Who is watching what, when and how, in contemporary and future television

Segmentation study for online and linear television in the Netherlands

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Summary

Due to increasing media and television consumption (SCP, 2013) it is interesting to understand what characteristics distinguish different kinds of viewers. Viewers on a television screen who follow the broadcasted content of the supplying agencies, are to be called linear television viewers. Viewers on other devices, such as a desktop, laptop, tablet or smartphone, are called online television viewers. In this research, linear television viewers and online television viewers are compared. The problem statement that is answered in this research is the following: *What are differences in characteristics of linear and online television viewers?* There are five steps taken to find and analyze differences between the two types of viewers. The first step involved a broad exploration of the data. This exploration was followed by step two, were a multiple regression is executed. To formulate different viewer profiles, a cluster analysis was done (step three) to group respondents based on their characteristics. Then, in step four, a regression with dummy variables that measures the predictive power of the clusters was done. The last step (step five) was a comparison of realized viewing behavior between online and linear television viewers. These steps made it possible to describe television viewing behavior for online and linear content.

First, correlations are tested between all the variables in the data with online and linear television. Variables with a significant correlation coefficient ($p < 0.05$) are used as inputs for a multiple regression. The multiple regression with the dependent variables, Online TV and Linear TV, have limited explaining power. Also, it did not lead to useable characteristics for indications of behavior. Based on the multiple regression, age and internet usage are indicators for online behavior. An explanation for this finding can be that younger people are more familiar with the technological devices that are needed to view online content. The multiple regression revealed a broader range of concepts to be indicators for linear viewing behavior. Indicators were for example education, whether respondents live in a rental residence or the number of television devices in use in their home.

To find grouped characteristics of viewers based on a theoretical framework by Bourdieu (1984) and Linder (1970); a cluster analysis was conducted. The dimensions from this framework are economic capital, cultural capital and leisure time. The cluster analysis[1] showed seven clusters that were found to profile. The labels[2] that are attached to the different clusters are subsequently: *Traditional woman* (1)*, High class man* (2)*, Modern woman* (3)*, Joe and Jane Sixpack* (4)*, Man at work* (5)*, Career woman* (6) and *Youngsters* (7)*.* These clusters were used as independent variables in a regression analysis to determine the predictive value in terms of variance explained. The results show that, with an explained variance of 7.7 percent for linear and 4.7 percent for online viewing time, the performance is relatively limited. This could be due to the relatively low variation in behavior, as with an overall mean of 19.11 hours per week everyone seem to watch quite some linear television.

Traditional woman is the cluster with the most intensive linear television users. *Joe and Jane Sixpack* and *Man at work* also are above average linear television viewers. Where differences between linear television viewers were measured in hours per week, the differences in online television are measured in frequency per week. *Modern woman* and *Joe and Jane Sixpack* are most frequently watching online television,

[1] Using Ward's method based on squared euclidean distances

[2] Even though the labels cover the characteristics of the clusters, the exact label might be topic of discussion.

followed by the *High class man* who watches just below average. The analysis provided the interesting finding that *Joe and Jane Sixpack* seem to watch both linear and online television relatively often.

The last phase in the analysis is a comparison of realized behavior between online and linear television viewers. Important is the difference between online and linear figures in absolute numbers as linear television is by far the majority of the viewing figures. Furthermore, there are age differences between online and linear viewing. The latter, linear television, is viewed relatively most by 65 and older, while this is the smallest group for online viewing. Between males and females some difference in viewing occur in linear television but these differences are negligible in online television. Intense internet users could be better reached online, compared to low internet users, the latter have higher ratings in linear television. Low television users are reached online best, compared to other categories of users, but even better reached compared to high internet users.

To conclude, the findings indicate that clusters are a more informative and convenient way to describe differences in viewing behavior between people. Grouped characteristics contain more information and can be applied quickly, compared to the crude analysis with all available variables. This study provides two reasons why it is not likely that linear television viewing time will be smaller than online television viewing time in the near future. One reason is the large difference in viewing time between linear and online television at present. The second reason is that in case of increasing leisure time most likely the viewing time of both ways of watching television will increase, which might prevent online television viewing to take over linear television in terms of viewing time.

Preface

Dear reader,

There you are, especially for you: the result of my research to television viewing behavior in the Netherlands on behalf of my minor thesis of the Research Master Variant of Management, Economics and Consumer Studies at the Wageningen University. The research is conducted during an internship at Stichting KijkOnderzoek (SKO), the foundation responsible for video audience research in the Netherlands. This thesis enabled me to further develop my research skills, especially regarding working with larger datasets and secondary data.

By combining my own interest and the interest of SKO to know more about different kinds of television viewers in addition to just online viewers and normal television viewers, shaped the research. With the topic in mind, a theoretical framework was constructed to define the boundaries of the research. Subsequently, a broad exploration of the available data was conducted. By doing so, the basis was created for a segmentation model. Throughout the whole process, the support and feedback by Johan van Ophem were indispensable. With his optimistic, but also critical, view Johan guided the research in a good direction and meanwhile we have had numerous pleasant conversations. Johan, thanks for your advices and support. In the finishing stage of the writing the help of Rob Lubberink was insightful and really improved my writing skills.

A special word of gratitude is devoted to the people of SKO, who initiated and facilitated this research. During my internship I always felt very welcome. A special word of appreciation is for Bas de Vos who coordinated this research and my internship. Also, I want to thank Mariana Irazoqui who guided my through the candy shop of data at SKO. Bas and Mariana thanks for your support and help!

I hope you will enjoy reading this research as much as I enjoyed writing this thesis and that you will find the outcomes are interesting. In the first two chapters the contemporary environment of television is drawn. In the third chapter a description of the data used is presented, which includes a high number of correlations coefficients between respondent characteristics and television viewing. For the reader with limited leisure time, this chapter could be skipped. By doing so, the description of the clusters in the next chapter should still be understandable.

I also hope you will enjoy reading this thesis. You already managed to reach this point, for that I want to thank you.

Jorick Meeuwisz

Utrecht, February 2014

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1. Introduction

Leisure time was a scarcity between 1975 and 2005, as the average number of hours of leisure per week decreased with over three hours (SCP, 2004). But since 2006 the leisure time increased to 47.8 hours a week. In 2006, this leisure time was spent 67 percent indoors (SCP, 2013). This raises the question what is being done with this leisure time.

The Western society is developing from *time intensive leisure* towards *goods intensive leisure* for a couple of decades now (Linder, 1970). This implies that we are all consuming for the sake of recreation. Because the use of equipment and/or subscriptions is necessary for media consumption. For example, the consumer expenditures for recreation purposes has grown with 78 percent and the possession of equipment for leisure purposes at home with 157 percent (SCP, 2004). Media use increased in 2011 to 20.9 hours a week (from 19.6 in 2006) which is exclusive online communication, but includes 14.0 hours of television a week (SCP, 2013). Social contacts, which is includes 1.5 hours of online communication, decreased to 7.2 hours a week (SCP, 2013).

The question how leisure time is spent becomes increasingly urgent for marketing purposes as research shows more diversity in leisure time activities, more goods to consume and less time to do them (SCP, 2004; Roberts, 2006). Producers want to know: what activities are pursued in leisure time, the necessities for those activities, and how consumers can be reached best. Mass media plays a crucial role as a channel between producers and consumers, as a consumption good and as pastime. For example, daily papers serve as advertisement channels, but also require purchase or subscriptions making it a consumption good, and subsequently could be used for reading and then become a leisure activity. However, the mass medium from the last fifty years is television (97 percent of Dutch people watches television (SCP, 2004; Roberts, 2006)). Important social developments are communicated by, and happen on, television, making it an important channel for advertisement, with expenditures of € 962 million last year, in the Netherlands (SPOT, 2012) since the sixties. Also television is used as leisure activity: the average Dutchmen watches television 196 minutes each day (SKO, 2012). This makes the channel important for advertisers.

This massiveness can be an attractive component for advertisers for obvious reasons. But, ever since the internet has become common property in The Netherlands (in the first half of 2013 93 percent of all Dutch has a PC with an internet connection, (SKO/MSS, 2013)) online advertising has developed strong. In the first half of 2012 € 585 million was spent on online advertisements, an increase of 14.3 percent compared to the first half of 2011 (Deloitte & IAB, 2013). Online advertisements are better to reach the target audience, but for the present the impact and mass of television is unprecedented for now.

The massiveness of television and the flexibility of internet are combined in online television (also called Web-TV). Nevertheless, viewing time of online television streams is, with an average of 3.6 minute a day, far below linear television (SKO/WEBTV, 2012). The lower viewing time is not due to unattractive content, as the same content is viewed well in the linear programming, or that *on demand* viewing is an unpleasant feature. But more likely, because it will affect the status quo that is still to follow the linear programming. Therefore, it seems logical that youngsters (between 13 and 19 years old) are watching more online television compared to older age groups (SKO/WEBTV, 2012). Probably because this group has other default situations and may

have got more used to on demand television. Today's youngsters are tomorrow's elderly. Therefore, it is interesting to wonder how online television will develop in the coming years and if it is possible to see a shift in the status quo in viewing behavior.

Nowadays, age is one of the most important determinants of online viewing behavior (see for the figures appendix B, table 1). But on long term this does not necessarily need to be. When online television becomes more common in the Netherlands, it is plausible that also other groups than youngsters will be viewers. These plausible future developments, make it interesting to know how the online television user looks like compared to the linear television user. Therefore, it is useful to develop viewer profiles that can be used to describe linear and online television consumers. Based on those profiles, perhaps it is interesting to provide an analysis of contemporary and prospective viewing behavior. The existence of such viewer profiles offer additional opportunities for advertisers in both linear and online channels. This linear and online television differ by concept, linear is considered to be the traditional television, with the programming (both content and moment) determined by the supplier, while at online television the content is determined by the supplier as well but the consumption moment is available upon request (within a certain span of time in which the content is made available), this is why online television is called 'on demand' as well.

1.1 Problem statement

This report is aimed to produce knowledge for Stichting Kijkonderzoek (SKO). This foundation "provides the official television audience ratings in the Netherlands since January 1st, 2002" (SKO Strategy, 2013).

How are audience ratings measured?
Derived from Peeters et al., 2005

Based on an establishment survey, households are selected upon several characteristics, in order to be able to compose a sample comparable to the national image - within the group of equal characteristics the household is randomly selected. The cluster sample consists of 2700 respondents from 1240 households in the Netherlands. Based on the sample statements of the populations of 3 years and older can be done (also households without a television are included in the sample).
If the households wants to enter the sample an interviewer pas by to conduct the panel survey - this survey annually repeated. After an introduction period (of four weeks), to test for technical issues and habituation, households are entered to the sample. Members are not compensated for their efforts, other than expenses for electricity. An incentive system (with lotteries etc.) and information supply about the ratings is used to keep members motivated.
Ratings are measured by a set top box connected to each television in the household. When using the television, each member should login when beginning watching television, and logout when stop watching television. It is important to consider that the measurements in the panel are on the linear program.
The panel is monitored continuously in order to evaluate possible differences. Households are included for a maximum of five years in the sample, and are excluded when differences in the composition of the household or problems with the measurement occur.

Except that they are younger of age, it is relatively undefined who are the online television viewer. This is due to the difficulty to measure and monitor online behavior combined with observations of user characteristics. This could be solved by having an online viewers panel. But this is nowadays not (yet) available for SKO. For now, perceived behavior can be used as a determinant of behavior, which is why it is part of the survey to the linear television panel of SKO. Non-profiled data for online television is available in terms of content and duration. It will be interesting to profile that data so that it becomes apparent what characteristics viewers of programs have. Therefore, the problem statement is the following:

What are the differences in characteristics between linear and online television viewers?

It is important to recognize that with online is meant “not via a television screen”, as this is possible due to internet connected televisions nowadays, but this deviates from the topic of research. To solve this problem, it is first necessary to identify the characteristics of both linear (1) and online television viewers (2), in be able to analyze the differences between them (3). So, there are three steps to be taken in order to answer the question properly. The differences between online and linear viewers might give an indication for future developments in the TV landscape. In the latter part of this research, these future developments will be discussed, as this may be valuable information for various kinds of marketing strategies.

1.2 Relevance

Practical relevance

Advertisement expenditure in the Dutch television market are € 962 million in 2012 (SPOT, 2012), every day Dutch people consumer 196 minutes of television (SKO, 2012) and online advertisements in The Netherlands increase with over 14 percent from first half 2011 to € 585 million in first half 2012 (Deloitte & IAB). Television and online behavior are important leisure activities in Western societies and are (potentially) interesting for marketeers and advertisers. An explanation of behavior based on a profile of viewers can add to that.

A perspective on the development of online and linear television in the (near) future is interesting for marketing strategies, content development and programming. Contemporary society is considered to be in a transitional phase (Rotmans, 2012) with numerous societal developments, especially on technological issues such as smartphones, online consumption and other digitalizing issues. Societal structures may shift during phases of transition, and plausibly leisure consumption will shift then as well.

Academic relevance

This study provides additional insights in contemporary and future viewing behavior, and what characteristics being important determinants of that behavior. Analyzing those determinants of television viewing behavior can be indicative for general leisure behavior. Therefore, the results of this study may not only be accountable for television behavior, but for other leisure activities as well.

1.3 Research purpose and research questions

The purpose of this research is to develop viewer profiles based on available data for linear and online viewing behavior, such that viewing behavior can be described using the profiles. To fulfill this purpose, the following research questions have to be answered:

RQ 1 Can behavior of linear television viewers be explained in terms of characteristics of viewers?
RQ 2 Can behavior of online television viewers be explained in terms of characteristics of viewers?

In order to answer those questions, and thus be able to solve the problem statement, data from SKO is analyzed for both online and linear viewing behavior. This implies that all analyses conducted in this research are based on secondary data. In chapter two, the theoretical framework will be presented and important concepts will be defined and discussed. It will also contain a description of the contemporary

environment of television in the Netherlands. This will be followed, in chapter three, by a description of the available data with possible issues regarding validity. In chapter four, the results will be reported, including the developed profiles. In the Fifth chapter, the conclusions will be drawn and answers to the research questions given. Finally, the results, conclusion and analyses will be discussed in chapter six.

2. Theoretical framework

If television viewing behavior is considered to be a leisure activity, first it is important to understand what defines leisure. Some researchers, such as Jacobs and Gerson (2001), see leisure as a tradeoff between work and total time, implying that working more means having less leisure, and vice versa. Others preach a definition of leisure that leaves more room for subjectivity, like Leitner and Leitner (2012: 3) who define it as: “free or unobligated time that does not involve work or performing other life sustaining functions”. For example, sleeping might be considered partly as leisure, while for others this can be personal care time and thus not as leisure. Therefore, the perception of the task becomes important. When a task is perceived as obliged, the character of the activity becomes mandatory and the time spent would not be evaluated as leisure. This reasoning is structured in Neulinger’s leisure paradigm, of which the spectrum leisure versus work is presented in Table 2.1. Leisure and non-leisure can be seen on a gradual scale, where different motivations organize different statuses in leisure, whether or not with a perceived constraint. Either way, leisure has become big business due to its commercialization and materialization (Roberts, 2006).

Table 2.1 : Neulinger’s leisure paradigm

	Perceived freedom = leisure			**Perceived constraint = nonleisure**		
	1	2	3	4	5	6
	Pure leisure	Leisure-work	Leisure-job	Pure-work	Work-job	Pure-job
Motivation	*Intrinsic*	*Both intrinsic and extrinsic*	*Extrinsic*	*Intrinsic*	*Both intrinsic and extrinsic*	*Extrinsic*

Neulinger, 1981

Most viewing situations for television could be categorized in the first category, because the majority of viewers will be intrinsically motivated and will not watch television with a perceived constraint. Exceptions may be news and news-related programs as such programs on societal developments may have a perceived constraint. Extrinsic motivations to watch some programs can be when these programs can be a cause for conversation subjects in one’s social environment. In these cases there might be some sort of peer pressure to watch such programs, in order to be able to participate in conversations. In some cases a certain element of the programming can have a relatively mandatory element. For example, a teacher sociology who follows news related programs, or a mechanic who watches *Top Gear* because their colleagues do so as well. In those cases a perceived social constraint might be present. This can also be applicable for people who work in the media industry, which are 0.4 percent of the respondents in the panel of SKO, and watch television for work related things. Or journalists who ought to be aware of societal developments.

So the activity, television viewing, can be considered as an intrinsically motivated activity performed in perceived free time. Furthermore, it is important to define what is considered television. One traditional definition can be found in the regulations of SKO, where television programs are regarded as:

> "electronic audiovisual content that is [...] distributed on a date determined by a broadcasting institution, and of which the order of programs and the technologic means of distribution are also defined by that broadcasting institution [...]; what is meant to be viewed by (parts of) the general audience. By the determination of date, order of program and means of distribution is also meant [...] the availability for (parts of) the general audience of already broadcasted content". (SKO, 2013b)

This is a rather small definition of television content and implies that traditional broadcasted content and the availability of this content online is regarded as television. Thus are extra online only episodes of television shows (for example online only content from The Voice of Holland[3]) not regarded as television content, as those where not part of the linear programming at any time. But with a high penetration of internet, also out of home, has television became more flexible and therefore probably also interesting for others that just broadcasting institutions, to have for example a YouTube channel. Those are regarded by the Dutch *Commissariaat van de Media* (Commissioner of the Media) as 'media services on demand' (CvdM, 2013), and are basically all professional made audiovisual kinds of content made with a commercial element. This comprehensive definition of television content is used in the strategy of SKO for 2013-2017 (SKO Strategy, 2013) as the goal of content to measure, but will likely be harder to operationalize. Therefore, and because of the scope of this research, the former definition of television content will be used.

The most important differences between online television and linear television are the flexibility and availability in terms of moment of watching and content. This implies also a different action by viewers. For linear television the content en programming is already determined. Therefore, the viewer only has to decide whether to watch and subsequently what channel. For online television the options are more extensive. The user has to decide whether to watch, on what device, to which distribution/channel, what content (maybe reevaluate the device, as a movie or a newsflash may have a different preference), and when the program is finished, determine to watch something else or go on with other activities. Thus, as stated often in media business, linear television involves more passive behavior whereas online television is more active. This could have implications for content preferences as well, certainly for advertisers. Those implications for content preferences are reflected by the higher rating of affect for television than for computer/internet which was found by Kahneman (2004 in Kroll & Pokutta, 2013). For example, when a respondent is tired, the affect for television and computer/internet decreases (Kroll & Pokutta, 2013: 211). However the research of Kahneman (2004, in Kroll & Pokutta, 2013) was not focussed on linear versus online television. Therefore, it might be that the passivity of linear television is fulfilling a certain need, that online television might not fulfill.

2.1 Watching television in the Netherlands

As mentioned before, on average a Dutch citizen is watching more than three hours of television per day. (SKO, 2012). The distribution of those minutes over the hours of the day gives an interesting insight on when people are watching. As can be seen in Figure 2.1 the peak of the television activity is between 21.30 hours

[3] Available via url (last used October 17th, 2013): http://www.thevoiceofholland.com/shows/thevoiceofholland/#!/videos

and 22.00 hours, and this behavior is comparable for the years 2011 and 2012. There is limited television consumption during the typical working hours, but are strongly increasing around 17.00 hours towards the peak moment at 21.00 hours. On average, people watch 52 minutes during the daytime[4] and during evening[5] 128 minutes are viewed. At these times also a peak in leisure time is visible, as can be seen in Figure 2.1. The vertical axis indicates the percentage of the respondents that have leisure time at the time on the horizontal axis.

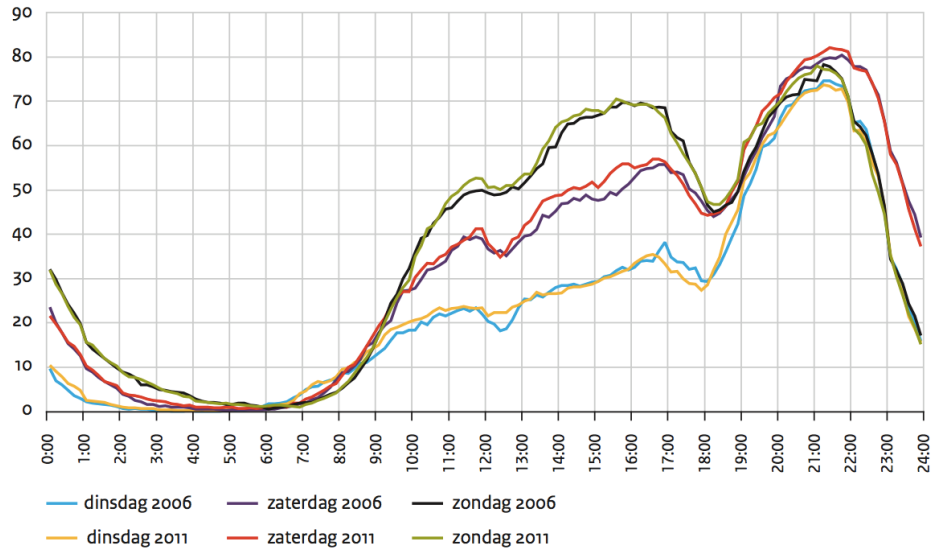


Figure 2.1 : Leisure time on Tuesdays, Saturdays and Sundays *Source: SCP, 2013*

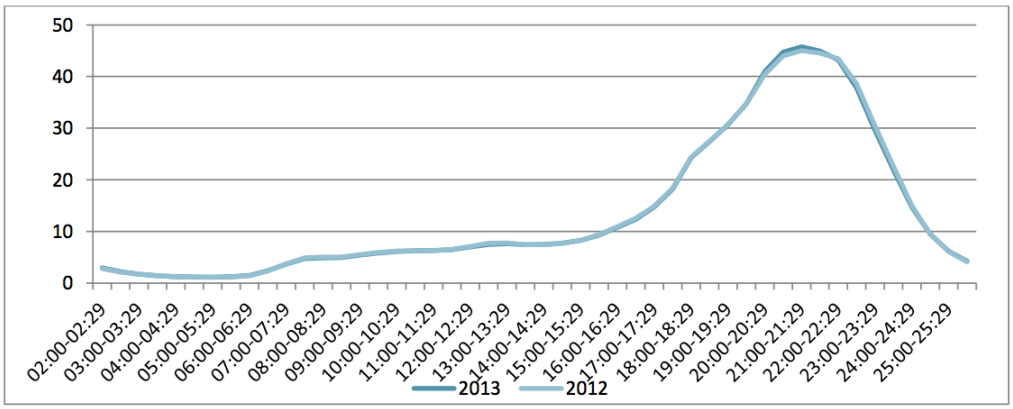


Figure 2.2 : Audience density (kijkdichtheid) per half hour *Source: SKO, 2012: 10*

Since 1975, the share of evening television has declined from a 99 percent to a share of 84 percent in 2000 (SCP, 2004). The same holds for the share of viewing time in the traditional peak hour which declined from 28 percent in 1975 to 20 percent in 2000 (SCP, 2004). This implies that the amount of television consumed in other hours than in the evening, thus from midnight till 18.00 hours, has increased relatively. This supports the idea that television has become more flexible, and that the possibility to watch television on demand decreases the volume of evening television. As can be seen in Figure 2.2, the evening hours are still the most important timespan for television viewers. Furthermore, the share of the evening hours television

[4] Between 7.00 and 18.00

[5] Between 18.00 and 00.00

viewing declines with 15 percent over the the 25 years between 1975 and 2000. Therefore, daytime television seems to have a long way to level with the evening hours. The amount of television consumed correlates nicely with the graph in Figure 2.3, where the percentage of people at work is plotted against the time of the day. From around 17.00 there is a steep decrease in the amount of people working, around this time in Figure 2.2 there is a steep increase in people watching television. So there seem to be some sort of negative correlation between work and television, and logically a positive correlation between leisure time and television viewing.

