, 19*(1), 65-78.

Appendix I: Questionnaire

1. Achtergrondgegevens

Om de resultaten van deze enquete goed te kunnen analyseren hebben wij een aantal vragen over uw achtergrond. Uw antwoorden zijn geheel anoniem en worden vertrouwelijk behandeld.

1. Wat is uw geslacht?

- Man
- Vrouw

2. Wat is uw leeftijd?
Vul uw leeftijd in jaren in:

3. Hoeveel jaar bent u actief als brandweervrijwilliger?
Mocht u het niet exact weten, vul dan een benadering in:

4. Welke functie of rang heeft u als brandweervrijwilliger?

- Aspirant (in opleiding)
- Manschap A (Brandwacht)
- Manschap B (Hoofdbrandwacht)
- Bevelvoerder (Brandmeester)
- Officier van Dienst (Hoofdbrandmeester)
- Commandeur of hoger

5. Binnen welke veiligheidsregio bent u actief?
Selecteer uit onderstaande lijst de veiligheidsregio waar u als vrijwilliger actief bent:

6. Draait u als brandweervrijwilliger piketdiensten?
Met piketdiensten doelen we op vrijwilligers die volgens een rooster verplichte beschikbaarheid hebben

- Ja
- Nee

7. Hoe vaak heeft u in de afgelopen jaren te maken gehad met agressie of verbaal geweld tijdens uw werk voor de brandweer?

- Nooit
- Een enkele keer
- Meerdere keren
- Vaak

8. Heeft u als brandweervrijwilliger ervaring met variabele voertuigbezetting?

Ja Nee

9. Beschikt uw korps over Snelle Interventie Voertuigen (SIV- of SIE-voertuigen) ?

Ja Nee

10. Hoeveel uur bent u gemiddeld per week kwijt aan uw werkzaamheden bij de brandweer? *Maakt u hier een schatting. Denk hierbij aan tijd voor uitrukken, oefeningen, vergaderingen, etc.*

11. Merkt u dat er op uw brandweerkorps bezuinigd wordt?
Ervaart u op enige manier dat er binnen uw korps minder geld beschikbaar is

Ja Nee

In hoeverre bent u het eens met de volgende stellingen:

Klik het rondje aan dat het meest overeenkomt met uw eigen mening.

12. Er is binnen ons korps / onze regio ruimte voor eigen initiatief

	1	2	3	4	5	6	7	
Dat is niet zo								Dat is zo

13. Bij het nemen van beslissingen hebben de vrijwilligers in ons korps/onze regio veel inspraak

	1	2	3	4	5	6	7	
Dat is niet zo								Dat is zo

14. In het algemeen duurt het nemen en doorvoeren van beslissingen lang

	1	2	3	4	5	6	7	
Dat is niet zo								Dat is zo

Einde van onderdeel 1

Bedankt voor het invullen van deze achtergrondvragen. In het volgende gedeelte zullen we u vragen een aantal stellingen te beantwoorden.

2. Hoofdenquête

We komen nu in het tweede gedeelte van de enquête, waarin we uw mening over een aantal stellingen vragen. Instructie: De meeste vragen zijn stellingen waarin wordt gevraagd in hoeverre u het met de stelling eens of oneens bent. Als u het ergens totaal mee oneens bent, klikt u 1 aan. Bent u het ergens helemaal mee eens, dan klikt u op 7. Bent u over een stelling neutraal, dan klikt u in het midden op 4.

15. Ik wil nog zeker vijf jaar actief zijn als brandweervrijwilliger **(Intention)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

16. Ik vind dat ik als brandweervrijwilliger zinvol werk doe: **(Attitude)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

17. Ik vind het werk voor de vrijwillige brandweer belastend: **(Attitude)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

18. Ik vind dat ik als brandweervrijwilliger belangrijk werk doe: **(Attitude)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

19. Mijn activiteiten voor de brandweer zijn moeilijk te combineren met mijn andere verplichtingen (werk, gezin, etcetera): **(PBC)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

20. Ik verwacht dat de post waar ik vrijwilliger ben, binnen vijf jaar wordt gesloten: **(ABC)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

21. In mijn omgeving verwacht men dat ik de komende vijf jaar actief blijf als brandweervrijwilliger: **(PN)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

22. Vanuit de lokale gemeenschap voel ik de steun om door te gaan als brandweervrijwilliger: **(PN)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

23. Ik hoop dat ik over vijf jaar nog steeds brandweervrijwilliger ben: **(Intention)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