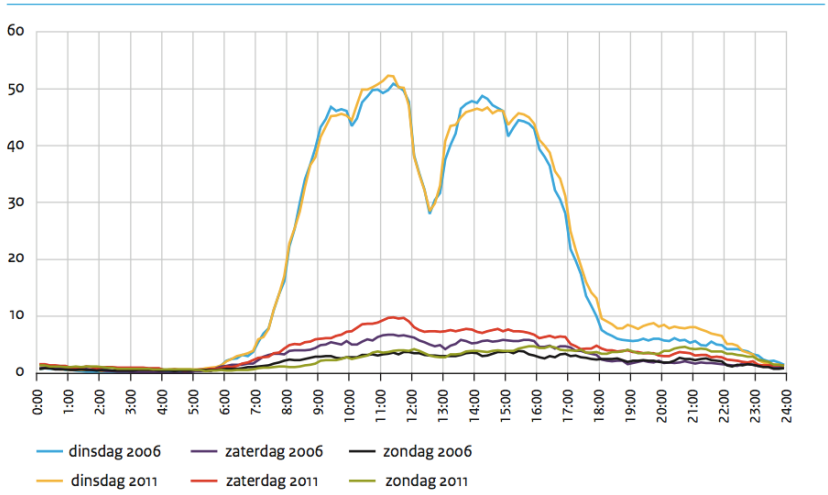


Figure 2.3 : Work on Tuesdays, Saturdays and Sundays for 2006 and 2011 (12 years and older) Source: SCP, 2013

The averages shown in Figure 2.3 are calculated means for the total week. But the viewing time also varies over the days of the week, as can be seen in Table 2.2. During the weekend and on Friday, the viewing time is the highest. This could be due to more leisure time in the weekend. This can also be seen in the lower amount of work on Sunday's in Figure 2.3. During the evenings on weekdays there are probably other leisure activities, such as social contacts (22 percent of leisure time) sports (4 percent of leisure time) or other hobbies (15 percent of leisure time) (SCP, 2004: 55), or housework. The share of housework in the evenings and weekend's increased from 39 percent in 1975 to 46 percent in 2000 (SCP, 2004). Therefore, one could assume that the tasks to be completed during non-work hours during the week have increased, and thus perceived free time may to be decreased.

Table 2.2 : Viewing time in minutes per day of the week (6+) for 2011 and 2012

	2012	2011
Monday	191	183
Tuesday	183	180
Wednesday	186	181
Thursday	184	181
Friday	197	194
Saturday	201	198
Sunday	227	220

Source: SKO, 2013

Television viewing is not necessarily an exclusive activity as one might watch television while doing other activities as well. Due to higher flexibility in time of viewing this is even more likely. In Table 2.3, the amount of time spent to watch television as a main activity, as a secondary activity and in total is presented from the data of SCP (2004). The data may not be as accurate as from SKO, but the importance of this table is in the proportion of secondary activities related to the total viewing time. An important remark to the data in this table is that they are somewhat old-fashioned. For example, mobile internet and public Wi-Fi spots were not as common back then compared to the year 2000. Therefore, the interpretation of the data should be done cautiously. It is plausible that the proportion of television as a subsidiary activity has not declined since 2000 and maybe even has increased, as nowadays watching television during transportation, college or even in bath, has become possible for many.

Table 2.3 : Viewing time main versus secondary activities in hours per week

	1975	1980	1985	1990	1995	2000
Television as subsidiary activity	3.1	3.1	3.6	3.4	4.5	3.7
Total television time	13.3	13.4	15.8	15.4	16.9	16.1
% subsidiary of total	**23.31%**	**23.14%**	**22.79%**	**22.08%**	**26.63%**	**22.98%**

Derived from SCP 2004: 84

In Table 2.3 we see the proportion of television as a secondary activity is between 22 and 27 percent. Thus, a considerable proportion of television viewing time is part of other activities as well, like: eating, drinking, household activities or hobbies (SCP, 2004). This can be an important element in linear television and it might be questionable if this element equally holds for online television as well. Therefore, it is important to consider what the determinants of online television behavior are.

2.2 Determinants of behavior for online television

As stated before, in contemporary data it is not visible what the demographic characteristics of online television viewers are. By combining panel data and online views at Nederlandse Publieke Omroep (NPO), Radio Television Luxembourg (RTL) and Scandinavian Broadcasting System (SBS) for a sample population, the viewing behavior is known, and is presented in Table 2.4. In the first column, the available profiles are given, in the second column the reach in terms of percentage, the third the index for the reach [(reach * population) / (total reach * total population)], in the fourth column the playtime of the people reached, in minutes. An index for the playtime is given in the fifth column [playtime / total playtime], in the last column the population is given - which was used to calculate the index for reach. Both columns of index numbers can be used to assign a number of streams to a certain profile, for example when one observes 100,000 streams, then 0.16 * 100,000 should be assigned to 13-19 year olds, based on the index. The person regarded as 'shopper' is considered to be the person in the household responsible for the majority of the housework (such as doing groceries and cooking), and within the spectrum of 20-49 years old this is traditionally seen as a commercial target group (SKO, 2012).

Table 2.4 : Index for reach and playtime online television for broadcasters NPO, RTL, SBS

	Reach	**Profile reach** based on population	**Playtime** minutes	**Index playtime** based on total playtime	**Sample population**
Total	**24.61 %**	**1.00**	**975**	**1.00**	**13,922**
13-19	39.70 %	0.16	1043	1.07	1,390
20-34	34.43 %	0.30	1035	1.06	3,011
35-64	22.06 %	0.46	929	0.95	7,093
65+	11.20 %	0.08	872	0.89	2,428
High class (AB1)	26.42 %	0.56	985	1.01	7,227
Low class (B2CD)	22.74 %	0.44	963	0.99	6,695
Male	23.02 %	0.46	880	0.90	6,868
Female	26.15 %	0.54	1056	1.08	7,054
TV use: low	32.26 %	-	1004	1.03	n/a
TV use: medium	28.87 %	-	943	0.97	n/a
TV use: high	24.94 %	-	976	1.00	n/a
Internet use: low	18.65 %	-	1019	1.04	n/a
Internet use: medium	29.89 %	-	988	1.01	n/a
Internet use: high	30.97 %	-	893	0.92	n/a
Shopper 20-49 yrs	30.00 %	0.33 %	1h023	1.05	3,746

Source: SKO/WEBTV, 2013 [6]

[6] Because the sample population figures for the TV-use and Internet use are not available (Table 2.4), the index numbers for the reach could not be calculated.

So the index numbers are useful to assign numbers of streams to profiles. By doing so, some new insights are obtained as next to just evaluating the reach as age seem to be an important determinant for reach. The 13-19 year olds have a reach of 39.70 percent, while 35-64 year olds have a reach of 22.06 percent. When we integrate the population numbers a different perspective becomes visible, the index for 13-19 is 0.16 while for 35-64 the index is 0.46. This means that in terms of absolute figures the age group 35-64 is viewing more compared to youngsters, while the proportion of youngsters is the highest. Further interesting findings that can be seen in Table 2.4 are that females watch more online in terms of both, reach and playtime. Next to that, we see that higher class (AB1) watches more television and that people doing the household groceries are reached relatively low, but have a relatively long playtime. From the index numbers on playtime we see that high internet users watch shorter television, but in that group more people are reached. For television users this is the other way around. Low television users are reached more often in terms of television, and their playtime is longer than high television users. Low internet users have more playtime in television than low TV users, but a lower proportion is reached.

Probably there are more important determinants for online behavior, but they are not included in contemporary data by SKO. Therefore, it is useful to investigate: what kind of people watch online television, what the important characteristics of online behavior are, and how online behavior is executed (e.g. by desktop, laptop or mobile device). To do so, it is wise to first separate the bulk of online viewers into different, more manageable segments. This is possible as Barnes (2006) already showed that online consumers could be clustered in homogeneous groups.

2.3 Basis for segmentation

The rise of commercial mass entertainment made it possible that nowadays the ‘market rules’ and that by cultural fragmentation, or more positive democratization, a large number of distinct audiences have been created (Roberts, 2006: 40). For a proper segmentation, first a sound theoretical base is necessary, as segmentation based on traditional demographic variables, such as age and gender, is proven to be less valid (HBR, 2006). In this research a segment will be considered as: a group of people with common consumer behavior. Especially for television, the traditional demographic variables are outperformed by lifestyle segmentations (Vyncke, 2002). According to Roberts (2006), the main differences in leisure are based on financial inequalities. For specific television behavior this might be a bit bluntly, as other elements such as education and household situation might be important as well. This is indicated by Roberts as well in differences in average TV and video usage time between socio-economic classes: managerial and professional class views 122 minutes on average, intermediate class 137 minutes, manual and routine class 168 minutes and unemployed 187 minutes (Roberts, 2006: 63). So it would wise to divide the viewers in segments when reviewing online and linear television viewers. For classification purposes based on consumer behavior in leisure time, Bourdieu offers a useful framework with cultural, economic, social and symbolic capital as distinctive forces between consumers (Bourdieu, 1984, 1985). Among others, behavior during and consumption of, leisure is for consumers a way of constructing an identity and to pursue happiness and fun. The premise is that if one is possessing a form of capital, the intention for behavior changes, or shifts. These forms of capital can be expressed by means of consumption:

> "[...] *whereas economic capital is expressed through consuming goods and activities of material scarcity and inputted luxury, cultural capital is expressed through consuming via aesthetic and interactional styles that fit with cultural elite sensibilities and that are socially scarce*." (Holt, 1998: 218)

So if one is possessing a form of capital this may lead to different consumption. There is no reason to assume that this is not applicable to the (amount of) viewing behavior and preferences for program's and genres. Stereotypically reasoned: people with higher economic capital may work more and have less leisure time to use television, whereas people with higher cultural capital may prefer different programs on television or may read more. This substitution of time and money is supported by the differences in household functions for 'rich' and 'poor' households, see Van Ophem and De Hoog (1995). For both, cultural and economic capital, indicators are available at SKO, such as net income and education. Therefore, these could be used for a segmentation of respondents. There are no indicators of social capital in the available datasets. A possible proxy could be '*watching television at other's place'.* But for constructing profiles, the relevance seems limited. Social capital is highly subjective, and as most of the data is on perceptions (more on this in the next chapter) this might not be useful or reliable as a base for segmentation. Cultural and economic capital thus can form a solid theoretical base for segmentation and indicators of both forms of capital are available. Cluster analysis, defined as the art of finding groups in data (Kaufman & Rousseeuw, 2005) is the dominant method to research segments in a population (Steenkamp et al., 2002; Vyncke, 2002). The purpose is to find groups that are similar within, but different between other groups (Kaufman & Rousseeuw, 2005). Oftentimes this is being done in terms of variance (Field, 2005). For such an analysis, the data should be suitable in terms of measurement level. Also cluster analysis tend to perform less well when variables are highly correlated (Steenkamp et al., 2002). This suitability in terms of measurement level and the correlations between variables will be examined in the following chapter.

2.4 Hypotheses

Based on theory, some expectations could be formulated. Here this will be done in the form of hypotheses. Based on earlier findings from the SKO/WEBTV data (2013), age is expected to have an influence on linear and online viewing. Also leisure time is logically playing a role. Elaborating on the framework of Bourdieu (1984) cultural- and economic capital could have an influence as well. Roberts (2006) found already effects for income and education in the United Kingdom. To examine whether such effects are present in the Netherlands as well, eight hypotheses are formulated, in order to be able to structurally test for effects, see Table 2.5. The hypotheses consists basically of two groups, effects on linear viewing and effects on online viewing. Online television can be seen as more flexible compared to linear television, in terms on time and place of consumption. This may implicate that online television fits the lives of the more busy better, than linear television does. It is fair to assume that the vast majority of people in the Netherlands has access to internet by some kind of device (SKO/MSS, 2013).

Table 2.5 : Overview of hypotheses

H1	Segments of viewers with higher cultural capital have a lower linear viewing time compared to segments with less cultural capital
H2	Segments of viewers with higher economic capital have a lower linear viewing time compared to segments with less economic capital
H3	Segments of viewers with less leisure time have a lower linear viewing time compared to segments with more leisure time
H4	Segments of viewers with higher mean age view more linear television compared to segments with a lower mean age
H5	Segments of viewers with lower mean age view more online television compared to segments with a higher mean age
H6	Segments of viewers with higher cultural capital view more online television compared to segments with lower cultural capital
H7	Segments of viewers with higher economic capital view more online television compared to segments with lower cultural capital
H8	Segments of viewers with less leisure time have a higher online viewing time compared to segments with more leisure time

Based on the findings of Roberts (2006), it could be expected that higher educated people watch less television that lower educated people. To be more precise this can be combined with the cultural capital of Bourdieu (1984) and we could state that groups of people with higher cultural capital have a lower linear viewing time, compared to groups with lower cultural capital. The same expectation from Roberts (2006) regarding welfare is used to construct the second hypothesis, in addition the discrepancy between time and money is an interesting feature to review television viewing behavior from. In general could be stated that those with more money have less time, and vice versa (Van Ophem and De Hoog, 1995). This immediately explains the third hypothesis as well. The age effect found in Table 2.4 might implicate that linear television is performed more by groups with a higher mean age. The fourth hypothesis is constructed to test this.

When online television is framed as more flexible television, it is somewhat logical to assume that the effects the first four hypotheses are reversed when the dependent variable is changed to online television. The last four hypotheses are thus derived from the first four, in order to determine whether this assumption holds.

2.5 Conclusion

Television viewing is a leisure activity mostly practiced in the evenings and weekends, the moments when the average time spent on work is low. With the availability of online television, viewing times could be more flexible. But still the vast majority of time spent on television is in the evening. A considerable part, between 22 and 27 percent, of the viewing time is subsidiary, which means that other activities are performed while viewing, as well. It plausible that this proportion will rise with the increasing popularity of smartphones, laptops and tablets, which enables to watch television in public transport, school, bathroom or any other domain with a connection to internet. From the online viewing data some effects are visible already. In terms of reach, high television users are reached less compared to low television users, which implies that, for them, online viewing is sort of a substitute for linear TV. High internet users are reached better by online TV, compared to low internet users, which seems logical. The online playtime of high television users is higher than the online playtime of high internet users, which implies that the activity of online television viewing is

not a substitute of internet using. Medium internet users have higher playtime online compared to the playtime online of medium television users. Low internet users have a higher online playtime compared to the online playtime of low television users. Age seems to be an important element, in terms of reach and playtime, but the interpretation of these figures should be done with caution, as the total volume of middle age groups is higher than that of youngsters.

3. Data description

In this research secondary data will be used for analysis, in this chapter the composition of the data will be reviewed and the quality of the data discussed. Several sets of data are available for SKO, of which the most important for the goal of this research are the panel survey and the WEB-TV data.

3.1 Panel survey 2013

Panel survey 2013 (*Basisondervraging 2013*) is a dataset based on a bi-annual questionnaire to all members of the viewer panel, it contains weighed data of 2760 respondents and 437 variables. The data is updated till July 1st 2013 and thus relatively up to date, what can considered to be important in a rapid changing media landscape. All of the variables contain perceived answers on opinions, income, education and behavior. These are the background characteristics for the paneldata for television ratings measurement[7]. Possibly perceived viewing behavior deviates from realized viewing behavior and in some cases social desirable answers could have been given (for instant at *environmentally conscious* or at certain music genre's), or could non-respons bias the data (for example *net monthly income* contains 997 missing values). In Appendix A an overview of the distribution of a selection of related variables is presented. Correlations between all variables in the dataset and the variables for perceived viewing behavior are presented in Appendix B.

For interpretation of the correlation coefficients some aspects of the data should be considered, measurement level is one important. In Table 3.1 for all variables the measurement levels are indicated and also the ranges of the codings used. If necessary recodes where executed so all codings are in the same direction, so mutual comparisons in correlations (or other) coefficients are feasible, this is important due to the relatively large number of asymmetrical binary variables, for these results may gather a different interpretation when coding is different (Kaufman & Rousseeuw, 2005). Variable labels are not the purpose of this table are thus not submitted to the table, also for reasons of readability, an integral overview of variable names and labels can be found in Appendix B. Sets of variables with corresponding topic are presented between pipes.

[7] See for more information about the methods used for the viewer ratings, in Dutch : http://www.kijkonderzoek.nl/images/stories/Methodologie/2013/20121220_Methodologische_beschrijving_kijkonderzoek_2013_def.pdf (Last visit December 7th, 2013)

Table 3.1 : Overview of coding variables

Measurement	Variable	Coding
Binary *symmetrical*	| dem301 | dem313 | dem413 | dem414 | dem434 | dem1267 |	[0, 1]
Binary *asymmetrical*	| dem31 - dem38 | dem58 - 88 | dem113 | dem115 | dem151 | dem155 | dem161 | dem175 - dem187 | dem195 | dem198 | dem203 | dem205 dem206 | dem284 - dem294 | dem348 - dem355 | dem693 | dem699 | dem765 - dem767 | dem771 - dem 774 | dem778 dem790 - dem800 | dem804 - dem864 | dem804 - dem864 | dem883 - dem892 | dem1186 dem1187 | dem1799 | dem1863 - dem1878 | dem1882 - dem1899 | dem1902 - 1934 | dem1950 - dem1963 | dem1964 - dem1970 | dem1971 - dem1984 | dem2028 - dem2032 | dem 2033 - dem2037 | dem2304 - dem2309 | dem2316 - dem2319 dem2320 - dem2325 dem2332 |	[0, 1]
Nominal	| dem101 dem102 | dem109 dem111 | dem161 | dem173 | dem192 | dem193 | dem268 | dem368 | dem394 | dem397 dem398 | dem400 | dem406 | dem412 | dem449 dem450 | dem498 | dem582 dem583 | dem589 - dem591 | dem594 | dem776 | dem779 | dem1188 | dem1629 | dem1881 | dem2333 |	[1, 13] [1, 6] [10, 132]
Ordinal	| dem100 | dem116 | dem121 | dem189 | dem190 dem191 | dem303 |dem304 | dem342 | dem345 | dem356 | dem379 | dem391 | dem395 | dem399 | dem402 | dem405 | dem473 - dem485 | dem574 - dem580 | dem595 | dem678 dem679 | dem680 - dem683 | dem691 dem692 | dem696 | dem698 | dem744 | dem761 dem762 | dem764 | dem802 | dem865 | dem957 | dem1880 | dem1901 | dem1940 | dem1941 - dem1949 | dem1986 | dem1988 | dem2310 - dem2315 | dem2320 | dem2326 |	[1, 9] [2, 8] [1, 12] [2, 8] [1, 5] [1, 6] [1, 3] [0, 7]
Interval	| dem2 - dem11 | dem12 dem13 | dem24 dem25 | dem40 - dem44 | dem89 dem 90 | dem92 | dem140 dem141 | dem194 | dem196 dem197 | dem204 | dem258 | dem295 | dem302 | dem307 | dem308 | dem314 - dem316 | dem335 | dem340 | dem343 dem344 | dem357 - dem360 | dem375 | dem380 | dem401 | dem403 | dem404 | dem444 | dem489 | dem491 - dem 493 | dem584 | dem587 | dem592 dem593 | dem697 | dem705 - dem711 | dem730 - dem737 | dem738 - dem743 | dem749 - dem754 | dem763 | dem768 - dem770 | dem801 | dem1794 - dem1798 | dem1985 | dem1987 | dem1991 - dem1994 |	[0, 9] [0, 97] [0, 96] [0, 6] [1, 11] [1, 10] [0, 3] [1, 3] [0, 12] [0, 95] [1, 4]

As can be derived from Appendix A, from the total of 2760 respondents, 611 respondents consider themselves to watch online television. This will be an important element when interpreting any results from any analysis aimed to compare linear and online television. Also attention should be paid to the differences in distributions between variables, as is shown in Table 3.1, that may lead to inter-variable differences, regarding to the differences in measurement. This may have an impact on outcomes.

3.2 WEBTV STIR

The WEBTV STIR data is a combination of panel data (from an extern party: STIR[8], internet audience research) and online viewing data. By WEBTV in this case is meant the viewing of programs on internet by the possibilities provided by the websites of NPO, RTL and SBS. The data are unweighted online viewing behavior matched to a limited amount of respondent characteristics, which are *age* (13-19 years; 20-34 years; 35-64 years; 65+ years), *social class* (high; low), *commercial target group/shopper* (person

[8] See for further information url (last used November 8th, 2013): http://www.stir.nl/over-stir/

responsible for coordinating most of the household activities, aged 20-49), *gender, internet usage* (low, medium, high) and *television usage* (low, medium, high). Viewing behavior is measured based on *pixels,* a technology of which based on online traffic the number of stream starts is counted. For the panel members internet behavior is measured by such pixels. The available data is from February 2012. The streams are categorized in a couple of genres, based on common categorizations by SKO, such that the combination genre and respondent characteristics can be analyzed. To match viewing behavior and respondent characteristics the sample is drawn from a larger panel (STIR panel).

An descriptive overview of the data is presented in the tables in Appendix C, to give some insight in the available information. Because the WEBTV data is based on observations, rather than perceptions, some issues on validity remain absent. However the amount of information regarding to respondent characteristics is limited compared to the panel survey data. Therefore a combination of those two datasets can be valuable.

3.3 Correlations panel survey data

In order to find relationships between independent variables for linear and online television viewing and dependent variables, a large correlation matrix is constructed (Appendix B). Based on this matrix in this section tables are composed, in categories. By doing so the interpretation of the correlation coefficients becomes more transparent, and the available data more apparent. The correlations are used to gain insight in the data, and the mutual relations in the data, and are the base for further analysis. For reasons of comparison *online streams* is regarded as independent variable as well. Note that this is a more broad definition of online behavior, as streams not necessarily need to be television, but can be other video sources as well (such as YouTube). Because online television and online streams in the contemporary research design are not measured on respondent characteristic level, a proxy is used for online television and online streams viewing: perceived behavior. For suitable comparisons therefore also perceived linear viewing behavior is used, on the same scale as for Online TV, days per week.

In Table 3.2 correlations on demographic variables regarding the household composition and the viewing behavior are presented. Only significant coefficients are presented, also items without any significant coefficients are excluded. The tables present descriptive information on relations between demographic variables and viewing behavior, but also information for comparisons between online TV, online streams and linear TV. All effects in the table are small, which indicates that the dependent variable only for a small part, if any, can be explained by the independent variable. Part of this may be due to the limited scale of which some variables exist, see also Table 3.1.

*Table 3.2 : Correlations demographic variables: HH composition and television viewing**

	Online TV *(days/week)*		**Online streams** *(Never | Occasionally | Often)*		**Linear TV** *(days/week)*	
	r	p	r	p	r	p
HH size total	0,141	0,000	0,114	0,000	.	.
Number children 13-17 yrs old	0,152	0,000	0,130	0,000	.	.
Number people 20-24 yrs old	.	.	0,112	0,000	-0,126	0,000
HH size 13+	0,161	0,000	0,134	0,000	-0,046	0,018
HH cyclus	.	.	.	.	0,064	0,001
Viewing time shopper	.	.	-0,121	0,000	0,223	0,000
Highest education HH	.	.	0,173	0,000	-0,136	0,000
Gross annual income HH	.	.	0,066	0,010	.	.
Net monthly income HH	.	.	0,056	0,024	.	.
Dual earner HH	-0,104	0,010	-0,117	0,000	0,045	0,019
Owner occupier	.	.	-0,050	0,031	0,055	0,004
Urbanity	.	.	0,113	0,000	-0,072	0,000

**) Code: No = 0; Yes = 1; Higher score on variable is coded with higher value*

Total household size has some influence on online television and online streams, such that with a larger household more online television and streams will be used. Explanation for this could be that individual preferences can be fulfilled, but also important element can be the assumption that in a larger household are living more young people, which are more likely to watch online television. This is exemplary that interpretation of coefficients here need be done careful. Same implications can be made for the other composition variables. Interesting is that the person in the household responsible for the groceries and other housework is viewing more linear TV, less online streams and has no indicator for online TV. This has it's implications for advertisers, who might prefer to advertise more linear. The highest education in the household correlates negatively with linear TV and positive with online streams. This could mean that higher educated watching less linear television, which is consistent with previous results (Roberts, 2006). The effects of income are both marginal and less significant than other effects, so no implications should be drawn based upon this. Households with dual earners watch less online TV and less online streams, and have a marginal effect on linear TV. This can be explained by the possibility that people in those household have less free time (as they work more hours on aggregation), and thus have less time to watch online TV, but are just watching linear, perhaps as a social moment in the evening. The ownership of a house has a marginal effect, which is neglected for now. The amount of urbanity corresponds with the use of online streams, and has a positive effect. As the internet penetration is high in the Netherlands this is not logically due to connection issues but more to lifestyle issues. In this set of variables household size is considered to be an important determinant for the dependent variables, as well as the highest education in the household, and if the household has dual earners.

In Table 3.3 some general demographic variables are given as well as income and education on respondent and breadwinner level, whereas Table 3.2 contains these variables on household level. While there is no significant effect for gender for linear TV, online seems to be somewhat more masculine. De most strong effect is for age, linear TV has a positive correlation, indicating that viewing time rises with age. For online viewing time declines with age, implicating that younger people watch more online - this is already covered in the previous chapter as well. When the breadwinner of the household has paid work, online streams are watched more often, and viewing time for linear TV decreases slightly. Viewing time for both online and linear TV decreases when the respondent has paid work, assumably because the leisure time has decreased. There are marginal effects for the hours worked each week of the breadwinner, a slight decrease when working more for online streams, while linear slightly increases, however the significance level of the latter is lower compared to others. On respondent level the effect is stronger, more work leads to less online TV and less online streams viewing times. If the respondent was unemployed last year, the viewing time of online streams increased slightly and no significant effects are present for online and linear TV. An important effect seem to be the hours weekly spent on housework, there are negative correlation coefficients for online streams and TV, and a positive for linear TV. The effect for net monthly income of the respondent is marginal, comparable to the effects on household level. Type of company is a nominal variable, and does not lead to a useable correlation coefficient. The effect for ethnicity is limited. The effect of education is measured in four variables. The highest followed education of the breadwinner has a positive correlation with online streams, implicating that higher education leads to more often use of online streams, and negative correlation with linear TV, which means that higher educated breadwinners have shorter viewing time. For highest followed education of the respondent only a minor positive correlation for online streams is present. Similar to the highest followed education of the breadwinner are the coefficients of completed education of the breadwinner, a positive effect for online streams and a negative effect for linear TV. For completed education of the respondent a negative coefficient for online TV implies that higher education may lead to a decrease in viewing time for online TV. A marginal effect is found for online streams which is negligible in terms of significance and power. The effect for linear TV is comparable for the other education variables. In this set of correlations, gender, age, hours paid work, hours household work and education are considered to be potential important determinants.

*Table 3.3 : Correlations demographics: general/work/income/education versus television viewing**

	Online TV *(days/week)*		**Online streams** *(Never | Occasionally | Often)*		**Linear TV** *(days/week)*	
	r	p	r	p	r	p
Gender [1 = male 2 = female]	-0,105	0,010	-0,132	0,000	.	.
Age (respondent)	-0,255	0,000	-0,492	0,000	0,125	0,000
Breadwinner paid work	.	.	0,210	0,000	-0,090	0,000
Paid work, now / previously - rp [1 = yes 2 = not now 3 = no]	-0,162	0,000	.	.	-0,061	0,003
Paid work breadwinner hrs/week	.	.	-0,071	0,003	0,049	0,013
Paid work resp. hrs/week	-0,174	0,000	-0,100	0,000	.	.
Time unemployed last year	.	.	0,089	0,003	.	.
Hrs housework	-0,138	0,001	-0,281	0,000	0,115	0,000
Net. monthly income resp.	.	.	-0,058	0,029	.	.
Type of company	0,182	0,000	0,054	0,019	.	.
Ethnicity breadwinner (0=Western 1=Non-western)	.	.	0,060	0,009	.	.
Education breadwinner (highest followed)	.	.	0,130	0,000	-0,126	0,000
Education resp. (highest followed)	.	.	0,071	0,002	.	.
Ed. breadwinner completed	.	.	0,107	0,000	-0,119	0,000
Ed. resp. completed	-0,080	0,049	-0,053	0,022	-0,113	0,000

**) Code: No = 0; Yes = 1; Higher score on variable is coded with higher value*

In Table 3.4 the correlations for media behavior and television viewing are presented. Households with a membership on a program guide are watching slightly more linear TV and less online streams, this may be due to a (emotional) relationship with linear TV, expressed in the membership. But households with any support membership have more online TV viewing time, and no significant effect on online TV and online streams. When reading time of daily newspapers increases, the use of online streams decrease, when the number of hours listening to radio increases, the number of linear TV slightly increase, the frequency of online streams slightly decrease and the number of online television decreases as well. Some evident effects are present for the use of internet at home, a positive effect for online TV, a relatively strong effect for online streams and a small negative effect on linear TV. The effects for internet at work are less strong, with a minor effect on online streams and a minor negative effect on linear TV, this could mean that the internet at work is not used to watch online streams frequently. Internet used elsewhere, has a positive correlation with online streams, implicating that online TV is not frequently watched elsewhere. The use of internet elsewhere has no relationship with linear TV. Respondents scoring high on the media imperative for internet - which is a composed variable based on several variables, some multicollinearity may occur - are watching more online TV, more online streams and slightly less linear TV. For the media imperative radio a small negative effect for online streams is present and a small positive for linear TV. The media imperative TV correlates relatively high with linear TV but this is certainly due to multicollinearity, thus this is not a reliable coefficient - but not

very informative as well. Respondents scoring high on the TV imperative are watching less online streams and less online TV. The imperative for daily prints has a negative correlation with online streams and a small positive correlation with linear TV. For weekly prints the effect on linear TV is somewhat stronger, maybe due to a more traditional nature of respondents. TV viewing on a device is a composed variable for watching online TV on a device other than TV (on a Smart TV/Connected TV internet may be received as well, this is not part of the variable). A positive effect is seen for online TV and online streams. The most important variables in this set seem to be about media behavior, like home internet, work internet and the imperatives, and reading and radio time. This implies that media behavior could be declared by other media behavior, as they seem related, in term of all determinants of online and linear tv behavior.

*Table 3.4 : Correlations Media behavior and television viewing**

	Online TV *(days/week)*		**Online streams** *(Never | Occasionally | Often)*		**Linear TV** *(days/week)*	
	r	p	r	p	r	p
Membership program guide	.	.	-0,129	0,000	0,081	0,000
Support membership HH	0,106	0,000	.	.	.	.
Reading time newspapers daily	.	.	-0,159	0,000	.	.
Listen radio (hrs/week)	-0,106	0,009	-0,088	0,000	0,092	0,000
Home internet (hrs/week)	0,174	0,000	0,287	0,000	-0,062	0,005
Work internet (hrs/week)	.	.	0,096	0,000	-0,071	0,001
Elsewhere internet (hrs/week)	.	.	0,146	0,000	.	.
Media imperative: internet	0,182	0,000	0,243	0,000	-0,062	0,003
Media imperative: radio	.	.	-0,087	0,000	0,076	0,000
Media imperative: tv	-0,103	0,011	-0,132	0,000	0,449	0,000
Media imperative: print daily	.	.	-0,191	0,000	0,063	0,000
Media imperative: print weekly	.	.	.	.	0,101	0,000
Tv viewing on a device	0,157	0,000	0,101	0,015	.	.

**) Code: No = 0; Yes = 1; Higher score on variable is coded with higher value*

In Table 3.5 correlations of variables regarding the world view of respondents with the dependent variables are presented. Respondents considering religion as an important element in life tend to use online streams somewhat less, while there is a in terms of significance dubious effect on online TV. There is no significant correlation coefficient with linear TV. The variables on scores on cultural, political and sports affinity are composed, by SKO, from a selection of other variables, such as museum visit, voting behavior and watching sports. Respondents scoring higher on cultural affinity tend to watch slightly less linear TV, respondents with affinity for politics watch less online streams and respondents scoring higher on affinity with sports watch more online TV. The effect for cultural affinity could be caused by the composition of the variables, as reading times is included, which reduces leisure time available for (linear) TV. People with interest in politics might not see their preference satisfied by online streams and thus watch some less online streams. Respondents scoring higher on affinity with sports might see some sport related online TV, but this, also could be an age based effect: possibly younger people watch more sports, this can possibly also applicable

for political affinity in reversed way, young people might be interested less in politics and more in online streams. The block of questions on importance of certain things all have a negative correlation coefficient with online streams, it is likely this is due to the age effect, but this is a hypothesis: youngster may evaluate scorings of the considered items lower compared to other age groups, while young people tend to use online streams more often. The items considered all together may be considered as a scale for political orientation, as some conservative items and more liberal political items are included. Therefore it is logical the effect of those importance marks in in line with the effect of the score of political affinity. Perhaps the items could be used to indicate some sort of cultural capital, as (some of) these might be related to education, but how they are related is arbitrary. The next block of statements is less ambiguous, the statements have different effects. People agreeing more with the statement that the Dutch society has excessive rules are watching less online streams and more linear TV. There is a correlation with respondents agreeing with the statement that luxury could be used for spoil and online streams, and also with the statement that luxury and comfort are important. This could be due to various reasons and it is hard to explain why this would be, without any further research on this topic. Respondents agreeing to the statement that they are environmental aware and the statement that they are ecological neutral are show similar patterns, a negative correlation with online TV and a negative correlation with online streams. This might be due to various reasons, of which age could be one, and further research should bring more clarity on these topics. People interested in stars and show news are slightly watching more linear TV, maybe because this kind of news is presented via linear TV, but also possible is that they are interested in news about people they see on TV. Respondents interested in (inter)national news are watching more TV and less online TV or streams, probably because news items are typically watched by linear TV, as this is not a genre that is popular to be watched online (SKO/WEBTV), but again an age effect could be possible as well. People interested in regional news having a negative correlation with all dependent variables. A positive correlation is present for an interest in movies and online streams. An interest in tv-series correlates with online streams and marginal with linear TV. An interest in games and quizzes correlates negative with online streams and positive with linear TV, perhaps because this is a traditional part of the linear programming. A small effect is found for interest in sports and linear TV, which implies that the image of a stereotypical man who is watching soccer any day of the week is not very dominant represented in the sample. An interest in programs about social relationships correlates with linear TV and negative with online streams. Art programs correlate negative with online TV and streams and marginal positive with linear TV, this is maybe not a genre that is suitable for internet. Respondents interested in talent shows have a positive correlation with online streams, likely due to an age effect. However some of the effects in this table are relatively strong, the items present are not likely to be used for explaining behavior, as the coherence is limited and the theoretical ground is unstable.

*Table 3.5 : Correlations world view and television viewing**

	Online TV *(days/week)*		**Online streams** *(Never | Occasionally | Often)*		**Linear TV** *(days/week)*	
	r	p	r	p	r	p
Importance religion	-0,081	0,048	-0,115	0,000	.	.
score culturele affinity	.	.	.	.	-0,057	0,003
score political affinity	.	.	-0,099	0,000	.	.
score sports affinity	0,101	0,012	.	.	.	.
Importance better world - mark	.	.	-0,143	0,000	.	.
Importance helpfulness - mark	.	.	-0,172	0,000	.	.
Importance law enforcement - mark	.	.	-0,179	0,000	0,118	0,000
Importance benevolent society - mark	.	.	-0,156	0,000	0,071	0,001
Importance crime fighting - mark	.	.	-0,160	0,000	0,114	0,000
Importance ideas instead of money - mark	.	.	-0,111	0,000	.	.
Statement: NL excess of rules	.	.	-0,109	0,000	0,097	0,000
St.: Spoil with luxury	.	.	0,163	0,000	.	.
St.: Luxury and comfort are important	0,096	0,017	0,204	0,000	.	.
St.: Environmental awareness	-0,101	0,013	-0,156	0,000	.	.
St.: Ecological neutrality	-0,112	0,006	-0,147	0,000	.	.
Stars and show news	.	.	.	.	0,068	0,001
Interested in (international)news	-0,120	0,003	-0,173	0,000	0,115	0,000
Interested in regional news	-0,133	0,001	-0,169	0,000	-0,144	0,000
Interested in movies	.	.	0,197	0,000	.	.
Interested in tv-series	.	.	0,162	0,000	0,055	0,008
Interested in games/quizzes	.	.	-0,057	0,014	0,101	0,000
Interested in sports	.	.	.	.	0,072	0,000
Int. in progr. about human relationships	.	.	-0,131	0,000	0,116	0,000
Interested in art related programs	-0,121	0,003	-0,166	0,000	0,079	0,000
Interested in talentshows	.	.	0,056	0,016	.	.

**) Code: No = 0; Yes = 1; Higher score on variable is coded with higher value*

In Table 3.6 correlations of different devices related to television and online and linear TV are presented. The availability of a personal computer in the household has a minor negative correlation with online streams, the number of pc's in the household has minor and less significant correlations with online streams and negative with linear TV. The effects for the availability and number of laptops in the household have some stronger

correlating effects on online streams and, negative, on linear TV. A possibility could be that young people more often posses laptops and this group is watching the linear programming less compared to other groups. On average people with the availability of a laptop are more than 10 years younger of age (42.72 years old) compared to those without a laptop (52.84 years), which is a significant difference (Levene (df = 1) = 15.975, p < 0.001; WELCH (df = 1) = 147.345, p < 0.001). Whenever one has availability of a mobile phone (without internet connection), smartphone, tablet, media player (such as iPod) or game console, online streams are watched more often. Reason could be that on these devices online streams can be watched, but also this can be some sort of proxy for modernity, if so, this could explain the negative correlations with linear TV. The number of TV's in use has a positive effect on both online streams and linear TV, the latter seems logical, the former can be a signal of modernity in the household. A small correlation is found with the availability of internet on tv and online streams. Also a small correlation is found between online streams and the number of HDTV set top boxes in the household, and, remarkable, a negative correlation with linear TV. The effects are too small to base conclusions, thus additional research is necessary to be able to explain this.

*Table 3.6 : Correlations devices versus television viewing**

	Online TV *(days/week)*		**Online streams** *(Never | Occasionally | Often)*		**Linear TV** *(days/week)*	
	r	p	r	p	r	p
Availability PC	.	.	-0,076	0,001	.	.
Number of PC's in HH	.	.	0,052	0,025	-0,044	0,022
Availability laptop	.	.	0,152	0,000	-0,089	0,000
Number of laptop's in HH	.	.	0,223	0,000	-0,132	0,000
Availability mobile phone	-0,131	0,001	-0,213	0,000	0,053	0,000
Availability smartphone	0,116	0,004	0,331	0,000	-0,121	0,000
Availability tablets	.	.	0,106	0,000	.	.
Number of tablets in HH	0,143	0,000	0,155	0,000	.	.
Availability media player	.	.	0,268	0,000	-0,064	0,002
Availability mediacentre	.	.	0,106	0,000	.	.
Availability game console	.	.	0,284	0,000	.	.
Number of TV's in use	.	.	0,123	0,000	0,079	0,000
Internet on TV	.	.	0,094	0,000	.	.
Number of HDTV set top boxes HH	.	.	0,075	0,001	-0,062	0,001

**) Code: No = 0; Yes = 1; Higher score on variable is coded with higher value*

The last set of correlations in in Table 3.7, on the use of devices and television viewing, those relations are a bit spurious, but are presented anyway to be as complete as possible. People using devices other than a TV to watch missed broadcasts are not especially watching more online or linear TV, as they have no significant correlations with any (as this may be informative, this specific item was the only included item with no significant coefficient in this set of tables). Respondents watching programs broadcasted online and linear at

the same time are having a positive correlation with online TV, a nearly insignificant coefficient for online streams and a positive correlation with linear TV, this may imply that these people are frequent media users. Respondents using devices to watch online only content are more watching online TV and streams, which not as spurious as it seems, it explains a certain kind of online TV and streams. The coefficient of people who watching other broadcasts with online streams is less significant and having a minor effect. People who are more frequently using their tablet while watching television are positively correlated with online TV, online streams and a small correlation with linear TV, this can be some sort of proxy for modernity again. This set of correlations is useable for descriptive purposes, but will not be used for further analysis and segmentation, as the effects are not major, and possibly spurious.

*Table 3.7 : Correlations use of devices with television viewing**

	Online TV *(days/week)*		**Online streams** *(Never | Occasionally | Often)*		**Linear TV** *(days/week)*	
	r	p	r	p	r	p
Use devices (other than TV) to watch…						
... missed broadcasts	.	.	.	.	.	.
... broadcasts live both online and TV	0,174	0,000	0,085	0,050	0,117	0,004
... broadcasts online only	0,137	0,001	0,157	0,000	.	.
... other broadcasts	.	.	0,095	0,027	.	.
Frequency tablet use while watching TV.	0,136	0,015	0,185	0,000	0,095	0,009

**) Code: No = 0; Yes = 1; Higher score on variable is coded with higher value*

Now these correlations are reviewed, a better image of the available survey data. This exploration of data will be used as input for further analysis.

3.4 Conclusion

In this chapter the available data is described and explored with correlation matrices. This provides a first overview of relations with online TV, online streams and linear TV. Numerous effects are tested, resulting in a ambiguous image, of which it is unclear what are the most important elements for a explanation of behavior. Based on the correlation coefficients found, different kinds of relations could be present. Besides, correlations are not suitable for the statement of causality, so further analysis would be necessary. To reduce the number of underlying dimensions usually explorative factor analysis is used, but the data is not perfectly suitable for factor analysis: the proportion of binary and nominal variables is substantial. A decent factor analysis would require normally distributed variables (Field, 2005). It must be said that the data is not perfectly suitable for correlation either, but here the correlation coefficients are used just to explore the possible relationships, and no direct conclusions are drawn upon the correlations. In the next chapter the causality of possible relationships is tested, to be able to explain viewing behavior.

4. Analysis

In this chapter multiple regression will be used in order to find out whether the correlating variables with dependent variables online and linear television can be used to explain online and linear television. Subsequently two times a cluster analysis will be conducted: one time on the limited amount of variables from the WEBTV/STIR data, and one time on a theoretical selection of variables. The chapter will conclude with a comparison between realized online and linear television viewing behavior.

4.1 Multiple regression of linear and online TV

Because correlations are just an indication of relationships and imply no causality, a multiple regression will bring meaningful insight in the relation between indicators and dependent variables. Because based on the correlations an idea is already shaped about items that might be related, here is chosen for a stepwise regression with variables as input who have a significant correlation coefficient, from the correlation table in Appendix B, for the dependent variables Online TV and Linear TV. The variable Online streams was included in the correlation tables for comparison purposes, but is not direct related to the research topic and is thus left out in the regression analysis. When interpreting the figures it is important to consider that quite some variables are measured on a binary scale, and the effects may look limited.