24. Ik vind veel uitdaging in mijn werk voor de brandweer: **(Attitude)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

25. Ik vind het leuk om brandweervrijwilliger te zijn: **(Attitude)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

26. Door mijn vrijwilligersschap bij de brandweer doe ik veel kennis op: **(Attitude)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

27. Binnen vijf jaar verwacht ik dat ons korps minder vrijwilligers nodig heeft: **(ABC)**

	1	2	3	4	5	6	7	
Zeer onwaarschijnlijk	○	○	○	○	○	○	○	Zeer waarschijnlijk

28. Als ik naar mijn fysieke gezondheid kijk, kan ik de komende paar jaar makkelijk actief blijven als brandweerman of -vrouw : **(PBC)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

29. Ik ben degene die bepaalt of ik over vijf jaar nog steeds actief ben als brandweervrijwilliger: **(ABC)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

30. Ik vind het werk als brandweervrijwilliger gevaarlijk: **(Attitude)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

31. Ik haal veel voldoening uit mijn werk voor de vrijwillige brandweer: **(Attitude)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

32. Door mijn vrijwilligersschap bij de brandweer doe ik waardevolle sociale contacten op: **(Attitude)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

33. Ik ben van plan om binnen vijf jaar te stoppen als brandweervrijwilliger: **(Intention)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

---

3. Sociale omgeving

We zijn benieuwd hoe uw sociale omgeving over uw toekomst als brandweervrijwilliger denkt. Onderstaande vragen gaan daar over:

34. Mijn partner vindt dat ik de komende jaren brandweervrijwilliger moet blijven: **(PN)**

Wanneer dit voor u niet van toepassing is, hoeft u geen rondje aan te klikken

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

35. Mijn familieleden vinden dat ik de komende paar jaar actief moet blijven als brandweervrijwilliger: **(PN)**

Wanneer dit voor u niet van toepassing is, hoeft u geen rondje aan te klikken

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

36. Mijn vrienden vinden dat ik de komende jaren brandweervrijwilliger moet blijven: **(PN)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

37. Mijn werkgever vindt dat ik de komende jaren brandweervrijwilliger moet blijven: **(PN)**

Wanneer dit voor u niet van toepassing is, hoeft u geen rondje aan te klikken

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

38. Mijn brandweercollega's vinden dat ik de komende jaren brandweervrijwilliger moet blijven: **(PN)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

39. Kunt u aangeven hoe belangrijk de volgende personen zijn bij het nemen van een beslissing over uw toekomst als brandweervrijwilliger: Wanneer ik een beslissing maak over mijn toekomst binnen de brandweer vind ik de mening van de volgende personen belangrijk:

	Geheel onbelangrijk	Niet belangrijk	Neutraal	Belangrijk	Erg belangrijk
a. Partner:	○	○	○	○	○
b. Familie:	○	○	○	○	○
c. Vrienden:	○	○	○	○	○
d. Werkgever:	○	○	○	○	○
e. Brandweercollega's:	○	○	○	○	○

4. Vervolg enquête

40. Vanuit de leiding van mijn veiligheidsregio voel ik voldoende steun en waardering om door te gaan als brandweervrijwilliger: **(PN)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

41. Vanuit de lokale politiek voel ik voldoende steun en waardering om door te gaan als brandweervrijwilliger: **(PN)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

42. Het is waarschijnlijk dat gebeurtenissen die buiten mijn macht liggen ervoor zullen zorgen dat ik in de komende paar jaren moet stoppen als brandweervrijwilliger: **(ABC)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

43. Ik verwacht dat in de komende paar jaar één of meerdere van mijn brandweercollega's voortijdig zullen stoppen: **(PN)**

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

44. In de afgelopen paar jaar heb ik er over gedacht om te stoppen met mijn werk als brandweervrijwilliger:

	1	2	3	4	5	6	7	
Geheel mee oneens	○	○	○	○	○	○	○	Geheel mee eens

---

5. Einde van de enquête

Bedankt voor uw deelname aan deze enquête. We hebben nog één extra vraag en ruimte voor eventuele opmerkingen. Wanneer u uw e-mailadres achter laat houd ik u op de hoogte van het onderzoek en zal ik u een kopie van het eindverslag toesturen. Vergeet alstublieft niet om op de knop 'insturen' te klikken welke onderaan dit scherm staat, zodat de door u ingevulde gegevens ook daadwerkelijk verzonden worden.

45. Als u het vrijwilligersschap bij de brandweer een cijfer moet geven, welk cijfer geeft u dan? *Kies uit onderstaande lijst een cijfer*

46. Opmerkingen of e-mailadres:
Heeft u een opmerking, verhaal of vraag? Hoe ziet u de toekomst voor de vrijwillige brandweerman/vrouw? Wat vind u dat echt verbeterd moet worden? Daar zijn wij benieuwd naar! Laat dit in onderstaande vak achter. U kunt eventueel uw e-mailadres achterlaten zodat ik u kan benaderen of op de hoogte houden van het onderzoek.

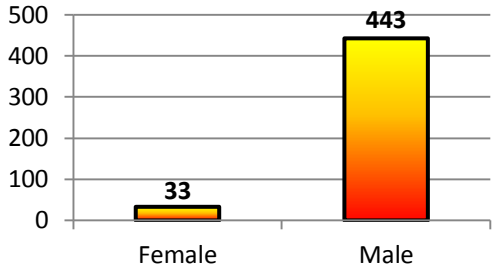
END

Appendix II: Characteristics of respondents

In total 476 valid responses were collected with the questionnaire. An actual response rate cannot be calculated as can be read in chapter 5.4. It is known that 64 percent of the volunteer firefighters who clicked on the link in the online invitation filled out the questionnaire and submitted their results. The following characteristics of the respondents are obtained from this questionnaire.

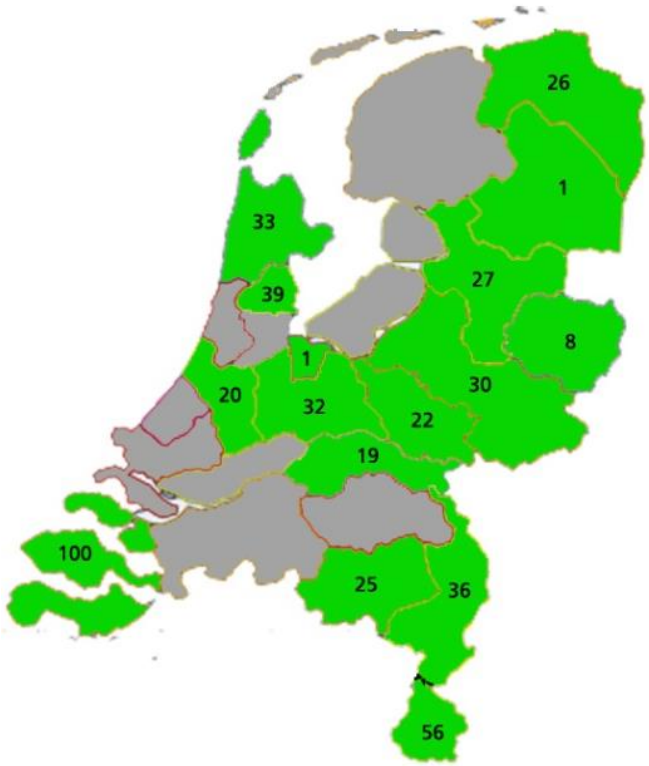
Gender

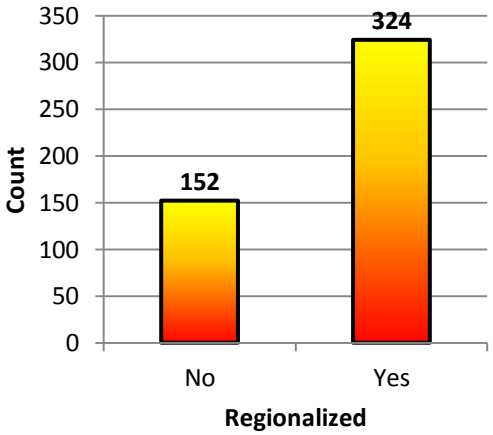
From the respondents 93 percent were male and 7 percent female.