In Table 4.1 the results of the analysis are presented for the dependent variable Online TV, on the left hand side the variable name, in the second column the variable label, then the regression coefficient in the middle, the significance level of that coefficient and the variance influence factor (VIF) as indicator for possible multicollinearity. With respect to the VIF multicollinearity is not a problematic issue in the table, but when interpreting the related variables they seem to be problematic. An reason the think so is the high value of the explained variance of the model, 76.2 percent, with such a level may endogeneity be an issue especially in a complex domain in social sciences. In fact, all independent variables except for *rcdem395* (Paid work, now or in the past) and *dem308* (TV viewing, hours/week) are problematic, as they all are directly related to online TV, they are all examples of ways to watch online television. Therefore a reiteration is necessary without those problematic variables (RC2310 - RC2314, DEM2304, DEM2306, DEM2307, DEM2317, DEM2318 and DEVRC) and still included all the other significant correlation coefficient items.

Table 4.1 : Multiple regression coefficients for dependent variable Online TV (RC002)

Adj. R^2 : 0.762

Model # 11		β	P	VIF
	Intercept	0.247		
RC2311	Freq. TV viewing by laptop/netbook	0.474	0.000	1.090
RC2310	Freq. TV viewing by PC/Desktop	0.439	0.000	1.043
RC2313	Freq. TV viewing by tablet	0.349	0.000	1.050
RC2312	Freq. TV viewing by smartphone	0.245	0.000	1.055
DEM2304	TV viewing by desktop/pc	-0.148	0.000	1.080
DEM2306	TV viewing by smartphone	0.069	0.000	1.076
RC2314	Freq. TV viewing by media player	0.069	0.000	1.016
DEVRC	Recode of TV viewing on any device	0.051	0.000	1.071
RCDEM395	Paid work, now or in the past	-0.035	0.000	1.029
DEM2307	TV viewing by tablet	0.029	0.003	1.094
DEM308	TV viewing, hours/week	-0.024	0.012	1.027

When reiterating the analysis without the suspected multicollinear items a more compact model emerges. In Table 4.2 the coefficients for the reduced model are presented. The VIF indicators are still acceptable. The explained variance of the model is with 2.4 percent very low, but probably more realistic. One should keep in mind that 611 respondents out of 2760 respondents indicate they use online television, and to explain behavior for this specific group will not be a straightforward issue. Significant regression coefficients are available for the age block 13 till 19 year olds, and for the number of hours internet use at home. The impact of the effects is limited, the regression coefficient of 0.127 for 13-19 year olds indicates an relationship, but not a very strong one. The effect for internet use at home is even more limited with a coefficient of 0.094 is a weak relationship between internet use and online TV present. These numbers may not be exciting in terms of explained variance and effect sizes, but they do indicate well that the number of days weekly spent on Online TV depends on numerous things, and that a small part of that behavior can be explained by age and internet use.

Table 4.2 : Multiple regression coefficients for dependent variable Online TV (RC002), reiteration

Adj. R^2 : 0.024

Model # 2		β	P	VIF
	Intercept	3.201		
AG1319	13 till 19 year old	0.127	0.000	1.016
DEM592	Internet at home, hours/week	0.094	0.000	1.016

For the dependent variable Linear TV multiple regression was performed in the same way, the results are presented in Table 4.3. Looking at the VIF as indicator for multicollinearity the media imperative TV (DEM707) and TV viewing (DEM308) could be considered to be more problematic. On rational basis this makes sense as well, as the items are highly related. Therefore a reiteration was performed with those two items left out.

Table 4.3 : Multiple regression coefficients for dependent variable Linear TV (DEM307)

Adj. R2 : 0.257

Model # 8		β	P	VIF
	Intercept	0.157		
Dem707	Media Imperative: TV	0.355	0.000	2.604
RCDEM11X	HH Cycle	0.085	0.000	1.230
DEM2037	Sell/buy products by PC, mobile or tablet	0.095	0.000	1.126
RCKOOP	Owner occupier	0.114	0.000	1.161
DEM308	TV viewing, hours/week	0.161	0.000	2.628
DEM1796	Number HDrecorders built in TV	-0.071	0.000	1.008
DEM957	Pers. in HH of 20-24 years of age	-0.068	0.000	1.035
DEM1941	Interested in (inter)national news	0.060	0.000	1.030

Results of the new analysis are presented in Table 4.4. The explained variance of the model is 11.4 percent, which is not high again, however we see some interesting effects in relationships. The variable viewing time of shopper might be somewhat multicollinear with linear TV, as both dependent and independent in this case measure viewing time. But the characteristic shopper is an function in the household, and thus in this case this implies that being a shopper increases the viewing time by a regression coefficient of 0.209. When the number of persons living in the household in the age group 20-24 is higher, the number of days in the week spent on television viewing decrease, with the coefficient -0.112. Respondents with a rental residence (instead of a Owner occupier), watch less linear TV, indicated by the coefficient of -0.111. Respondents interested in news watch a bit more linear TV, with a regression coefficient of 0.094, compared to those not interested in news. Education has a negative influence on the time spent on linear TV, by a coefficient of

-0.117, this is also reflected in the next item: respondents who are in vocationally education watch less linear TV, can be concluded based on the beta of -0.109. This is thus implying that lower educated watch television more often. The number of TV devices at home has a positive influence on the viewing time but with a small effect of 0.096. There is a negative effect of the increase of number of HDrecorders built in the TV with -0.081, which could be explained by the availability of recording TV programs might increase the possibility to deviate from the linear programming.

Table 4.4 : Multiple regression coefficients for dependent variable Linear TV (DEM307), reiterate

Adj. R2 : 0.114

Model # 8		β	P	VIF
	Intercept	0.163		
DEM25	Viewing time shopper	0.209	0.000	1.130
DEM957	Pers. in HH of 20-24 years of age	-0.112	0.000	1.076
RCHUUR	Rental residence	-0.111	0.000	1.097
DEM1941	Interested in (inter)national news	0.094	0.000	1.132
DEM399	Education resp. (completed)	-0.117	0.000	1.185
RCDEM400	Vocationally education/training	-0.109	0.000	1.287
DEM42	Number TV devices in use at home	0.096	0.000	1.090
DEM1796	Number HDrecorders built in TV	-0.081	0.000	1.008

With the multiple regression the number of indicators for behavior in Online TV and Linear TV is reduced to a smaller selection, but with limited explaining power. This implies that behavior depends on a complex composition of characteristics, and it is hard to simplify this in a model. A first conclusion could be drawn, online behavior is determined - for a small part - by age and and internet usage, while linear behavior is determined by more sociological concepts. In order to be able to gather more information from the data in the next section a different kind of analysis will be performed.

4.2 Cluster analysis basis on STIR variables

To be able to get to know who the online viewers are, cluster analysis is suitable to provide a clear overview on different kinds of viewers. By doing so the whole set of respondents is clustered in groups that are homogeneous and heterogeneous between other groups. Ward's method is a safe choice (Field, 2005) as this minimized within group variance, more specifically the within group pooled sum of squares and cases are assigned to a cluster based on the average distance within the cluster (Punj, 1983). Cluster analysis is originally built for variables on interval scale, but in the data used some variables are measured on binary scale (see also Table 3.1), this should kept in mind when interpreting the results of the analysis. The data used in this analysis is from the panel survey, but the variables are selected that are available in the WEBTV/ STIR dataset, such that profiles resulting from the analysis could be used to interpret WEBTV data, in which the available respondent characteristics are limited. The variables used as input for the cluster analysis are:

Shopper, age of respondent, gender, social class, television use and *internet use.* This is according to the available variables in the STIR panel, so direct comparisons should be possible.

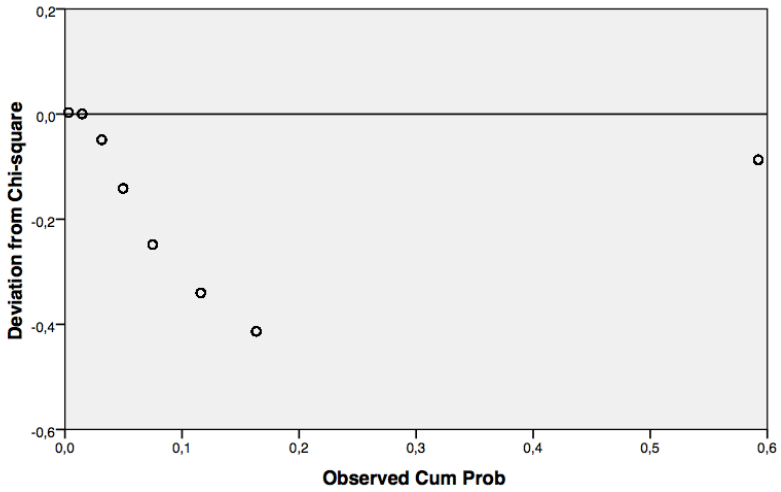


Figure 4.1 Distribution of linear viewing

To test whether a segmentation will be useful, first it will be tested of the distributions of the variables, online and linear television viewing, are heterogeneous - or at least not homogeneous (Kamakura, 1996). In Figure 4.1 the chi-square distribution of linear television viewing is plotted. There is some deviation from the chi-square value (mean of zero), and thus some heterogeneity could be present for the dependent variable linear television viewing.

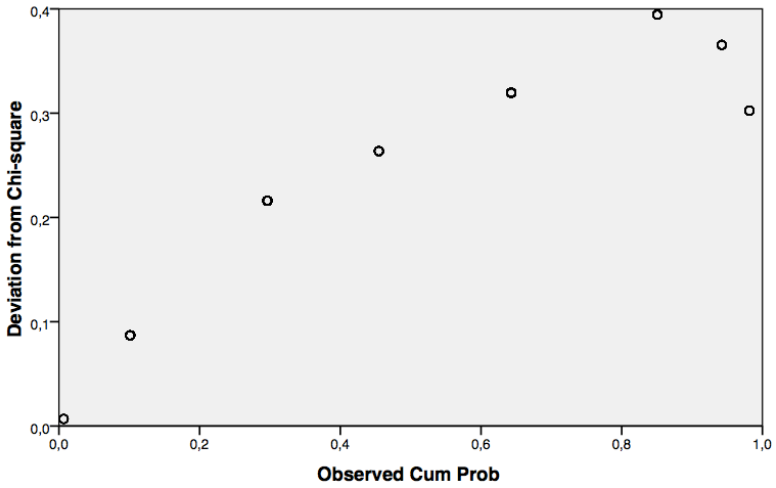


Figure 4.2 Distribution of online viewing

In Figure 4.2 the same is being done for the dependent variable online viewing. Here also are deviations from the chi square distribution visible. Therefore a segmentation could be useful in order to be able to explain behavior of respondents on the dependent variables. Thus a cluster analysis will be performed to identify homogeneous groups of respondents.

Table 4.5 : Cluster membership for various numbers of clusters (STIR variables)

	1	2	3	4	5	6	7	8
n	387	650	833	414				
%	16.9%	28.5%	36.5%	18.1%				
n	387	650	528	305	414			
%	16.9%	28.5%	23.1%	13.4%	18.1%			
n	387	307	528	305	414	343		
%	16.9%	13.4%	23.1%	13.4%	18.1%	15.0%		
n	387	307	528	305	207	343	207	
%	16.9%	13.4%	23.1%	13.4%	9.1%	15.0%	9.1%	
n	387	307	208	305	207	343	320	207
%	16.9%	13.4%	9.1%	13.4%	9.1%	15.0%	14.0%	9.1%

To determine the right number of clusters in a transparent manner, in Table 4.5 the cluster sizes for different solutions are presented. In the first solution, with four clusters, the number of cases in the third cluster is high, and this cluster is splitting when going to five clusters. In the five cluster solution the second cluster is overrepresented, this is solved in the six cluster solution, where the groups are between 13.4 percent and 23.1 percent in size. In the seven cluster solution cluster number five is splitting, which is not desirable, as this is not the largest cluster, and the gap between the largest cluster and the second largest cluster increases, and a cluster is formed with less than 10 percent of the cases. So the solution with six clusters seems to be the best available solution, the large second cluster had been split, and all clusters are of considerable size. The selection of the number of clusters can be arbitrary, therefore the cluster-base scores of the four and six cluster solutions are both presented, respectively in Table 4.6 and 4.7. Especially regarding the age groups, the four cluster solution is not as distinctive as the six cluster solution, to a lesser extent this also accounts for the internet and tv use. Therefore here the analysis continues with six clusters.

Table 4.6 : Scores of cluster-base variables, for four clusters

	1	2	3	4	χ^2	p
Shopper 20-49 %	100%	0.0%	100%	0%	2284.000	*0,000*
13-19 years %	0.0%	19.4%	0.0%	28.0%	330.272	*0,000*
20-34 years %	12.4%	18.5%	20.6%	19.1%	12.228	*0,007*
35 - 64 years %	68.7%	47.7%	60.4%	43.2%	76.440	*0,000*
65+ years %	18.9%	14.5%	19.0%	9.7%	21.358	*0,000*
Male %	0.0%	75.4%	36.6%	75.4%	719.289	*0,000*
Female %	100%	24.6%	63.4%	24.6%		
High social class	0.0%	100%	84.5%	0.0%	1832.344	*0,000*
Low social class	100%	0.0%	15.5%	100%		
TV use low %	17.1%	38.5%	29.4%	27.1%	96.984	*0,000*
TV use medium %	20.2%	28.8%	25.2%	23.2%		
TV use high %	62.8%	32.8%	45.4%	49.8%		
Internet use low %	58.4%	40.8%	47.1%	42.0%	43.662	*0,000*
Internet use medium %	28.2%	35.5%	34.9%	32.4%		
Internet use high %	13.4%	23.7%	18.0%	25.6%		

In Table 4.7 the scores of the cluster base variables are presented, to give an indication how the cluster analysis had performed, and how the clusters look like. The differences can be assumed to be significant different, as the cluster analysis already worked, but a chi square test is performed to be sure that groups are different. If the cluster analysis might have lead to dubious differences, for example because of the measurement scale of the data, the chi square test can possibly provide clarity. For all variables included in the cluster analysis the chi square is significant at $p < 0.001$, indicating that all variables have differences between groups - here should be noted that the chi square test has the feature to become significant when two groups show large differences, such as at the first row.

Table 4.7 : Scores of cluster-base variables, for six clusters

	1	2	3	4	5	6	χ^2	p
Shopper 20-49 %	100%	0.0%	100%	100%	0.0%	0.0%	2284.000	*0,000*
13-19 years %	0.0%	41.0%	0.0%	0.0%	28.0%	0.0%	618.346	*0,000*
20-34 years %	12.4%	39.1%	20.6%	20.7%	19.1%	0.0%	177.463	*0,000*
35 - 64 years %	68.7%	16.9%	61.2%	59.0%	43.2%	75.2%	299.202	*0,000*
65+ years %	18.9%	2.9%	18.2%	20.3%	9.7%	24.8%	79.623	*0,000*
Male %	0.0%	47.9%	0.0%	100%	75.4%	100.0%	1669.495	*0,000*
Female %	100%	52.1%	100%	0.0%	24.6%	0.0%		
High social class	0.0%	100%	100%	57.7%	0.0%	100%	1975.615	*0,000*
Low social class	100%	0.0%	0.0%	42.3%	100%	0.0%		
TV use low %	17.1%	45.3%	32.2%	24.6%	27.1%	32.4%	120.705	*0,000*
TV use medium %	20.2%	27.7%	26.5%	23.0%	23.2%	29.7%		
TV use high %	62.8%	27.0%	41.3%	52.5%	49.8%	37.9%		
Internet use low %	58.4%	35.8%	51.7%	39.0%	42.0%	45.2%	94.699	*0,000*
Internet use medium %	28.2%	37.1%	37.3%	30.8%	32.4%	34.1%		
Internet use high %	13.4%	27.0%	11.0%	30.2%	25.6%	20.7%		

The scores of the cluster-base variables can be used to profile the clusters, and describe the clusters as groups of respondents. This is useful for interpretation of the analysis, and also for a comparison with linear viewers, in the next section. First the profiles are described, with a profile the interpretation of common characteristics of a cluster is meant.

Cluster 1 : *Lower class females*

This group consists of shoppers, and are all female. The majority of the women in this cluster are between 35 and 64 years of age, also a proportion is older than 65 and a small part is between 20 and 34 years old, and are in lower social classes. Quite intensive television users (medium + high = 83 percent), and relatively low internet users (medium + low = 86.6 percent).

Cluster 2 : *Students*

No shoppers in this group, and the ratio male versus female is most equally spread compared to other clusters. The majority in this group is between 13-19 years old, and a similar proportion is between 20 and 34 years of age: this is the youngest cluster. People in the cluster are from the higher social classes. Quite low television users (medium + low = 73 percent), with the lowest proportion of low users, but medium to high internet users (medium + high = 64.1 percent).

Cluster 3 : *Higher class females*

This group consists of shoppers, all female. The majority of women in this cluster is between 35 and 64 year old, but the younger group of 20-34 years of age is larger compared the the first cluster. People are

from higher social classes. Moderate television users (medium + high = 67.8 percent), which is lower compared to the *lower class housewives.* People in this group are relatively low internet users (medium + low = 89 percent).

Cluster 4 : *TV watching men*
This group consists of all shoppers, all males. The vast majority of men in this cluster is between 35 and 64 years of age, with the remaining proportion equally shared between 20-34 year old and elderly of 65 and older. The men are spread between different classes with a slightly larger proportion of higher classes. This group are relatively intensive television users (medium + high = 75.5 percent), and considerable internet users (medium + high = 61 percent), with the highest group high internet users.

Cluster 5 : *Joe and Jane Sixpack (and his family)*
This group consists of no shoppers, people are from all age groups, with a majority in the group 35-64 year olds, and a considerable proportion of 13-19 year olds. The vast majority is male, but 24.6 percent is also female. These people are from lower social classes, and are relatively intense television users (medium + high = 73 percent). Internet is relatively low used (medium + low = 74.4 percent).

Cluster 6 : *Traditional media men*
This group consists of no shoppers, and the vast majority is in the age group 35-64, the rest is older than 65, these people are all male. People are from higher social classes and are traditional media users. Television is used quite high (medium + high = 67.6 percent) and internet low (medium + low = 79.3 percent).

The based on WEBTV selected variables are suitable to do cluster analysis, and the outcomes are useable but not very informative, let alone explain behavior. Therefore this analysis will be performed again with a wider selection of input variables for the cluster analysis.

4.3 Cluster analysis based on theoretically selected variables

To conduct the analysis the same method is used as in the previous section. Doing a(n) (exploratory) factor analysis is not feasible due to the relative high number of binary coded variables. Thus theoretical constructs are to be used as basis for the segmentation. The input for the cluster analysis will be variables that could cause discrimination on a theoretical base, as a base Bourdieu's economic and cultural capital will be used, as this can be a solid base for consumption segmentation (Trigg, 2001). This makes sense as well, as cultural and economic capital can influence consumption behavior in leisure (Roberts, 2006). In this research economic capital will be measured with net monthly income and cultural capital will be measured with highest completed education.

The leisure time is calculated with the time spent on work and housework, subtracted from the total number of hours in a week. So 168 minus X minus Y is leisure time. This is off course a proxy for leisure time, as numbers on personal time etc. are not available in the data. For comparisons between respondents in this dataset this will be a useful number for being able to compare free time. The number is not however feasible to use for generalizations to a broader populations.

As the input for the cluster analysis is supposed to be broader and covering more dimensions of consumer characteristics that could be related to viewing behavior, the number of variables used as input is larger. Below all variables used for the analysis are given.

> *Education respondent (completed)*, *Net monthly income, Work (hours/week), Unemployed last year*, *Housework (hours/week), Social class*, *Political and cultural affinity, Rental residence/owner occupier*, *Dual earner HH, Number of laptops/pc's/tablets*, *Channel preference*, *Shopper.*

Respondent characteristics like age and gender are not used as input variables for the cluster analysis, because (especially) gender seems to have a dominant influence in the WEBTV profiles. So by not clustering on gender, the variance of this variable is not included and thus can not have an important influence on the segmentation, and this is desirable as we are interested in behavior rather than just characteristics. Gender will be seen an important element in the profiling anyway, because behavior seems to be related to gender. The same accounts for age. These demographic variables are traditionally important determinants in media behavior (SKO, 2012), so it would be interesting to see whether in this analysis those demographics are important determinants as well. The analysis is conducted in the same manner as for the WEBTV selection of variables, using Ward's method to cluster on squared euclidean distance on standardized case scores. This is method is chosen for gaining the most robustness. Several iteration of the cluster analysis were conducted in order to be sure that the randomized input of cases did not lead to skewed results. Because of the high number of cases, the dendrogram is too large to include in this paper, but obviously the dendrogram is kept aside when determining the right number of clusters from the several solutions. Solutions of four to nine clusters are presented in Table 4.8, in order to be able to transparently determine the number of clusters.

Table 4.8 : Cluster membership at various numbers of clusters (selection of variables)

	1	2	3	4	5	6	7	8	9
n	616	710	136	163					
%	37.9%	43.7%	8.4%	10.0%					
n	408	710	208	136	163				
%	25.1%	43.7%	12.8%	8.4%	10.0%				
n	408	409	208	136	301	163			
%	25.1%	25.2%	12.8%	8.4%	18.5%	10.0%			
n	170	409	208	136	238	301	163		
%	10.5%	25.2%	12.8%	8.4%	14.6%	18.5%	10.0%		
n	170	409	208	136	238	152	163	149	
%	10.5%	25.2%	12.8%	8.4%	14.6%	9.4%	10.0%	9.2%	
n	170	409	208	136	138	152	163	149	100
%	10.5%	25.2%	12.8%	8.4%	8.5%	9.4%	10.0%	9.2%	6.2%

The four cluster solution has large differences between the first two and the last two clusters, it would be nice is clusters one and two are splitting in solutions with more clusters. In the five cluster solution the first cluster split indeed, and the extra cluster is of comparable size of the smallest two, therefore this solution is better than the four cluster solution. In the six cluster solution the largest cluster, number two, is separated, in two considerable sized clusters, this solution is therefore better than the five cluster solution. In the seven cluster solution the first cluster is divided in two moderately sized clusters, therefore this solution seems better than the six cluster solution. In the eight cluster solution cluster number six has split, in two relatively smaller clusters, this is not desirable. In the nine cluster solution this happens again. Therefore the seven cluster solution is assumed to be the best in terms of cluster sizes, to built profiles on. This is supported by the agglomerations in the dendrogram as well.