Regionalization

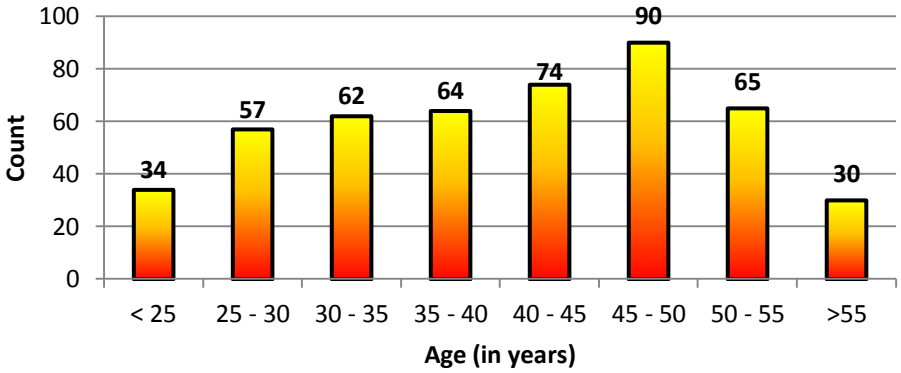
The respondents came from different parts in the Netherlands. Respondents were active in sixteen from the twenty-five security regions. Most respondents, one-hundred, came from the security region Zeeland. At the time the respondents filled out the questionairre, a 152 came from a fire brigade that was offically not yet been regionalized (32 percent) were 324 resondents are active in a already regionalized fire brigade (68 percent).





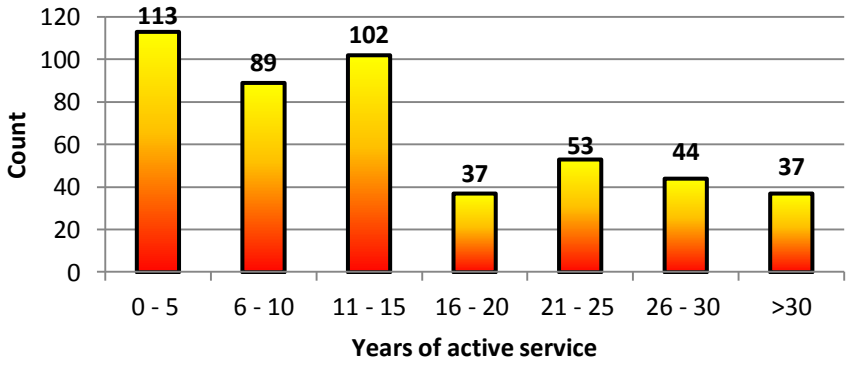
Age

The youngest respondent was 19 years old and the oldest was 62 years. Most of the participants, 35 percent, were between 40 and 50 years of age. In total 46 percent of the participants were younger than 40 years where the remaining 19 percent was older than 50 years. In the past the 'retirement age' for volunteer firefighters was set to 55 years. Nowadays there is no official retirement age and within the survey 30 persons are 55 years or older.



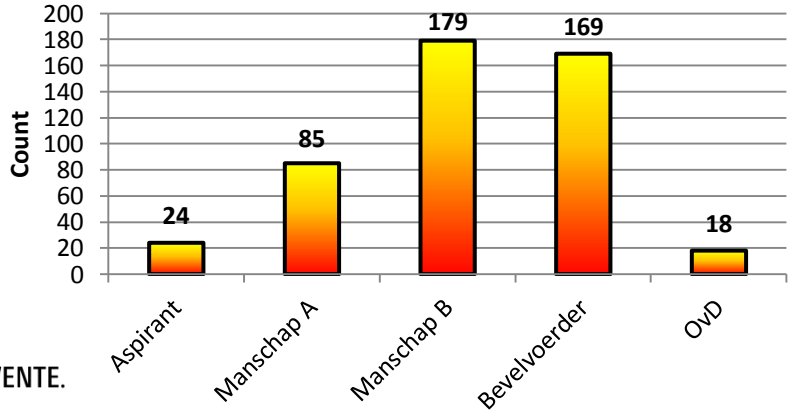
Years of service

With almost 24 percent the largest group of participants became a firefighter within the last five years. In total 64 percent of the respondents have between 0 and 15 years of firefighting experience. A drop in years of active service is found after 15 years, but still 171 of the participants are more than 15 years active as volunteers in the fire service, with 37 persons who even have more than 30 years of experience.



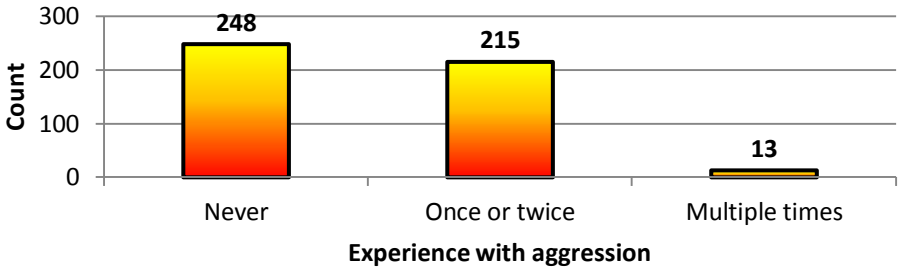
Rank

Almost 18 percent of the volunteers that participated have the rank of firefighter (Manschap A; 18 percent). The largest group, about 38 percent, is leading firefighter (Manschap B; 38 percent). Another 35 percent have the rank of 'Bevelvoerder' (officer over single company). The remainder is made up out of higher officers (4 percent) and participants who were in training to become a qualified firefighter (5 percent).



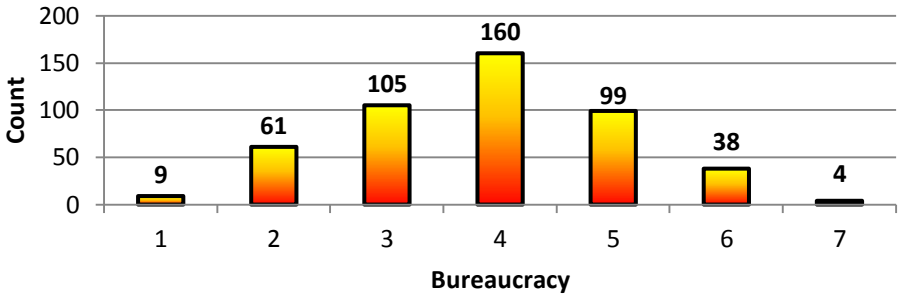
Aggression

Of the respondents 248 have never experienced a form of aggression when they performed their work as volunteer firefighters. However, 215 respondents or 45 percent, have experienced aggression once or twice in their work as volunteer firefighters. Even 13 respondents, which is almost 3 percent, report that they were multiple times confronted with aggression.



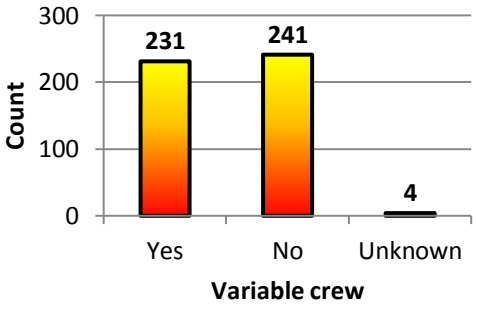
Bureaucracy

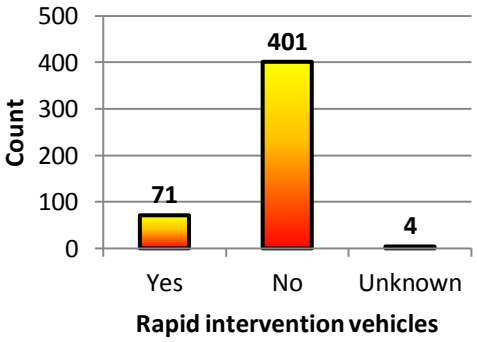
The volunteers were asked how they experience bureaucracy within their fire brigade. Three items[11] formed the scale for bureaucracy with a range from 1 to 7. Value 1 indicates many problems with bureaucracy and 7 that almost no problems with bureaucracy exist. Most respondents, almost 34 percent, score bureaucracy in the middle of this scale (value between -3,5 and +4,5). Just below 37 percent scores below 4, which indicates that they do experience a relatively high level of bureaucracy in their fire brigade. About 29 percent scores higher than 4, which indicates that the bureaucracy within their brigade is below average. Only 4 respondents indicate that there is no bureaucracy in their brigade.



Crew on vehicles

The respondents were asked about their experience with variable numbers of volunteer firefighters on a vehicle and their experience with so called rapid intervention vehicles. Of the respondents 48 percent indicates that within their regional fire brigade variable staffing of vehicles exists. Almost 15 percent reports that their fire brigade makes use of rapid intervention vehicles.