In Table 4.9 scores of the cluster base variables are presented, and their appropriate tests for statistical significant differences - which are conducted again to be sure to be able to make statements about intergroup comparisons, the chi square tests are reported in the two right hand side columns, and the ANOVA, when appropriate, are reported below the table. For all groups the tests indicate that group means are different, expect for the number of hours work in a week, which has no significant differences between group means at $p < 0.05$. Thus this variable should not be used to indicate differences between clusters. However for reasons of profile description the variable could be used, when just describing the results without conclusions on differences this is sensible, as the number of hours worked can give relevant information on the profiles.

Table 4.9 : Scores of cluster-base variables

	1	2	3	4	5	6	7	χ^2	p
Shopper 20-49	92.4%	32.3%	61.5%	58.1%	22.3%	80.1%	79.8%	406.462	*0.000*
Education resp. completed								649.607	*0.000*
Lower education	14.1%	0.2%	10.6%	8.8%	8.0%	1.0%	2.5%		
Lower vocational education	29.4%	1.0%	7.2%	9.6%	36.6%	3.3%	2.5%		
Secondary education	20.0%	4.6%	14.4%	8.8%	14.7%	5.6%	6.1%		
Secondary vocational education	30.6%	26.2%	33.7%	30.1%	29.8%	19.6%	30.1%		
Higher education and pre-university education	4.1%	11.7%	14.4%	16.2%	3.8%	16.6%	11.7%		
Higher vocational education and academic education	1.8%	35.5%	16.8%	19.1%	5.5%	31.9%	34.4%		
Scientific research / doctorate	-	20.8%	2.9%	7.4%	1.7%	21.9%	12.0%		
Cultural affinity	7.78	9.27	6.73	8.00	6.61	9.91	7.80		
Political affinity	1.47	2.32	1.24	1.73	1.52	2.16	1.48		
Work respondent hours/week [3]	30.37	39.76	18.79	32.33	38.12	29.08	33.15		
Net monthly income								318.346	*0.000*
<1500	44.9%	4.0%	10.9%	22.1%	16.9%	9.2%	27.3%		
1501 - 2500	31.1%	22.1%	21.9%	36.8%	39.8%	25.2%	38.5%		
2501 - 3500	16.2%	33.8%	37.3%	25.7%	30.1%	26.9%	23.6%		
3501 - 4500	6.6%	25.1%	20.9%	11.0%	11.9%	25.5%	9.3%		
>4501	1.2%	14.9%	9.0%	4.4%	1.3%	13.3%	1.2%		
Rental residence	60.0%	20.3%	16.3%	47.8%	31.9%	21.9%	49.1%	163.747	*0.000*
Owner occupier	40.0%	79.7%	83.7%	52.2%	68.1%	78.1%	50.9%	163.747	*0.000*
Social class								716.130	*0.000*
A	1.2%	38.9%	14.4%	12.5%	3.4%	38.5%	20.9%		
B-upper	9.4%	47.9%	39.9%	39.0%	18.5%	49.2%	39.9%		
B-lower	20.6%	9.8%	25.5%	21.3%	21.4%	11.6%	23.3%		
C	60.6%	3.4%	19.7%	26.5%	52.5%	0.7%	16.0%		
D	8.2%	-	0.5%	0.7%	4.2%	-	-		
Dual earners	46.5%	65.0%	60.1%	45.6%	66.0%	68.1%	41.7%	62.697	*0.000*
Unemployed last year (months)	0.29	0.17	0.14	0.43	0.23	0.10	0.33		
Housework, hours/week	13.79	7.30	11.34	9.43	6.84	12.07	7.20		
Number PC's home	0.92	1.18	1.16	1.08	1.01	1.16	0.77		

	1	2	3	4	5	6	7	χ^2	p
Number laptops home	0.75	1.33	1.81	1.20	1.12	1.36	1.24		
Number tablets home	0.36	0.66	0.85	0.53	0.57	0.57	0.39		
Channel preference (top 3)								510.115	*0.000*
NL1	38.8%	51.3%	17.9%	30.7%	30.0%	48.1%	18.5%		
RTL4	33.1%	8.4%	38.5%	22.0%	24.3%	12.9%	22.3%		
NL3	2.5%	12.9%	6.2%	5.5%	5.7%	13.9%	11.5%		

[1] Levene [df = 6] = 16.449, p = 0.000 | WELCH [df = 6] = 110.619 , p = 0.000
[2] Levene [df = 6] = 16.993, p = 0.000 | WELCH [df = 6] = 132.054 , p = 0.000
[3] Levene [df = 6] = 5.107, p = 0.000 | WELCH [df = 6] = 1.217, p = 0.297
[4] Levene [df = 6] = 16.403, p = 0.000 | WELCH [df = 6] = 127.563, p = 0.000
[5] Levene [df = 6] = 22.294, p = 0.000 | WELCH [df = 6] = 33.091, p = 0.000
[6] Levene [df = 6] = 2.717, p = 0.013 | WELCH [df = 6] = 5.440, p = 0.000
[7] Levene [df = 6] = 8.544, p = 0.000 | WELCH [df = 6] = 21.435, p = 0.000
[8] Levene [df = 6] = 4.745, p = 0.000 | WELCH [df = 6] = 9.265, p = 0.000

In Table 4.10 more related variables are presented to interpret the clusters into profiles. As these variables where no part of the input for the cluster analysis, the tests for significant differences with chi square and ANOVA are more important here. All variables have significant differences, at $p < 0.05$, between group means, except for online TV viewing, of which the chi square only is significant at $p < 0.10$. This can be seen at the distribution of the variable as well, which is not as discriminative as others, but the variable outcomes across the clusters are usable for profiling, though. The reason that these variables are not included in the cluster analysis is for finding different cluster solutions to on the WEBTV selected data, thus the media imperatives, age and gender should not be included. TV viewing and online TV viewing are the dependent variables, thus it was not feasible to use these to discriminate groups, we are interested in an explanation for these variables, not a segmentation based on these. Urbanity was included to find possible regional effects between the clusters. The overall mean of the sample of television is 19.11 hours a week, cluster 1 and 5 are above this average, the rest is below.

Table 4.10 : Clusters versus media related behavior and general characteristics

	1	2	3	4	5	6	7	χ^2	p
Media imperative: TV								99.071	*0.000*
Low	12.4%	30.3%	40.6%	28.7%	18.9%	34.9%	32.5%		
Medium	16.5%	31.1%	25.1%	25.7%	21.0%	24.3%	27.0%		
High	71.2%	38.6%	34.3%	45.6%	60.1%	40.9%	40.5%		
Media imperative: Internet								72.500	*0.000*
Low	64.2%	40.4%	39.8%	50.0%	46.5%	52.9%	30.9%		
Medium	24.5%	35.7%	43.7%	29.1%	32.2%	37.6%	42.6%		
High	11.3%	23.8%	16.5%	20.9%	21.3%	9.5%	26.5%		
TV viewing, hours/week	29.46	17.88	15.87	20.88	23.69	18.01	17.41		
Streaming video								385.360	*0.000*
Often	6.6%	41.1%	22.9%	42.9%	63.2%	9.2%	30.0%		
Now and then	42.7%	45.5%	47.6%	47.0%	29.2%	47.3%	47.8%		
Never	50.7%	13.4%	29.5%	29.5%	7.5%	43.5%	22.2%		
Online TV viewing								11.144	*0.084*
<1 time per week	66.7%	51.5%	43.5%	42.4%	54.2%	63.3%	60.0%		
≧1 time per week	33.3%	48.6%	56.5%	57.6%	45.8%	36.7%	40.0%		
Television on desktop	40.2%	22.1%	39.0%	28.8%	21.1%	38.5%	43.8%	19.543	*0.003*
Television on laptop	36.4%	56.6%	49.5%	50.0%	66.7%	41.7%	55.0%	21.435	*0.002*
Television on smartphone	5.3%	38.1%	18.1%	23.1%	26.3%	16.7%	17.5%	44.035	*0.000*
Male	4.7%	99.5%	14.4%	47.8%	100.0%	5.0%	46.0%	1490.872	*0.000*
Female	95.3%	0.5%	85.6%	52.2%	-	95.0%	54.0%		
Urbanity	3.27	3.22	2.98	3.93	3.00	3.31	3.64		
Age	59.88	52.28	32.84	42.72	51.25	51.34	30.25		

[1] Levene [df = 6] 19.647, p = 0.000 | WELCH [df = 6] = 19.908, p = 0.000

[2] Levene [df = 6] = 2.396, p = 0.026 | WELCH [df = 6] = 13.289, p = 0.000

[3] Levene [df = 6] = 26.925, p = 0.000 | WELCH [df = 6] = 305.947, p = 0.000

In Table 4.11 average marks, measured on a scale of 1 to 10, are given for social opinions are presented. The average marks between clusters are all significant different at $p < 0.05$, which means that clusters differ from each other. All scores are relatively high, which can be explained by the absence of a trade-off, thus there is no incentive to limited the amount of perceived importance, and there could be a social desirable answer pattern on top (for example the importance of helpfulness could be biased by that). The scores could be informative for secondary explanations when profiling, but are no key part for the segmentation, as the

relation to television viewing is less apparent, but when applicable the marks could give information on the kind of people in a cluster.

*Table 4.11 : Marks for importance of societal elements**

	1	2	3	4	5	6	7	L	p	F/Welch	p
Importance better world	8.44	8.15	8.05	8.65	8.01	8.52	7.79	3.201	*0.004*	*12.876*	*0.000*
Importance helpfulness	8.52	8.14	8.25	8.65	8.21	8.43	8.00	7.266	*0.000*	*603.266*	*0.000*
Importance law enforcement	8.52	7.94	8.05	8.47	8.39	7.89	7.60	1.879	*0.081*	*13.504*	*0.000*
Importance benevolent society	8.56	8.14	8.13	8.39	8.31	8.47	7.87	3.192	*0.004*	*604.687*	*0.000*
Importance crime fighting	8.90	8.17	8.21	8.60	8.69	8.16	7.86	1.632	*0.135*	*15.391*	*0.000*
Importance ideas instead of money	8.08	7.60	7.44	7.83	7.62	7.78	7.23	2.236	*0.037*	*611.130*	*0.000*

*) Welch is used to test for significant differences in group means when Levene's test was significant, when Levene's test was insignificant (at α = 0.05) ANOVA was used, [df = 6] in each test.

In Table 4.12 average responses to statements are presented. The means scores are statistically different across the clusters, at $p < 0.05$. The statements should be used in addition to the marks from the previous table, in order to enrich the profiles, not to define them, because the statements are unrelated to television viewing behavior and again no trade off was to be made, ergo everyone could mark all statements as equally important.

*Table 4.12 : Statements/ four point scale: 1 Totally disagree - 4 Totally agree **

	1	2	3	4	5	6	7	L	p	F/Welch	p
Excessive rules in the Netherlands	3.36	3.22	2.99	3.04	3.47	3.10	2.99	1.088	*0.368*	*10.577*	*0.000*
Spoil with luxury	2.67	2.58	2.86	3.00	2.26	2.72	2.93	3.023	*0.006*	*15.613*	*0.000*
Luxury and comfort are important	2.26	2.49	2.66	2.63	2.25	2.47	2.59	1.036	*0.400*	*7.463*	*0.000*
Environmental aware	3.23	3.13	2.79	2.93	3.34	2.82	3.06	0.621	*0.714*	*16.503*	*0.000*
Ecological neutrality	3.12	3.06	2.58	2.83	2.84	3.27	2.65	2.835	*0.010*	*24.585*	*0.000*

*) Welch is used to test for significant differences in group means when Levene's test was significant, when Levene's test was insignificant (at α = 0.05) ANOVA was used, [df = 6] in each test.

The cluster analysis succeeded to supply seven distinctive clusters, which are able to be described more informative compared to the selection of variables that is present in the WEBTV data. Thus in order to profile the clusters the analysis based on theoretical selected variables is better suited and more discriminative segments are developed.

4.4 Viewer profiles

Based on the information presented in the previous section, here the results will be interpreted in order to profile the clusters and label them. Subsequently, the profiles will be plotted in a three dimensional space, with the dimensions economic capital, cultural capital and leisure time. The latter is composed with best available data: total time in the week (168 hours) minus hours spent on housework and minus time spent on work. Here is not included the time spent on television, as this is considered a leisure activity and we are interested to see how the profiles perform in the leisure time versus money space. Time and money are important indicators for leisure behavior (Linder, 1970), thus it will be interesting to see how the clusters score on these dimensions, cultural capital is added for completeness.

Cluster 1 - 10.5% : *Traditional woman*

This cluster consists for 95.3 percent of females, with an average age of 59.88 years old, which is the oldest of all clusters. These people have a relatively low income (76 percent has a income lower than € 2500) and the lowest education among the clusters, with 60 percent have lower of secondary vocational eduction as highest completed education. People in this cluster are shoppers (92.4 percent is shopper) and are spending relatively the most time on housework, 13.79 hours each week and have had relatively much unemployment in the last year. Households in this cluster are relatively few dual earners, and are often living in a rented residence, and are based in the lower social classes. People have medium affinity with culture and politics, but consider crime fighting, law enforcement and benevolence as important elements for the Dutch society. The people in this cluster are the most environmental aware of all clusters.

This cluster are heavy tv users, with 71.2 percent marked as high on media imperative and an average viewing time of 29.46 hours a week, which is the highest among clusters. People in this cluster prefer NL1 as channel (38.8 percent) or RTL4 (33.1 percent). Online activity by this cluster is low, 64.2 have a low indication on the media imperative for internet, and the possession of devices is low: the number of PC's in the household is the second lowest, the number of laptops is the lowest and the number of tablets is the lowest as well. This cluster is characterized as well by the low amount of use of streaming video (50.1 percent never uses). This is according their beliefs as well: this cluster scores low on the statement that luxury and comfort are important.

Cluster 2 - 25.2% : *High class man*

This cluster is the largest and consists for 99.5 percent of males, with an average age of 52.28 years old, which is the second highest of all clusters and medium number or urbanization. These people have a relatively high income, 73.8 percent have an income of more than € 2500. Also the education is high, 35.5 percent have completed higher vocational or academic education, 20.8 percent are working in scientific research and 26.2 percent have secondary vocational education. People in this cluster are sometimes shopper (32.2 percent is shopper) and are spending relatively low time on housework, 7.30 hours a week and were relatively few unemployed last year. This is the cluster with the highest average working hours per week, 39.76 hours. Households in this cluster are relatively often dual earners (65.0 percent is), and often are owner occupier, with 79.7 percent the second highest proportion among the clusters. These people are in higher social classes, 86.8 percent is in classes A and B+. Affinity with culture is the second highest and affinity with politics is the highest of all clusters. Scores on marks regarding societal elements are on average.

This cluster are relatively low tv users, with an average viewing time of 17.88 hours a week, the scores for the media imperative tv are evenly spread across low, medium and high users, indicating that different kind of users are present in this group. People in this cluster prefer NL1 as channel (51.3 percent) and have minor preferences for NL3 (12.9 percent) and RTL4 (8.4 percent). Online television activity in this cluster is spread equally between the groups more and less than one time a week, and for the media imperatives the low indicated users are somewhat larger in proportion, with 40.4 percent. Frequent streaming video users. This cluster have the highest number of pc's and the second highest number of laptops and a relative high number of tablets. Relative high proportion of users of television on smartphones (38.1 percent).

Cluster 3 - 12.8% : *Modern woman*

This cluster consists for 85.6 percent of females and with an average age of 32.84 years old this is the second youngest of all clusters, with the lowest number of urbanity. These people have normally distributed income, with the majority of 37.3 percent between € 2501 and € 3500 and a somewhat higher education, 33.7 percent completed secondary vocational education, 16.8 percent higher vocational or academic education and 14.4 percent have completed higher education or pre-university education. People in this cluster are often shopper (61.5 percent is) and are spending relatively much time on housework, 11.34 hours a week. Time spent on work is with 18.79 the lowest of all clusters, but the unemployment is low as well: 0.14 months last year unemployed is the second lowest. Households in this cluster are mostly dual earners, 60.1 percent, and often are owner occupier in a house with 83.7 percent the highest proportion. These people are from moderately high social classes, 39.9 percent is in B+ and 25.5 percent is in B-. Affinity with culture is the second lowest, with 6.73, and political affinity is the lowest, with 1.24. Scores for markt on societal elements are relatively low, this can be seen as related to cultural and political affinity.

This cluster are low tv users, with an average viewing time of 15.87 hours a week, the lowest of the clusters. For the scores for the media imperative tv people in this cluster have the highest low proportion with 40.6 percent and the lowest proportion of high users with 34.3 percent. People in this cluster prefer RTL4 as channel with 38.5 percent preference, and NL1 with 17.9 percent and NL3 with 6.2 percent. The score on internet imperative is not high, with 43.7 percent for medium and 39.8 percent low users. The frequency of using online television is relatively high with 56.5 percent with a, or higher frequency of once a week. The possession of pc's is relative high, with an average of 1.16 per household, the possession of laptops (1.81 per household) and tablets (0.85 per household) is the highest.

Cluster 4 - 8.4% : *Joe and Jane Sixpack*

This cluster is the smallest and consists of 52.2 percent males, with an average age of 42.72 years old, which can be considered to be medium to low and the highest number of urbanity. These people have a relatively low income, with 58.9 percent below € 2500 and a medium level education with 30.1 percent secondary vocational education, 19.1 percent higher vocational or academic education and 16.2 percent higher education or pre-university education. People in this cluster are often shopper (58.1 percent) and are spending a medium amount of time on housework, on average 9.43 hours a week. Time spent on work is medium-high with 32.33 hours a week, but have the highest unemployment time last year across the clusters, with 0.43 months on average. Households are relatively low in proportion of dual earners, 45.6 percent is, and live both in rental residences (47.8 percent) and are owner occupier (52.2 percent). These people are in majority from social class B+ (30.9 percent) and B- (21.3 percent) together is 60.3 percent in that class. Affinity with culture (8.00) and politics (1.73) is relatively high. This is reflected in the highest marks for importance of a better world, importance for helpfulness, the second highest for

importance of law enforcement and the highest agreement on the statement that luxury is used to spoil others.

This cluster are medium tv users with an average viewing time of 20.88 hours a week, and have a proportion of 45.6 percent of high users according to the media imperative tv, which can also be considered as moderate. The scores for the imperative internet are also medium, with a majority of low users, 50.0 percent. The highest proportion of all clusters is one or more frequently per week using online TV, with 57.6 percent. People in this cluster prefer to watch NL1 (30.7 percent), RTL4 (22.0 percent) or NL3 (5.5 percent). The possession of devices is all medium, with 1.08 pc's per household, 1.20 laptops and 0.53 tablets.

Cluster 5 - 14.6% : *Man at work*

This is a medium sized cluster and consists exclusively of males, with an average age of 51.25 years old, what can be considered to be medium and have the second lowest number of urbanity. These people have a low to medium income, 39.8 percent has a low income between € 1501 - € 2500. And 30.1 percent has a medium income between € 2501 - € 3500. The majority of people in the cluster have completed lower vocational education, 36.6 percent. A similar proportion, 29.8 percent, completed secondary vocational education. People in the cluster are occasionally shopper, 22.3 percent is, and spending the lowest amount of time on housework, 6.84 hours a week. Time spent on work is the second highest, with 38.12 hours of work but also have a medium level of unemployment last year, with on average 0.23 months. This clusters has the second highest amount of dual earners, 66.0 percent is dual earner, and are somewhat more often owner occupier compared to rental houses (31.9 percent) which can be indicated as medium. These people are in majority from social class C (52.5 percent) and 78.1 percent is in a lower class (B-, C or D). Affinity with culture is the lowest with 6.61 and political affinity is relatively low with 1.52, which is a score of medium proportion. This is reflected in the relatively low scores for societal elements, but the Man at work think there are excessive rules in the Netherlands, they have the highest score of all clusters.

This cluster consists of intensive users of tv, with the second highest average viewing time, of 23.69 hours a week and a proportion of 60.1 percent high users on the media imperative tv, which is high. People in the cluster prefer to watch NL1 (30.0 percent), RTL4 (24.4 percent) or NL3 (5.7 percent). The scores on internet use are lower, with 46.5 percent indicated as low internet user and 54.2 percent which is less than one time a week using online television. This cluster are the highest users of streaming video The possession of pc's is the second highest, 1.01 per household, and the possession of laptops is the second lowest, with on average 1.12 per household. Medium users of tablets with 0.57 per household.

Cluster 6 - 18.5% : *Career woman*

This is the second largest cluster and consists of 95 percent females with an average age of 51.34 years old, which can be considered to be medium and medium level of urbanity. The people have a relatively high income, 52.4 percent earns between € 2501 and € 4500, and 13.3 percent earns more than € 4501, which is the highest number in the clusters. The majority of people in the cluster have completed higher vocational and academic education (31.9 percent) and 21.9 percent has completed scientific research of a doctorate, which is the highest of the clusters. People in the cluster are often shoppers, 80.1 percent is, and spent the second most time on housework, 12.07 hours a week. Time spent on work is medium high, with 29.08 hours a week and unemployment is the lowest with 0.10 months unemployed on average last year. This cluster the highest proportion of dual earners, with 68.1 percent and have the second highest part of owners of houses, 78.1 percent has. These people are in majority in higher

classes, 87.7 percent is in A or B+ which is high. Affinity with culture is the highest (9.91) and political affinity is the second highest (2.16), this is reflected in the marks for societal elements, which are all high as well.

This cluster consist of medium or low tv users with an average viewing time of 18.01 hours a week, and an evenly distribution of users in the media imperative tv, 34.9 percent is low tv users, 24.3 percent is medium user and 40.9 percent is high tv user. In the cluster 48.1 percent prefers NL1 as channel, 13.9 percent NL3 and 12.9 percent RTL4. The scores on internet imperatives are lower compared the the rest, especially the group high users is the lowest of all clusters with 9.5 percent high internet users. Also, 63.3 percent is using online television less frequently than 1 time a week. The possession of pc's is high with an average of 1.16 per household, and the number of laptops is the second highest with 1.36 per household, the number of tablets is on average 0.57, which is medium.

Cluster 7 - 10.0% : *Youngsters*

This moderately sized cluster consists for 54.0 percent of males, with an average age of 30.25 which is the lowest of all clusters and have the second highest number of urbanization. The people in this cluster have a limited income, 65.8 percent earns less than € 2500, of which 27.3 percent less than € 1500. The The majority of the people in the cluster have completed higher vocational or academic education, 34.4 percent and 30.1 percent completed secondary vocational education. People in the cluster are often shoppers, 79.8 percent is, but spend low amounts of time on housework, 7.20 hours a week. Time spent on work is with 33.15 medium compared to other clusters and unemployment is the second highest with 0.33 months last year on average. The households in the cluster have the lowest proportion of dual earners, 41.7 percent and have a equally spread part of rental and owner residences. Social classes in the cluster are medium high, 60.8 percent of the people are indicated as A or B+. Affinity with culture (7.80) and politics (1.48) is medium, but the marks for societal topics are remarkably low, compared to other clusters.