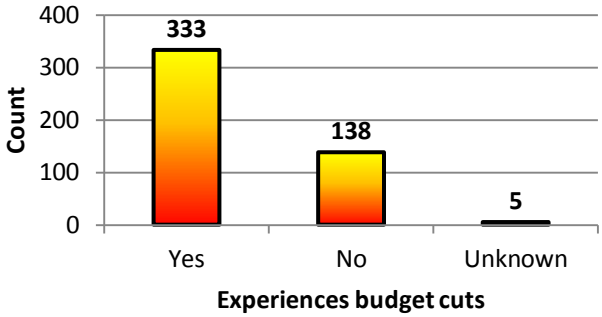




[11] Cronbach's Alpha for these three items is 0,737

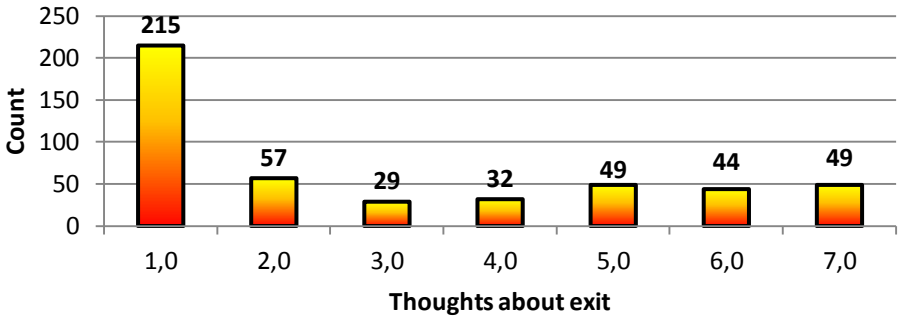
Budget cuts

The respondents were asked if they experienced budget cuts within their fire brigade. Of the respondents, 70 percent does experience budget cuts in some sort. 29 percent state that they do not experience economic measures.



Thoughts about exit

The respondents were asked if they thought about leaving the fire brigade within the past few years. Score 1 represents they absolutely have not thought about leaving the fire brigade and score 7 represents they absolutely have. The mean score lies with 2,93 at the positive end of the scale. However, 49 respondents which is just over 10 percent indicates they have absolutely thought about leaving the fire brigade and even 36 percent scores 4 or higher. Only 45 percent indicates they have never thought about an exit within the past few years, which means 55 percent has.



Grading volunteer firefighting

The respondents were asked to grade the volunteerism within the fire service. They could grade it from 1 to 10, with 10 as the highest grade. The mean score for the respondents was 7,7. The lowest score that was given was 3. Only 18 respondents (4 percent) mark the volunteer work with a grade below 6,0 as unsatisfactory. The others give it a 6 or higher with most respondents grading their volunteer work with an 8.

Appendix III: Values per security region

The following table presents for each security region the mean value per variable of the adapted Theory of Planned Behavior. The mean values are on a scale of -3 to +3.

Security region		Intention	Attitude	Perceived norm	Combining activities	Physical ability
Groningen	Mean	2,13 ↑	2,40	1,01	0,42	2,36
	N	26	26	26	26	25
Drenthe	Mean	-0,67 ↓	1,00	-0,67	-1,00	2,00
	N	1	1	1	1	1
IJsselland	Mean	1,85 ↓	2,36	1,32	0,78	2,33
	N	27	27	27	27	27
Twente	Mean	2,88 ↑	2,41	1,74	1,75	2,50
	N	8	8	8	8	8
Noord- en Oost-Gelderland	Mean	2,26 ↑	2,39	0,96	-0,07	2,63
	N	30	30	30	30	30
Gelderland-Midden	Mean	2,12 ↑	2,20	0,88	0,38	2,35
	N	22	22	22	21	20
Gelderland-Zuid	Mean	1,75 ↓	1,85	0,90	0,53	2,53
	N	19	19	19	19	19
Utrecht	Mean	2,06 ↑	2,16	0,67	0,28	2,34
	N	32	32	32	32	32
Noord-Holland Noord	Mean	1,26 ↓	2,26	0,46	0,76	2,00
	N	33	33	33	33	33
Zaanstreek-Waterland	Mean	2,39 ↑	2,36	1,06	0,77	2,24
	N	39	39	39	39	38
Gooi en Vechtstreek	Mean	2,67 ↑	1,29	0,67	-1,00	3,00
	N	1	1	1	1	1
Hollands Midden	Mean	2,45 ↑	2,39	0,80	1,05	1,90
	N	20	20	20	19	20
Zeeland	Mean	1,80 ↓	2,14	0,72	0,94	2,06
	N	100	100	100	99	98
Brabant-Zuidoost	Mean	1,99 =	2,36	1,23	0,36	2,12
	N	25	25	25	25	25
Limburg-Noord	Mean	1,75 ↓	2,32	0,88	1,03	2,09
	N	36	36	36	36	35
Zuid-Limburg	Mean	2,17 ↑	2,41	0,93	0,36	2,41
	N	56	56	56	56	56
Average	Mean	1,99	2,27	0,89	0,64	2,24
	N	476	476	476	473	469