The cluster consists of medium tv users, with an average viewing time of 17.41 hours a week, and an evenly distribution on the media imperative tv, of 32.5 percent low users, 27.0 percent medium users and 40.5 percent high television users. In the cluster RTL4 is preferred as channel, by 22.3 percent, followed by NL1 by 18.5 percent and NL3 by 11.5 percent. The proportion of internet users is relatively high, with the lowest proportion of low users, 30.9 percent, 42.6 percent medium users and 26.5 percent high users, which is the highest. 60.0 percent uses internet to watch television less than one time a week. Relative frequent users of online video (77.8 percent use streaming video now and then or often). The possession of PC's is the lowest of all clusters with on average 0.77 per household, the possession of laptops is medium with 1.24 on average per household and the number of tablets per household, 0.39 on average, is considered to be in the lower regions.

In order to get sight on mutual relationships between the profiles, they could be plotted in a three dimensional space. The base for this space will be the dimensions economic capital, cultural capital and leisure time (which can be calculated based on time spent on work and time spent on household activities). In Figure 4.3 this plot is presented. The data used as base for the plots is provided in Appendix D.

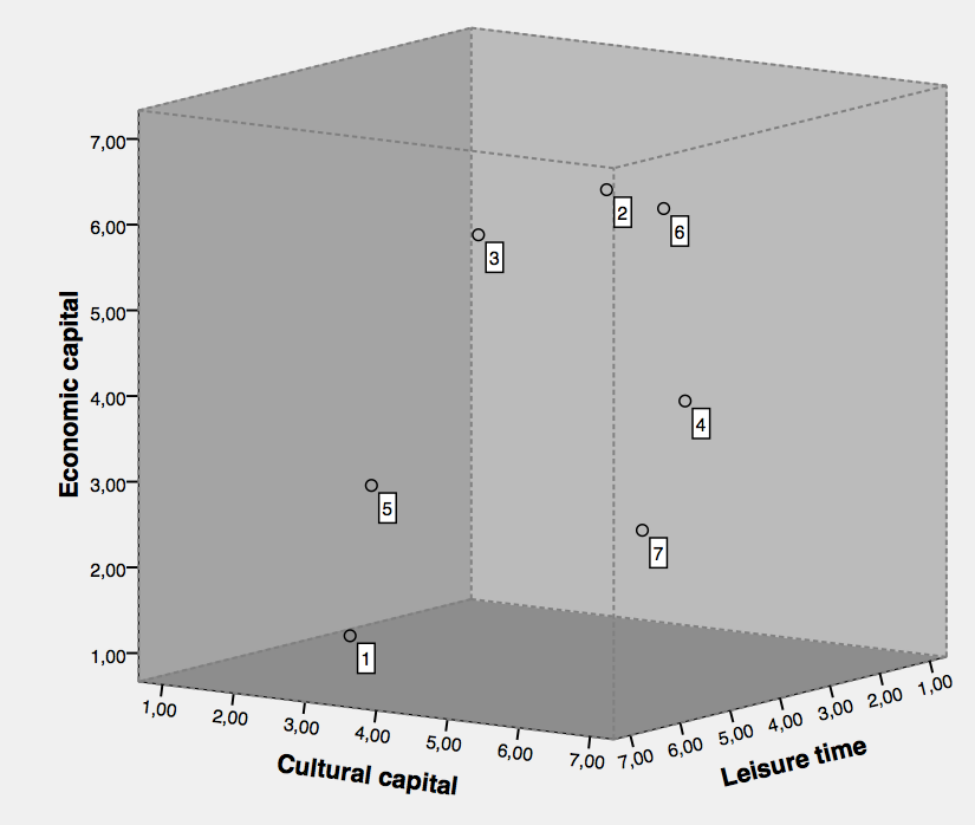


Figure 4.3 : Profiles in three dimensional space

Legend: scales are from low (1) to high (2) based on information as presented in Appendix D

The numbers in the figure correspond with the profile-numbers

Now the clusters are profiled and plotted it will be useful to understand the performance of the clusters in terms of explaining television viewing behavior, both online and linear. Therefore the clusters are used as independent variables in two regression models, with independent variables linear TV and online TV, see also Table 4.14. When looking to the explained variances of the models, the clusters perform worse compared to the multiple regression with all correlating variables as input (see also tables 4.2 and 4.4) for explaining linear TV as the explained variance for this model was 11.4 percent and this is with the clusters 8.2 percent. To test whether the clusters are better feasible to describe the relation with linear and online viewing behavior, another regression is conducted, with dummy variables for the clusters used as independent variables. For the dependent variable linear television it is possible to calculate the deviation from the overall in the number of television per week per respondent, the results from this are presented in Table 4.13. A negative value implies that the viewing time is lower compared to the overall mean, which is 19.11 hours per week (the formula used for the new variable: observation - 19.11). To conduct regression with dummy variables a base group should be chosen (Field, 2005), based on Figure 4.3 it is defendable to chose profile 4 or profile 5, as these are relatively average on the selected dimensions. Profile 5 has a larger deviation from the mean viewing time, therefore for the dummy regression profile 4 (*Joe and Jane Sixpack*) is chosen as base group.

Table 4.13 : Deviation in behavior per cluster from overall mean

	1	2	3	4	5	6	7
Deviation from overall mean	10.66	-1.30	-2.90	2.05	5.06	-1.27	-1.26

The results of the regression analysis are presented for the dependent variables linear television[9] and online television, and with profile 4 *Joe and Jane Sixpack* as the reference group. Thus the beta coefficients in Table 4.14 express the difference from the respective groups from the base group, Joe and Jane Sixpack. To explain behavior regarding online television behavior the clusters do a worse job than using all correlating variables, with an explained variance of 7.7 percent instead of 4.7 percent. Those values are both lower compared to the regression with all correlating variables (11.4 versus 8.2 percent). Note also the difference in the intercept, which is larger for the linear model - implying that the basis for the sample is to watch relatively much linear television. There are interesting differences in regression coefficients, people in cluster 1 and five have a larger chance to watch more television, which is consistent with the descriptive outcomes from the cluster analysis. The coefficients for the regression model with the dependent variable online television are all negative, with smaller mutual differences between the clusters. Despite the profiles are useful for understanding difference of behaviors, explaining specific TV and Online viewing behavior is only possible to a limited degree. This can be due to limited variations in behavior, as everyone seems to watch linear television often, regarding the intercept of 17.572 ($p < 0.001$). For online television the explained variance can be lower due to the opposite effect: everyone seem to watch few online television, regarding the total number of observations of 611 in online television versus 2710 in linear television.

Table 4.14 : Regression models with dummy variables of clusters as independent variables

	Linear		**Online**	
	Model: F (df = 6) 32.915 | p = 0.000		*Model:* F (df = 6) = 5.582 | p = 0.000	
	β	**B**	**β**	**B**
Constant		17.572 *		3.698 *
1. Traditional woman	0.243 *	12.200 *	-0.140 *	-0.997 *
2. High class man	0.006 *	0.239 *	-0.118 *	-0.500 *
3. Modern woman	-0.028 *	-1.357 *	-0.081 *	-0.413 *
5. Man at work	0.155 *	6.598 *	-0.134 *	-0.774 *
6. Career woman	0.006 *	0.271 *	-0.174 *	-0.812 *
7. Youngsters	0.005 *	0.275 *	-0.157 *	-0.988 *

* Significant at $p < 0.001$

Further the dependence between Online and Linear TV should be tested, as it may be possible that behavior in one variable correlates with the other. Therefore the correlation between both is tested: $r (n=611) = -0.092$ ($p = 0.022$), but indicates no strong relationship. The relation between Linear TV (as dependent) and Online TV (independent) is also tested with a regression model, to find out if Online TV is dependent from Linear TV. The model is significant ($p = 0.022$), with an beta of -0.092 and an explained variance of 0.7 percent - which is very limited. Thus there is no further reason to assume that Online and Linear TV are interdependent. Correlations between the clusters are all small - smaller than 0.2.

[9] The analysis is also conducted with the constructed dependent variable deviation from overall mean, but is for reasons of comparability with online television not presented:

4.5 Viewing behavior of the profiles

Profile number 1, the *Traditional woman* have the highest viewing time, profile number 4 *Joe and Jane Sixpack* and profile number 5 *Man at work* have reasonably high viewing times, see also Figure 4.4. Compared to the other four profiles, these could be considered the high linear users. Profiles number 2 *High class man*, 3 *Modern woman*, 6 *Career woman* and 7 *Youngsters* are fairly low linear television used, in comparative terms. Interesting feature is that the users don not have the most leisure time, but are scoring on average in that respect. Also the low linear users have different characteristics in terms of leisure. This means that the mean number of hours work and housework in a week is not of dominant influence on the number of hours television watched.

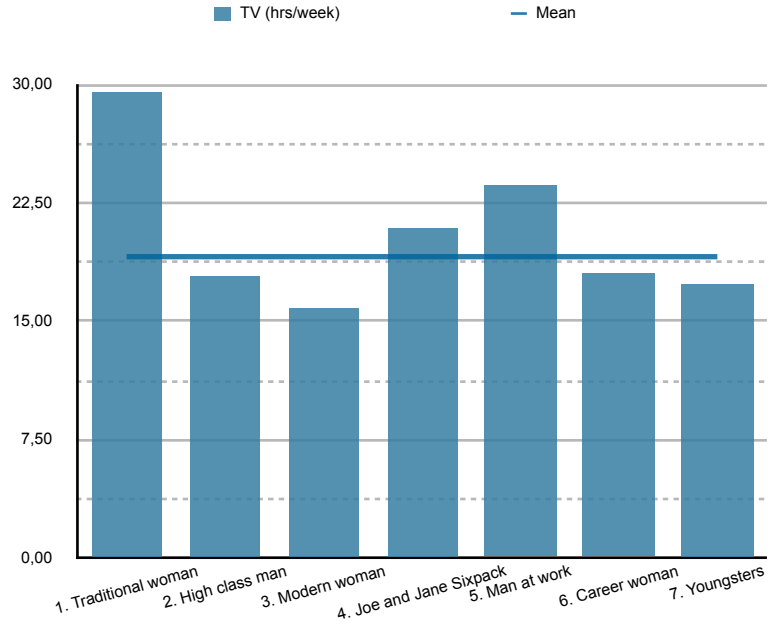


Figure 4.4 : Differences between profiles in perceived television viewing in hours per week

The two profiles with the highest frequency for more than one time a week online television use are profile 3 *Modern woman* and profile 4 *Joe and Jane Sixpack* and medium users are profile 2 *Youngsters* and 5 *Man at work,* see also Figure 4.5. This already indicates that cultural capital is not a requirement for online television. Important to note is that the measurement of online television is limited, with just a perceived frequency of respondents, only to be asked to those who indicated that they use online television. The latter limits the response (as all others who opted out are not questioned) while the first could be biased.

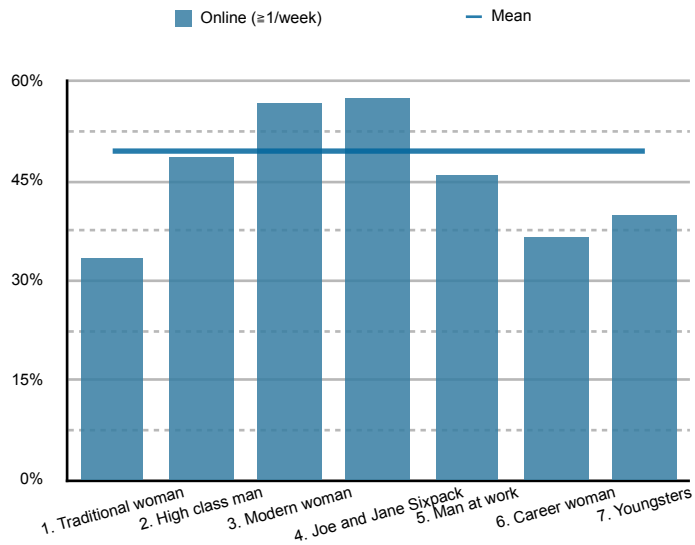


Figure 4.5 : Differences between profiles in frequency online television use by ≧ 1 per week

Thus differences can be described based on differences in behavior of profiles of people, where profiles number 1, 4 and 5 are the more linear viewers and profiles 3 and 4 the more online viewers. However the differences are subtle and behavior is not excluded between profiles: people in profile 1 are more linear viewers but also are online viewers, profiles with exclusive online or linear behavior were not found. Such differences are only found for the variable gender: profiles 1, 5 and 6 are for over 95 percent consisting of women (1 and 6) or men (5). Discussing the differences here is about relative differences between the profiles.

4.6 Linear versus online

To compare online and linear behavior some extra information is required. Only available information for online realized behavior is from the WEBTV data, which is limited compared to the panel data from SKO, therefore when making comparisons the WEBTV is the constraining factor. The WEBTV contains data from February 2012, of people of 13 years and older. From the panel data the appropriate selections are made, thus the period of time, age of respondents and channels (NL1, NL2, NL3, RTL4, RTL5, RTL7, RTL8, SBS6, NET5, Veronica). But the data could not be made exactly the same: the panel data (thus linear and time shifted viewing) have a lower limit of 1 minute viewing time, before a respondent is counted. The WEBTV data are counted based on 1 stream start. Also some noise is caused by the difference in number of programs (not all linear content is available online), which is 13 478 linear and time shifted viewing in the panel for February 2012 and 358 in the WEBTV set, for online time shifted viewing. The difference between time shifted viewing and online viewing is the device which the content is consumed on: time shifted viewing can occur on the television set, while online is all devices but the television set. The ratings in Table 4.15 are based on the density of the audience (the part of the population that on average in February consumed linear television), and are presented in absolute and relative figures. Reach is based on the part of the population reached in February 2012.

Important difference between online and linear figures is the difference in size of the absolute figures: linear television is by far the majority of the viewing figures, as can be found in the third and ninth column of Table 4.15. Time shifted viewing is numbers in between linear and online, but is still more than 50 percent lower

than linear television. Also there are age differences between the means of viewing, which can be seen at the relative ratings, column two, five and eight: linear television is viewed relatively most by 65 and older, while this is relatively the smallest groups at the online ratings. For time shifting viewing no notable age effects are visible. Between males and females some difference occur in linear television but these differences are negligible in both time shifted viewing and online. Intense internet users could be better reached online, compared to low internet users, the latter have higher ratings in linear television. Low television users are reached online best, compared to other categories of users, but even better reached compared to high internet users.

Table 4.15 : Realized linear versus online viewing behavior, compared to characteristics

	Linear (live) Ratings	**Linear (live)** Ratings absolute	**Linear (live)** Reach	**Time shifted, on TV** Ratings	**Time shifted, on TV** Ratings absolute	**Time shifted, on TV** Reach	**Online*** Online ratings	**Online*** Online ratings absolute	**Online*** Reach
Age									
13-19	0.66 %	9 216	98.83 %	0.06 %	357	34.71 %	0.12 %	1 700	39.70 %
20-34	1.02 %	30 797	96.22 %	0.05 %	1 488	43.18 %	0.09 %	2 600	34.43 %
35-64	1.70 %	120 452	97.64 %	0.07 %	4 720	48.02 %	0.04 %	2 800	22.06 %
65+	2.46 %	59 805	99.28 %	0.06 %	1 374	39.28 %	0.02 %	500	11.20 %
Social class									
AB1	n/a	n/a	n/a	n/a	n/a	n/a	0.06 %	4 200	26.42 %
B2CD	n/a	n/a	n/a	n/a	n/a	n/a	0.05 %	3 400	22.74 %
Gender									
Male	1.46 %	100 297	97.53 %	0.05 %	3 491	44.54 %	0.04 %	2 500	23.02 %
Female	1.70 %	119 961	97.97 %	0.06 %	4 419	43.73 %	0.07 %	5 100	26.15 %
Internet use									
High	1.27 %	37 095	99.77 %	0.05 %	1 543	45.87 %	0.08 %	2 200	30.97 %
Medium	1.47 %	80 354	99.84 %	0.06 %	2 994	44.91 %	0.06 %	2 500	29.89 %
Low	1.98 %	102 717	99.72 %	0.07 %	3 336	44.60 %	0.04 %	2 800	18.65 %
TV use									
High	2.13 %	145 491	100 %	0.07 %	5 004	48.61 %	0.05 %	3 300	24.94 %
Medium	1.36 %	44 652	99.72 %	0.05 %	1 684	42.05 %	0.06 %	1 800	28.87 %
Low	0.85 %	30 083	99.42 %	0.04 %	1 221	40.92 %	0.09 %	3 200	32.26 %
TOTAL	**1.58 %**	**220 258**	**97.75 %**	**0.06 %**	**7 910**	**44.12 %**	**0.05%**	**7 600**	**24.61 %**

**) Online, not live, not through TV, time shifted viewing online*

n/a = No (directly comparable) numbers are available

4.7 Testing hypotheses

To be able to test the hypotheses, first it should be considered what segments are considered to have much economic- and cultural capital, much leisure time and a higher age. And what segments score low on those four variables. This can be done on the information previously in this chapter but for the convenience of the reader is an summarizing overview of the data presented in Appendix D, Table E.1. On the variable *age* segment 1 (*Traditional woman*) scores high while 7 (*Youngsters*) and 3 (*Modern woman*) score low. On the dimension cultural capital segments 2 (*High class man*) and 6 (*Career woman*) score high, and 3 *(Moderns woman*) and 5 (*Man at work*) score low. On the dimension economic capital segments 5 (*Man at work*) and 2 (*High class man*) score high, and 3 (*Modern woman*) scores low. On leisure time segment 3 *(Modern woman*) scores high, and 2 (*High class man*) and 5 (*Man at work*) score low. Differences between clusters on the relevant variables are tested with ANOVA post hoc (Tukey's), applicable for Hypotheses 1 to 4. The main differences were tested on page 50 already (Levene [df = 6] 19.647, p = 0.000 | WELCH [df = 6] = 19.908, p = 0.000), here the Tukey's post hoc is used for pairwise comparisons. For Hypotheses 5 to 8, a Chi square test is used to test for significance of differences. The Chi square (X = [df = 6] 27.260, p = 0.000) indicates differences occur between the percentages of viewers viewing online television more than once a week and viewers less frequently viewing.

Copy of Table 2.5 : Overview of hypotheses

H1	Segments of viewers with higher cultural capital have a lower linear viewing time compared to segments with less cultural capital
H2	Segments of viewers with higher economic capital have a lower linear viewing time compared to segments with less economic capital
H3	Segments of viewers with less leisure time have a lower linear viewing time compared to segments with more leisure time
H4	Segments of viewers with higher mean age view more linear television compared to segments with a lower mean age
H5	Segments of viewers with lower mean age view more online television compared to segments with a higher mean age
H6	Segments of viewers with higher cultural capital view more online television compared to segments with lower cultural capital
H7	Segments of viewers with higher economic capital view more online television compared to segments with lower economic capital
H8	Segments of viewers with less leisure time have a higher online viewing time compared to segments with more leisure time

The relevant scores are included in Table 4.16. Based on the presented information Hypothesis 1 should be **partly rejected**: there is an ambiguous image in the average hours of linear television between the high cultural and lower cultural segments. The differences between 6 - 3 (p = 0.483), 6 - 5 (p = 0.000) and 2 - 3 (p = 0.490), 2 - 5 (p = 0.000) are inconsistently significant and not. But in fact, the lowest mutual score is at segment 3 (*Modern woman)* who watch the least television, which is contrary to the hypothesis. As there is no clear image about the direction of the possible effect the hypothesis is partly rejected.

Hypothesis 2 should be **rejected** as well: the segment with low economic capital (*Modern woman)* have lower linear viewing time. The differences between segments 5 - 3 (p = 0.000) and 2 - 3 (p = 0.490) are

inconsistently significant. Between segment 2 and 3 a difference cannot be assumed, and thus no effect for economic capital can be assumed. Between segment 5 and 3 such an effect may be present.

Table 4.16 : Testing differences for hypotheses

	Age		**Cultural capital**		**Economic capital**		**Leisure time**	
	High (1)	*Low (7, 3)*	*High (6, 2)*	*Low (3, 5)*	*High (5, 2)*	*Low (3)*	*High (3)*	*Low (2, 5)*
Linear TV	29.46	17.41, 15.87	18.01, 17.88	15.87, 23.69	23.69, 17.88	15.87	15.87	17.88, 23.69
Online TV ≧1 time/w.	33.3%	40.0%, 56.5%	36.7%, 48.6%	56.5%, 45.8%	45.8%, 48.6%	56.5%	56.5%	48.6%, 45.8%

Hypothesis 3 should also be **rejected**. The *Modern woman* (3) appear to have more leisure time but lower viewing time compared to *High class man* (2), but the difference is not significant (p = 0.490). The effect between *Modern woman* and *Man at work* (5; p = 0,000) is significant. This is not comparable to the effect stated in the hypothesis.

Hypothesis 4 can be **accepted**. *Traditional woman* (1), with the highest age among segments, have a - much - higher viewing time compared to *Youngsters* (7) and *Modern woman* (3), who have a lower mean age and a lower linear viewing time. The differences between segments 1 - 7 and 1 - 3 are significant at p < 0.001 (the difference between segment 7 and 3 is not significant different, p = 0.903).

Hypothesis 5 can be **accepted** as well: segments with lower mean ages *Youngsters* (7) and *Modern woman* (3) watch in larger proportions more than once a week online television.

Hypothesis 6 should be **partly rejected**, as the image resulting from the figures is ambiguous. *Career woman* (6) are high on cultural capital but watch relatively little online television, while *High class man* (2) are high on cultural capital but watch more often online television. High scores are also found for the segments *Modern woman* (3) and *Man at work* (5), which are low on cultural capital.

Hypothesis 7 should be **rejected**, segments with more economic capital do not watch more online television than segments with less economic capital.

Hypothesis 8 should be **rejected** as well. People with high leisure time do watch more online television, and people with less leisure time watch less, in proportions, to online television.

To provide an overview of the tests of the hypotheses, in Table 4.17 a detailed overview on the different effects per cluster are presented. As already stated, only for the effect of age on online and linear viewing behavior an undisputed conclusion is drawn. Hypotheses 1, 2, 3 and 6 have some accepted effects and some rejected effects. This leads to the overall conclusion of rejection on the hypotheses. In the column of the fourth cluster, of *Joe and Jane Sixpack*, it can be seen that no effects are tested. This is due to the position of the cluster, it is properly in the middle on the axis economic and cultural capital, age and leisure time. The hypotheses are based on comparisons between high and low scoring clusters, on those dimensions.

Table 4.17 : Results of tested hypotheses for the different clusters

	1. Traditional woman	2. High class man	3. Modern woman	4. Joe and Jane Sixpack	5. Man at work	6. Career woman	7. Youngsters	Overall
H1 Cult. cap.		V	X		V	V		**Rejected**
H2 Ec. cap.		V	X		X			**Rejected**
H3 Leisure		X	X		V			**Rejected**
H4 Age	V		V				V	**Accepted**
H5 Age	V		V				V	**Accepted**
H6 Cult. cap.		V	X		X	X		**Rejected**
H7 Ec. cap.		X	X		X			**Rejected**
H8 Leisure		X	X		X			**Rejected**

4.7 Conclusion

Everyone seem to watch quite some linear television: with an average in the sample of 19.11 hours a week. Some profiles watch some less, some profiles some more. To discover differences between people four kinds of analysis were conducted in this chapter: multiple regression with all correlating variables with linear and online television, cluster analysis and a multiple regression with dummy variables for the cluster membership of respondents and finally online versus linear behavior was compared to a limited selection of respondent characteristics.

The multiple regressions with all correlating variables for online television and linear television have a limited explained variance, respectively 2.4 percent and 11.4 percent. The independent variables thus have limited explaining power for the dependent variables, and the independent variables are not very suitable for interpretations of behavior.

Therefore a cluster analysis is performed based on cultural capital, economic capital and leisure time supplemented with related variables. Several iterations in the analysis are reported, in order to gain transparency regarding the selection process of the number of clusters. Regarding the frequency of figures in the clusters here is chosen for seven clusters, to have more evenly cluster sizes. Seven clusters gave the most distinctions between characteristics: the cluster that was split up when going from six clusters to seven clusters became *Traditional woman* (1) and *Man at work* (5), which have different characteristics, especially in terms of gender and online television use. But also different viewing behavior, *Traditional woman* are watching 10.66 hours per week above average to linear television, *Man at work* 5.06 hours per week above average.

The seven clusters, have interesting differences on underlying dimensions such as leisure time, economic and cultural capital, but also in media behavior. All clusters have a relatively high viewing time for linear television, *Traditional woman* watching the most, *Modern woman* the least. For online television only the

frequency of use per week is available, which is hard to compare directly to hours per week (the measurement level of linear television). *Joe and Jane Sixpack* and *Modern woman* have an above average viewing frequency of online television. It is remarkable that *Joe and Jane Sixpack* are watching above average to linear television as well.

Age and gender seem to be important determinants for the definition of the clusters. These variables were however not used as input for the cluster analysis. Apparently age and gender are important variables related to viewing behavior, with high discriminative power.

To investigate the relation between the clusters and the dependent variables linear and online television, another regression analysis was conducted. With only a limited explained variance of 7.7 percent for linear and 4.7 percent for online television the clusters do not seem to explain a lot more compared to the first explorative regression analysis with all correlating variables. The high intercept for linear television indicates that viewing time in all cluster is relatively high, especially when compared to online television.

Subsequently observed behavior is compared for online and linear television viewing. The respondent characteristics available here, are limited in terms of information compared to the information given by the clusters. The clusters consist of a combination of homogeneous respondent characteristics. In terms of proportions young people are watching more online and elderly are watching more linear. The volume viewing time for young people is however more limited compared to the middle age groups, which are in absolute terms watching online the most frequently.

Regarding the analysis of hypothesis it could be concluded that age is still an important determinant for both linear and online television viewing behavior. Other hypothesis were not accepted in this research. Some ambiguous effects found could be topic of further research, there might be other factors - not considered in this research - have an influence as well.

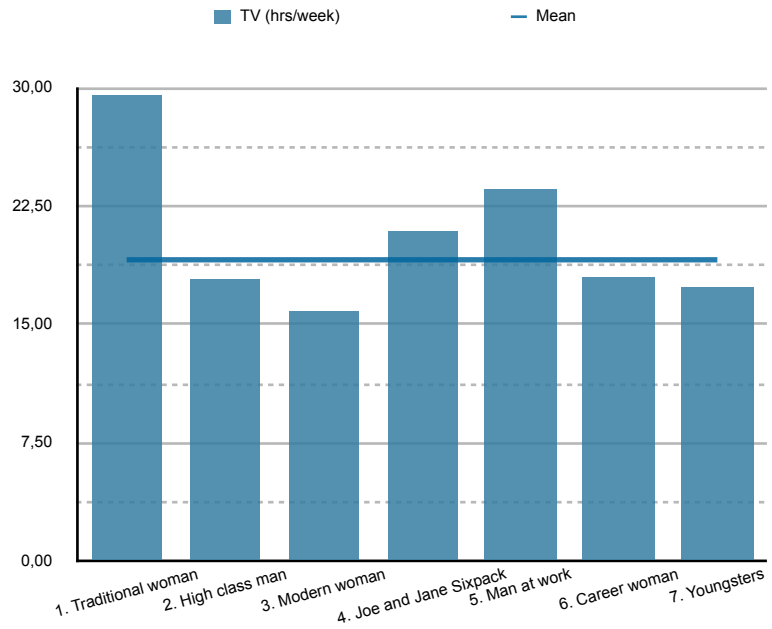
5. Conclusion and discussion

In this research clusters based on a theoretical framework are used to explain differences in online and linear television viewing behavior. This provides a refinement of existing theory on this topic. The variation in behavior seems rather limited: Everyone is watching television, some more than other. This is reflected in the constructed profiles as well. The viewer profiles developed in this research describe groups of television and online viewers in the Netherlands, the profiles are used to describe the Dutch television viewer and subsequently is tried to describe behavior of those respondents. With regression analysis is tested whether the profiles succeeded to do so, compared to just putting all (correlating with the dependent variables) variables in the regression, and it showed that the clusters are not providing extra clarity for explaining linear viewing behavior. Notwithstanding the clusters are homogeneous and provide more explanatory information compared to single items (independent variables) from the regression analysis. For online viewing behavior the cluster do provide a new framework to review online television viewing behavior, which was till now unavailable for Dutch online television viewers. By now it is possible to answer the problem statement. The problem statement to be solved in this research is:

What are differences in characteristics of linear and online television viewers?

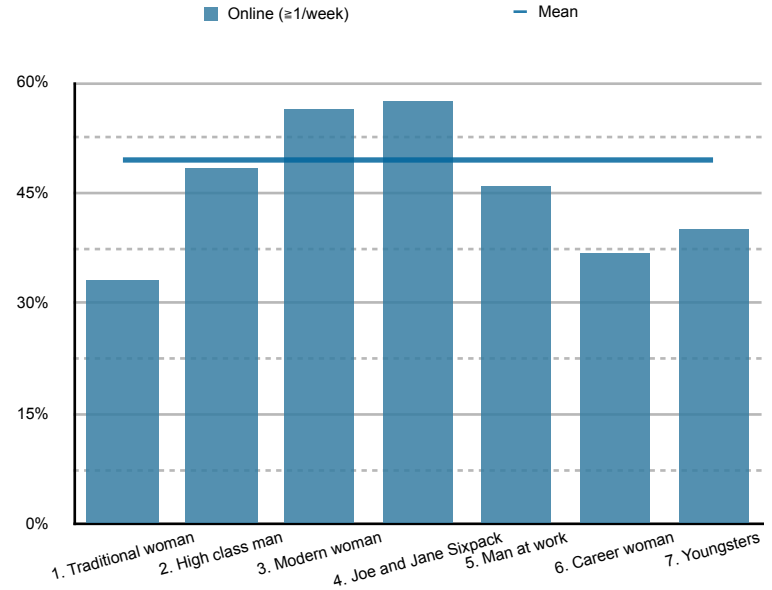
Compared to the rich data available for linear television the data available for online television is more limited, thus making comparisons harder. It would be advisable to measure online television behavior to the same extent as linear television, to be able to monitor differences better. Due to the limited number of observations (N = 611) - compared to the number of observations of linear viewers (N = 2710) - the explained variance for models to explain online television behavior is even more limited. Increasing the number of observations would be advisable, as due to technological innovations online and time shifted viewing is likely to grow the next few years. The profiles resulting from the cluster analysis describe the different groups of online viewers well, also here those profiles could be used for marketing purposes. Age seems to be an important determinant in behavior, but the other age groups are still the majority of the traffic in absolute numbers. The reach for online television is limited compared to linear television: 24.61 percent of the population is reached in February 2012 by online television, while 97.75 percent was reached by linear television. Online the groups 13-19 and 20-34 are reached best and the age group 65 and older is reached relatively bad with 11.20 percent.

Based on realized behavior some differences can be noted. Important difference is the difference in size of the audience, is relative terms but especially explicit the difference in absolute figures between linear and online: linear remains by far the majority of viewers. There are age differences between the online and linear viewing, linear television is viewed relatively most by 65 and older, while this is relatively the smallest groups at the online ratings. Between males and females some difference occur in linear television but these differences are negligible in online television. Intense internet users could be better reached online, compared to low internet users, the latter have higher ratings in linear television. Low television users are reached online best, compared to other categories of users, but even better reached compared to high internet users.



Copy of Figure 4.4 : Differences between profiles in perceived television viewing in hours per week

Based on perceived behavior of the respondents in the profiles several differences are apparent: *Traditional woman* are watching television most frequently, *Joe and Jane Sixpack* and *Man at work* are watching more than average as well. *Modern woman, High class man, Career woman* and *Youngsters* are watching less frequently than the overall mean of linear television. That does not mean that these people have a low viewing frequency: all profiles have an average viewing time higher than 15 hours per week.



Copy of Figure 4.5 : Differences between profiles in frequency online television use by ≧ 1 per week

Modern women and *Joe and Jane Sixpack* are more frequent online viewers, *High class man* are average viewers. The average in this respect is a frequency of 49.5 percent viewers who use online television one or more time per week. Other profiles have a lower frequency, and the proportion of people watching less often than once a week, online television is higher. The general picture for online television is thus that the use is relatively limited, compared to the use of linear television.

Within the profiles, gender is a discriminating variable, implying that gender is (still) an important element in linear television behavior. Other variables might be related to gender, such as doing housework, being a shopper or hours of work per week. In the observed behavior in the comparison between online and linear television the differences found in gender are limited, a small effect is found for online reach, which is some higher for women (26.15 percent), compared to men (23.02 percent).

The testing of the hypothesis indicated that differences between clusters in economic,- and cultural capital and leisure time did not have a uniform significant influence on the viewing time. Different effects for economic and cultural capital for different clusters were found. An effect for both linear and online television was found for age though. This implies again that age is an important determinant within the clusters for viewing time. The ambiguities found in the context of the effect of economic capital on viewing time were: between *High class man* (2) and *Modern woman* (3) no significant difference in viewing time was found. Between *Man at work* (5) and Modern woman (3) a significant effect was found. This can mean that the effect of economic capital on viewing time is dependent on other factors in the clusters. Such other effect might mediate the influence economic capital, for example.

To be able to further answer the problem statement, two research questions were developed.

RQ 1 Can behavior of linear television viewers be explained in terms of characteristics of viewers?
RQ 2 Can behavior of online television viewers be explained in terms of characteristics of viewers?

Regarding the limited explained variance, I tend to state that to explain behavior respondent characteristics for linear television are not very feasible. But providing a segmentation possibly increases understanding of how the audience looks like, and respondent characteristics are the best available option to explain behavior. Parts of the limited variance in the models can be due to the measurement: quite some variables are binary coded, by increasing the measurement scale the discrimination might increase on those variables. Subsequently the data would fit better for regression based analysis. The profiles resulting from the cluster analysis describe the different groups of television viewers pretty good, those profiles could be used for marketing purposes, like determining the target audience, but for analysis as well: what kind of people are watching which kind of programs. This would still be better than just using age, gender and/or education. *Traditional woman* are the most intensive users of linear television. People scoring high on economic capital, are the less frequent users, the *High class man, Modern woman* and *Career woman* are all high on economic capital and are below average users of television. Exception to this are the *Youngsters* who are watching below average but are also low on economic capital. For cultural capital the same effect applies: *Traditional woman* and *Man at work* are watching television above average, and are lower on cultural capital. Leisure time does not seem to be determining the most: *Modern woman* have the most leisure time (137.87 hours) but are watching television below average.

5.1 Discussion

In this research we have tried to explain behavior from micro level characteristics, aggregated by cluster analysis. By this bottom-up designed groups of people relatively homogeneous and stable groups of respondents are created though this does not imply that all individuals exhibit similar behavior when confronted with similar circumstances. We have tried to compose segments based on social-demographic

and economic characteristics that might explain behavior. From the limited explained variances it seems to be hard to model behavior regarding online and linear television. This may partly due to the measurement of online television, which is done on limited scale (days per week) and is only answered by a part of the sample, those who opted in. In addition the measurement is not ideal, as perceived behavior is being asked, and this might have deviated from observed behavior. This can be a cause for the difference found in the average number of television watched each week between the data from SKO (2013) and SCP (2013). From the panel survey of SKO results a reported 19.11 hours of linear television a week and the report of SCP (2013) shows 14.0 hours a week. This difference may be due to the limited awareness of time respondents may have when watching television, affecting the perception of viewing time, because measured viewing time per week is 22.87 hours (SKO, 2012). The difference between SKO (2013) and SCP (2013) may be due to the familiarity with the topic: SKO respondents are in the viewers panel, and are probably more aware of their television viewing behavior. This can be an important influence on the perceived behavior, respondents are more trained to consider their television viewing behavior, and are possibly more involved with the topic. Based on a comparison of perceived and observed viewing behavior (19.1 hours/week versus 22.9 hours/week) indicates that the perceived behavior is not far off the observed. It is feasible to conclude that the validity of the panel data is thus not majorly biased by differences in involvement. Another possibility to explain those differences is secondary viewing: from the measured data from SKO (2012) appears the time the television is switched on, but respondents may have other activities in that time as well. Thus respondents may report lower viewing time when asked what their viewing time is.

We see television as a leisure activity, still peaking at the traditional peak times of leisure: in the evenings and weekends. By the availability of online television, viewing times could become more flexible, and it is reasonable to assume that this proportion only will rise with the increasing popularity of smartphones, laptops and tablets, as television thus has become available in public transport, school, bathroom or any other domain with an connection to internet. A considerable part of viewing time, between 22 and 27 percent, of the viewing time is subsidiary, which means that other activities are performed while viewing, as well. If this proportion of secondary viewing is lower for online television is an interesting hypothesis for further research. Secondary viewing for online television can be higher, because the flexibility of possibilities to watch television is increased. Another possibility is that secondary viewing for online television is lower due to increased awareness of viewing - the user actively chosen content at the user chosen time.

Case from practice - The impact of television

Together with an advertising agency, I am producing this television series ”Jungleclub” for RTL Telekids aimed for children below 8 years old, in order to nationwide promote Ouwehands Zoo. So far, we have produced 131 episodes of 10 minutes. The episodes are broadcasted daily, in the early morning and in the afternoon.

In terms of ratings the television program has a rather marginal effect, in general between 20.000 and 50.000 viewers are reached. Not impressive at all, in the television landscape. But the impact of the program is astonishing. The main character of the program, called Bamboo Bill, knows huge popularity among young children. This does not only become clear when walking through the zoo, but also in ‘enemy territory’, like other theme parks and cities like Amsterdam, Utrecht and Nijmegen. The vast majority of children in the targeted age group seem to know the character.

The introduction of the program resulted in the most successful year in the history of the zoo, even in an decreasing market. It is not directly clear to me how this impact works, it maybe has to do with specific targeting of an age group. Combined with the mere exposure effect, possibly gained by multiple broadcasts per day, this might explain the impact on the ’brand’ Bamboo Bill. These effects may underline in a practical way the impact of linear television, which I think is still huge.

A lot of discrimination between the clusters is coming from gender. This finding may be remarkable, because gender was not used as input for the cluster analysis. But in the Dutch television landscape gender is an important determinant as well. Gender is used for main topic of differentiation between RTL5 and NET5 for example, where RTL5 is targeting men and NET5 is aiming for feminine viewers. The findings of major gender differences between the clusters thus could make sense.

It seems unlikely that on the short-term the social element of television is swapped for individual online consumption. The device on which content is being consumed on is thus an important element: on the big screen time shifted viewing can serve the social element of watching together, of linear television. Some providers are opting in this market right now (like for example Netflix, content by Apple TV, apps by smart-tv manufactures themselves, etcetera). But the reach per euro spent commercials for television is by no means matched by online reach per euro[10]. Thus the incentive from the market will be present to supply linear television content, with a commercial foundation.

Predictions for future developments are always dangerous. Economist Keynes already stated that a big challenge for the future of Western societies was to handle leisure time (Keynes, 1930). Keynes predicted that due to rise in welfare less time be spent to work, and more leisure would become available (Keynes forecasted 15 hours a week in 2030) (Keynes, 1930). Nowadays our welfare is on a higher level, but the last few decades leisure time is decreasing as well. The leisure time left is spent for a lot on passive elements such as media consumption, which is almost half of all leisure time in 2011 (SCP, 2013). Apparently Keynes already knew that it would be a struggle to fill in all that leisure time. Nevertheless it may be dangerous hereafter we will present a future perspective for online and linear television in the Netherlands but limit this to the next ten years - to decrease the risk.

5.2 Future perspective

With an average linear television consumption of over three hours a day, it seems unlikely that television will diminish in favor of online television within 10 years. Some marketeers preach argument that entertainment will shift to on demand channels and linear television will be based on news and news related programs and sports events, which the viewer really wants to follow live. Important consideration at this argument is that those programs are accountable for large ratings (SKO, 2012).

The flexibility of online television is a nice feature but requires something from the user that linear television does not have, and which seem to be crucial to me: activity in consumption of content. Linear television is especially used in the evenings and weekend, on times most people have leisure time. Probably to relax, people can just sit and watch. There should be a profound reason to shift this default behavior, because this seems increasingly popular regarding the increasing media time (SCP, 2013). The evening is probably also a moment of social interaction (dual earner household seems to consume a bit more), as people living in the household can watch television together.

[10] Online television is theoretical attractive to advertisers, because specific targeting of an advertisement is possible and combined with the attention of the viewer, which is actively looking for content, this may lead to relatively high attention for the advertisement displayed. But in practice people may click advertisements unseen away, or have an advertisement blocker in their internet browser.

In a substantial part of the viewing time, linear television time is a secondary activity: other activities are performed as well when the television is active. Also signals of increasing internet consumption during television time are rising (SCP, 2013). This makes linear television a flexible background entertainment feature, to which attention is paid when there is an incentive to do so. Linear television viewing is apparently some prevention of boredom: people tend to watch more when having no job, when having less housework, watch more frequently when aimlessly surfing the web and as such is linear television consumption more entertaining fulfillment of leisure time than a goal on itself. Besides, television is relatively cheap leisure time. This could however also be framed more positively as relaxation. This relaxation could be crucial to the high viewing time. In this respect could online consumption maybe be compared to reading a paper: on demand available, and the user can choose what part to read, but the reading time of papers is many times smaller than television viewing.

Online television lacks all these features. In this respect online television and time shifted viewing additional and slightly subsidiary activities. Online television supplies respondents with a large choice set, regarding the limited possibilities of information processing to the human brain (Dijksterhuis, 2006), this might even be an oversupply of content. Linear television is reducing the available content to one item per channel, per moment in time. Thereby the choice set for users is limited to the number of available channels. Online this choice set is the number of available channels with online content, times the number of content per channel, which is logically a by far larger number.

We could state that online television behavior is more likely in some groups, compared to other groups: because online television has a relatively high reach for 13-19 year old people, it is likely that a profile with a larger proportion people in this age group is reached better by online television. Thus the profile *Youngsters* (7) could possibly score high in future developments in online television. This reasoning is based on the assumption that the contemporary proportions of age groups in online television behavior will not change. This neglects the possibility that it is plausible that the people in 13-19 are some kind of early adopters of online television. With the product online television transiting to maturity in the coming few years these proportions might change.

Other reference statistic can be the ratio of using streaming video in general, which is high for *High class man* (profile 2), *Man at work* (5) and *Joe and Jane Sixpack* (4). With the familiarity of the use of online video, online television can be adapted relatively fast to these groups as well.

Another line of reasoning can be the interest in television. *Traditional women* (1) are interested in linear television more than other groups, therefore one could assume that people in this group are interested in the content of online television as well. Whenever the, technological, threshold of online television is breached trough, this group may become high online viewers.

For people in the groups *Joe and Jane Sixpack* (4) and *Man at work* (5), it is likely that online television is becoming (or remaining) present in the coming years: they use online video relatively frequently, are above average television users and have an average age - the three here available proxy’s of online television prediction.

Also plausible is that people with low leisure time are interested in online television, as content can be selected by the user and (long) commercial breaks are absent, making online television more efficient than linear television. This fits earlier reasoning in this chapter about the passive nature of linear television versus the active nature of online television as well. *High class man* (2) have the lowest leisure time, and thus might be interested in efficient content use, the small gender difference in contemporary online television fits this assumption as well. *Man at work* (5) have also low leisure time, and as stated before this are also users of online video and linear television, so these people would probably be interested in online television.

The differences between online and linear television seems to fade away: television content is becoming available on multiple devices, also live, and online content is becoming available on the television screen in the living room by internet connected television, or by external devices (such as Apple TV, Playstation, media players). It should be remarked that this diminishing threshold between devices is especially applicable for those who possess the appropriate devices and have the knowledge to use the devices.

5.3 Recommendations for television audience research

An interesting topic for further research would be the role of secondary viewing time for online television. No hard measurements are know to day for online television, but also it is excluded from the newest report of SCP (2013), which is pity. The SKO panel pretends to measure net viewing time, users should log off when they are doing something else (Peeters et al., 2005), but one could question whether this is reliable in practice. Respondents could forget to log off when going to the bathroom. But also, when ironing and viewing in the same time does not require a log off. And when to log off and when not is an additional issue, is answering to phone meaning that one stops watching? And what about eating dinner?

Secondary viewing time is an topic hard to do research on, but nevertheless remains interesting. Is secondary viewing behavior lower for online television than for linear television? That would make sense, as the involvement with the content is higher, due to active selection. Or is secondary viewing time higher for online television? Because flexibility is higher, for example due to higher mobility, one could watch television everywhere with an internet connection.

In my opinion the measurements for the television audience research in the Netherlands are of a quite high level in terms of validity and reliability. Some issues with reliability may come from not discounted secondary viewing time, as described above. This would be hard to reduce, as long as the television user has an active role in the measurement process. In this respect, major improvement would be the use of retour pad data[11].

Some differences occur when reviewing television viewing time in the Netherlands, major data suppliers are the Institute for Social Research (SCP) and SKO, but the figures resulting from their data may deviate. For example SCP reports a viewing time of 14.0 hours a week, while SKO reports 22.9 hours a week. Derived from the panel data, the perceived viewing time thus, is 19.1 hours a week. These differences may be explained by various reasons.

Some part of the differences may come from the differences in age limits: SKO observations are from 6 years and older, while the perceived panel data are from 3 years and older. SCP (2013) does not report their

[11] see also http://www.kijkonderzoek.nl/retour-pad-data, last visit February 5, 2014

lower limit. Meanwhile the WEBTV data is based on 13 years and older. I think the perceived quality of all the researches will gain from more uniformity in this respect.

The level of analysis between online television and linear television could also be made more uniform: the measurements are now respectively in days a week and hours a day. Comparisons may become more powerful when online television is also measured in hours a day.

At the moment SKO is designing research to be able to measure online video content (of which online television is part) (SKO, 2013). I think secondary viewing time should be considered to be part of that research. For various kinds of stakeholders, from advertisers to scientists, it may be interesting to know what kind of attention the viewer has, at what kind of content. As such it may be included in the linear research panel as well, but this may have complicated technical issues.

On short term, the segmentation model for online television is an improvement over just accepting age and internet usage as determinants for online viewing behavior. Especially because not very much information is known on online television viewing nowadays.

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Appendix A Selection of variables with possible correspondence to online viewing

Selectie variabelen gerelateerd aan online kijken (per 1 juli 2013)

Variabele	Label	n	% 3 +						
dem301	Geslacht		Man	Vrouw					
		2760	48,7%	51,3%					
dem302	Leeftijd		13-19	20-34	35-64	65+	Andere leeftijd		
		2760	9,1%	15,6%	47,3%	14,2%	13,8%		
dem258	Inkomen		<1500	1501 - 2500	2501 - 3500	3501 - 4500	>4501		
		2379	15,8%	28,1%	29,5%	17,7%	8,8%		
dem190	Sociale klasse		A	B+	B-	C	D		
		2760	22,2%	37,1%	17,8%	20,6%	2,3%		
dem24	Aantal kinderen 3-12		Geen	1	2	3	4 of meer		
		2760	67,2%	13,8%	14,3%	3,8%	0,9%		
dem11	HH cyclus		Alleenst ≤34	Alleenst >35	Volw. Gezin huisvrouw ≤34		Volw. Gezin huisvrouw >35		HH met kinderen
		2760	3,7%	12,9%	4,9%		33,3%		45,3%
dem173	Etniciteit HKW		Westers	Niet-Westers					
		2744	91,9%	8,1%					
dem155	Stedelijkheid		Zeer sterk	sterk	matig	weinig	niet		
		2760	20,0%	27,9%	20,7%	20,9%	10,4%		
	Opleiding HKW		Basis	LBO	Middelb. Alg.	MBO	h. alg./VWO	HBO	WO
dem191		2756	1,4%	11,0%	7,0%	27,8%	5,8%	30,5%	16,5%

	TV Kijken op devices	n	% 3 +
	Totaal	**616**	**22,3%**
dem2304	Desktop/PC	220	8,0%
dem2305	Laptop	314	11,4%
dem2306	Smartphone	128	4,6%
dem2307	Tablet	230	8,3%
dem2308	Mediaspeler	17	0,6%
dem2309	Spelcomputer	7	0,3%

	Frequentie kijken op devices		Bijna elke dag	4-5 dgn p/w	2-3 dgn p/w	1 dag p/w	1 keer p/2wkn	1 keer p/m	<1 keer p/m	Nooit
	Totaal	**611**	**3,9%**	**4,1%**	**13,7%**	**27,7%**	**10,6%**	**21,4%**	**17,0%**	**1,5%**
dem2310	Desktop/PC	217	6,5%	2,8%	12,9%	26,7%	9,2%	19,4%	21,7%	0,9%
dem2311	Laptop	312	7,1%	5,4%	15,1%	27,2%	11,5%	18,9%	14,1%	0,6%
dem2312	Smartphone	132	7,6%	5,3%	16,7%	35,6%	9,1%	15,2%	7,6%	3,0%
dem2313	Tablet	232	4,3%	7,3%	29,3%	28,0%	11,2%	12,9%	6,0%	0,9%
dem2314	Mediaspeler	16	12,5%	-	12,5%	43,8%	-	18,8%	12,5%	-
dem2315	Spelcomputer	7	-	-	28,6%	42,9%	-	28,6%	-	-

Selectie variabelen gerelateerd aan online kijken (per 1 juli 2013)

Variabele	Label	n	% 3 +					
	Via devices kijken naar							
dem2316	Gemiste uitzendingen	482	80,2%					
dem2317	VLive TV op internet	161	26,8%					
dem2318	Exlusieve online content	71	11,8%					
dem2319	Ander soort programma	52	8,7%					
	Gebruik digitale ontvanger							
dem58	Internet	820	29,7%	**Dagelijks**	**Wekelijks**	**Maandelijks**	**<1 keer p/m**	**Nooit**
dem1893	Uitzending gemist	1302	47,2%	0,6%	1,3%	0,9%	2,4%	8,9%
	Internet gebruik							
dem2326	Frequentie via connected TV			**Vaak**	**Af en toe**	**Nooit**		
dem592	Surfen thuis in uren per week	2760	*Mean=30,92 (sd 41,469)*	24,2%	44,8%	31,0%		
dem595	Streaming video kijken	1890						
	Tablet gebruik							
dem2321	Gebruik apps TV programma	114	4,1%					
dem2322	Website TV programma	60	2,2%					
dem2323	Communities TV programma	96	3,5%					
dem2324	Communicatie reacties TV prog.	60	2,2%					
dem2325	Zoeken achtergrond info	74	2,7%					
	Beschikking devices							
dem1964	Desktop/PC	1491	54,0%					
dem1965	Laptop	1652	59,9%					
dem1967	Smartphone	1213	43,9%					
dem1968	Tablet	804	29,1%					
dem1969	Mediaspeler	409	14,8%					
dem1970	Mediacenter	101	3,7%					
	Gebruik devices							
dem1973	Internet via mobiel/PC/tablet	2076	75,2%					
dem1977	Video via mobiel/PC/tablet	954	42,1%					
dem1978	TV via mobiel/PC/tablet	693	30,6%					
	Interesse		**Kijkt graag**	**Neutraal**	**Niet**			
dem1941	Nationaal en int. nieuws	2340	61,4%	16,3%	6,9%			
dem1942	Nieuws uit de regio	2340	29,8%	27,4%	27,4%			
dem1943	Speelfilms	2340	48,7%	22,5%	48,7%			
dem1944	Tv-series	2340	45,7%	18,9%	18,9%			
dem1945	Spelletjes/quizzen	2340	18,6%	23,2%	43,0%			
dem1946	Sport	2340	35,1%	18,2%	31,4%			
dem1947	Prog. over mensen en relaties	2340	27,1%	21,8%	35,9%			
dem1948	Kunstprogrammas	2340	20,5%	21,5%	42,7%			
dem1949	Talentenshows	2340	20,9%	19,8%	44,0%			

Appendix B Correlations between all variables and perceived (online) viewing behavior

Marked red is insignificant at α = 0.05

Correlations						
	Online TV dagen/week rc002		Online streams rcdem595		Lineair dagen/week dem307	
	r	p	r	p	r	p
Huishoudgrootte tot	,141(**)	0,000	,114(**)	0,000	-0,026	0,184
Huishoudgrootte 13+	,161(**)	0,000	,134(**)	0,000	-,046(*)	0,018
Aantal kinderen 13-17 jr	,152(**)	0,000	,130(**)	0,000	-0,008	0,676
HH cyclus recode 2	0,059	0,148	-0,03	0,195	,064(**)	0,001
Aantal kinderen 3-12 jaar	0,037	0,365	0,009	0,688	0,014	0,477
Kijktijd boodschapper	-0,029	0,476	-,121(**)	0,000	,223(**)	0,000
TV type Beeldbuis aanwezig	0,027	0,501	0,015	0,517	0,001	0,978
TV type Plasma aanwezig	-0,003	0,951	0,042	0,070	0,026	0,183
TV type LCDscherm aanwezig	0,024	0,556	0,011	0,640	,050(**)	0,010
TV type projector aanwezig	-0,054	0,182	0,035	0,125	0,015	0,421
Aantal DVD recorders zonder HD	0,061	0,129	-0,014	0,536	0,003	0,867
Aantal tv-toestellen THUIS in gebruik	0,042	0,297	,123(**)	0,000	,079(**)	0,000
Aantal videorecorders THUIS in gebruik	-0,002	0,967	-,091(**)	0,000	0,02	0,298
Aantal DVD-, Blue Ray spelers aangesloten op TV	0,041	0,314	,098(**)	0,000	-0,007	0,705
Gebruik dig.ontvanger: Internet	-0,053	0,206	,057(*)	0,018	-,067(**)	0,001
Gebruik dig.ontvanger: E-mail	-0,018	0,667	0,028	0,254	-,056(**)	0,006
Gebruik dig.ontvanger: bestellen speelfilm	0,015	0,725	,146(**)	0,000	-0,016	0,417
Gebruik dig.ontvanger: Elektronische Programmagids (EPG)	-0,079	0,061	,160(**)	0,000	-0,018	0,385
Gebruik dig.ontvanger: extra Radio Muziekzenders	-0,062	0,141	,156(**)	0,000	-0,006	0,771
Gebruik dig.ontvanger: extra TV Themakanalen	-0,064	0,129	,131(**)	0,000	0,006	0,760
Gebruik dig.ontvanger: Interactief meedoen TV-progs	-0,009	0,837	,103(**)	0,000	-0,026	0,191
Gebruik dig.ontvanger: Spelletjes	-0,009	0,835	,105(**)	0,000	-0,006	0,763
Gebruik dig.ontvanger: andere diensten	0,043	0,313	-0,038	0,120	-,048(*)	0,018
Gebruik decoder: geen van allen	0,021	0,614	-,066(**)	0,006	0,017	0,409
Abonnement Canal Digital	0,049	0,223	-0,032	0,162	,048(*)	0,012
Digitale fotocamera	-0,042	0,301	0,042	0,068	-0,008	0,659
Hkw betaald werk	0,021	0,609	,210(**)	0,000	-,090(**)	0,000
Aantal losse HD recorders	-0,073	0,073	,050(*)	0,029	-0,008	0,677
Aantal SpelComputers	0,01	0,805	,230(**)	0,000	-0,022	0,259
Werkzaamheid hkw uur/week	0,03	0,462	-,071(**)	0,003	,049(*)	0,013
Gemeentegrootte	0,068	0,091	,073(**)	0,001	-,071(**)	0,000
Provincie	0,061	0,132	-0,01	0,654	-0,033	0,083
Provincie (12)	0,019	0,648	-0,026	0,251	-0,003	0,880
Bezit Videocamera of camcorder	,081(*)	0,046	,082(**)	0,000	,043(*)	0,027
Respondent is decisionmaker	-0,047	0,251	,046(*)	0,045	-,039(*)	0,040
Hoogste opleiding Huishouden	0,045	0,267	,173(**)	0,000	-,136(**)	0,000
Aantal kinderen 0-1 jaar	-0,063	0,118	0,02	0,375	0,007	0,717
Aantal kinderen 0-2 jaar	-0,033	0,415	0,012	0,606	-0,008	0,675
Abonnement overige aanbieders abonnee tv	0,042	0,305	0,019	0,404	,047(*)	0,015
Stedelijkheid	0,076	0,060	,113(**)	0,000	-,072(**)	0,000
Internet op tv te ontangen	0,021	0,596	,094(**)	0,000	-0,012	0,533
Etniciteit HKW	0,039	0,341	,060(**)	0,009	-0,022	0,247
Abonnement Avrobode HH	-0,034	0,406	-0,042	0,067	0,023	0,231
Abonnement Televisier HH	-0,01	0,810	-,057(*)	0,013	0,029	0,127
Abonnement EO Visie HH	-0,056	0,166	-0,013	0,567	-0,009	0,653
Abonnement Studio HH	0,037	0,358	-,070(**)	0,002	0,011	0,562
Abonnement Mikrogids HH	-0,069	0,090	-,056(*)	0,015	0,033	0,088
Abonnement NCRV gids HH	-0,059	0,146	-0,036	0,117	0,021	0,271
Abonnement TROS kompas HH	-0,011	0,777	-,070(**)	0,002	0,035	0,072

Abonnement TV-krant HH	0,058	0,153	0,002	0,924	0,008	0,668
Abonnement Vara gids HH	,082(*)	0,043	0,005	0,837	0,02	0,287
Abonnement Veronica Magazine HH	-0,026	0,521	-0,023	0,322	,063(**)	0,001
Abonnement VPRO gids HH	-,101(*)	0,012	-0,023	0,325	-,054(**)	0,005
Abonnement Totaal TV HH	-0,004	0,923	-0,023	0,321	-0,001	0,953
Abonnement TV Film HH	0,043	0,284	-0,024	0,287	,038(*)	0,047
Abonnement radio-, tv programmablad	-0,06	0,140	-,129(**)	0,000	,081(**)	0,000
Opleiding hoofdkostwinner voltooid	0,025	0,544	,107(**)	0,000	-,119(**)	0,000
Opleiding hoofdkostwinner hoogst genoten	0,03	0,454	,130(**)	0,000	-,126(**)	0,000
Bruto jaarinkomen huishouden	0,001	0,984	,066(*)	0,010	0,009	0,674
Aantal settopbox in huishouden	-0,051	0,209	,159(**)	0,000	-0,016	0,418
Aantal settopbox met harddisk in huishouden	0,017	0,672	,117(**)	0,000	-,048(*)	0,012
Gebruik dig.ontvanger: TV-opname hd	0,009	0,835	,102(**)	0,000	-,053(**)	0,009
TV digitale ontvanger internet IPTV	0,027	0,498	0,041	0,074	0,006	0,774
Aantal HDTV boxen in huishouden	0,025	0,544	,075(**)	0,001	-,062(**)	0,001
Abonnement Film1	-0,016	0,700	,071(**)	0,002	-0,033	0,085
Abonnement Sport1	0,031	0,451	-0,013	0,581	0,025	0,189
Netto maandinkomen huishouden	0,026	0,542	,056(*)	0,024	-0,006	0,782
Plaats basistoestel	0,068	0,095	0,008	0,740	-0,033	0,090
Steunlidmaatschappen huishouden	,106(**)	0,009	0,027	0,242	0,014	0,470
Geslacht respondent	-,105(**)	0,010	-,132(**)	0,000	0,014	0,480
Leeftijd respondent	-,255(**)	0,000	-,492(**)	0,000	,125(**)	0,000
Plaats in huishouden	,124(**)	0,002	,254(**)	0,000	-,054(**)	0,005
TV-kijken dagen per week	-,092(*)	0,022	-,121(**)	0,000	1,000(**)	.
TV-kijken uren per week	-,079(*)	0,050	-,132(**)	0,000	,398(**)	0,000
Politiek	-0,013	0,739	,102(**)	0,000	-,048(*)	0,020
Kunst (moderne of traditionele)	,094(*)	0,020	0,037	0,104	,043(*)	0,036
Sport	-,101(*)	0,012	-0,021	0,351	-,041(*)	0,047
Museum bezocht	0,034	0,403	0,038	0,096	-,078(**)	0,000
Leesfrequentie literaire en historische boeken	0,014	0,724	0,027	0,234	0,013	0,496
luisteren naar radio in dagen per week	-0,038	0,342	-,075(**)	0,001	,088(**)	0,000
luisteren naar radio in uren per week	-,106(**)	0,009	-,088(**)	0,000	,092(**)	0,000
Frequentie bij iemand anders thuis TV kijken	-0,038	0,354	,246(**)	0,000	-0,01	0,619
Beslissingsbevoegd in bedrijf/organisatie	0,032	0,603	0,043	0,230	-0,028	0,393
Interactief TV via SMS	0,078	0,054	0,024	0,296	-0,004	0,860
Interactief TV via email	,(a)	.	0,04	0,086	0,015	0,474
Interactief TV via Telefoon	,(a)	.	,(a)	.	0,009	0,680
Interactief TV via Brief	0,043	0,287	-0,009	0,685	0,011	0,589
Interactief TV via settopbox	0,02	0,620	,140(**)	0,000	-0,028	0,169
Interactief TV via Anders	,(a)	.	,(a)	.	,(a)	.
Freq radio luisteren digitale decoder	0,055	0,201	,065(*)	0,014	-0,02	0,398
Aantal Weekbladen (totaal)	0,009	0,816	0,001	0,960	,056(**)	0,006
Aantal Maandbladen (totaal)	0,014	0,731	0,029	0,215	0,018	0,378
Aantal dagbladdagen	-0,041	0,317	-,158(**)	0,000	0,037	0,071
Kerkgenootschap	0,002	0,969	,102(**)	0,004	-,127(**)	0,000
Rol godsdienst	-,081(*)	0,048	-,115(**)	0,000	0,012	0,577
Werkzaamheid respondent in uren per week (gecodeerd)	-0,059	0,179	-,106(**)	0,000	,052(*)	0,024
Sterren en shownieuws interesse	0,028	0,483	0,004	0,860	,068(**)	0,001
Kerkgang	-0,06	0,143	-,084(**)	0,000	0,027	0,195
Betaald werk nu of vroeger	-,162(**)	0,000	0,018	0,426	-,061(**)	0,003
Opleiding respondent (voltooid)	-,080(*)	0,049	-,053(*)	0,022	-,113(**)	0,000
Beroepsgerichte cursus/opleiding volgen	,219(**)	0,000	,310(**)	0,000	-,147(**)	0,000
Netto maandinkomen Rp	-0,045	0,320	-,058(*)	0,029	-0,024	0,313
Opleiding respondent hoogst genoten	-0,003	0,944	,071(**)	0,002	0,012	0,547
Duur arbeidssituatie	-0,073	0,494	-0,022	0,690	0,062	0,168
Duur werkloos afgelopen jaar	0,033	0,518	,089(**)	0,003	0	0,993

Aantal werknemers bedrijf	0,032	0,471	-0,013	0,624	-0,027	0,245
Soort bedrijf	,182(**)	0,000	,054(*)	0,019	0,02	0,305
Doet meestal dagelijkse boodschappen	-,163(**)	0,000	-,153(**)	0,000	0,029	0,136
Tweeverdieners	-,104(*)	0,010	-,117(**)	0,000	,045(*)	0,019
PC-gebruik thuis	0,058	0,222	,083(**)	0,001	-0,041	0,087
eerste omroepvoorkeur	-0,043	0,292	0,034	0,142	0,011	0,555
tweede omroepvoorkeur	-0,004	0,914	-0,004	0,868	0,004	0,850
Internetactiviteit: mailen	-0,06	0,162	,116(**)	0,000	-,056(*)	0,016
Internetactiviteit: downloaden	,164(**)	0,000	,465(**)	0,000	-,148(**)	0,000
Internetactiviteit: spelletjes doen	0,038	0,371	,230(**)	0,000	0,017	0,448
Internetactiviteit: informatie zoeken	0,078	0,069	,248(**)	0,000	-,056(*)	0,015
Internetactiviteit: chatten	,161(**)	0,000	,354(**)	0,000	-,088(**)	0,000
Uren per week thuis Internetten	,174(**)	0,000	,287(**)	0,000	-,062(**)	0,005
Score culturele aff	-0,018	0,655	-0,022	0,343	-,057(**)	0,003
Score sport aff	,101(*)	0,012	0,022	0,341	0,035	0,066
Score politieke aff	0,033	0,411	-,099(**)	0,000	0,036	0,059
Algemeen dagblad lezen	-0,025	0,532	-,075(**)	0,001	0,001	0,950
Telegraaf lezen	-0,038	0,355	-,099(**)	0,000	0,039	0,063
Volkskrant lezen	-0,055	0,172	-,046(*)	0,048	-0,009	0,680
NRC handelsblad lezen	0,047	0,246	-0,015	0,502	-,092(**)	0,000
Het Parool lezen	,085(*)	0,036	-,047(*)	0,043	-0,014	0,509
Regionaal dagblad lezen	-,085(*)	0,035	-,176(**)	0,000	,116(**)	0,000
Trouw lezen	-0,035	0,395	-,065(**)	0,005	0,029	0,168
Eerste zendervoorkeur	0,006	0,883	,201(**)	0,000	-0,038	0,075
Tweede zendervoorkeur	0,04	0,364	,162(**)	0,000	-0,041	0,064
Werkzaamheid in uren per week	-,174(**)	0,000	-,100(**)	0,000	0,031	0,130
Uren huishoudelijk werk	-,138(**)	0,001	-,281(**)	0,000	,115(**)	0,000
Uren per week thuis internetten (exact)	,199(**)	0,000	,265(**)	0,000	-,074(**)	0,001
Uren per week op het werk internetten (exact)	0,023	0,567	,074(**)	0,001	-0,023	0,260
Etnische afkomst respondent	0,07	0,086	,078(**)	0,001	-,043(*)	0,037
Recode streams kijken dem595	,229(**)	0,000	1,000(**)	,	-,121(**)	0,000
Hoe lang TV kijken bij iemand anders	-0,014	0,820	0,052	0,155	-0,034	0,274
Hoe lang geleden TV kijken bij iemand anders	-0,067	0,103	,228(**)	0,000	-0,005	0,795
Spits lezen	0,031	0,439	,073(**)	0,001	-0,008	0,710
Metro lezen	0,032	0,431	,083(**)	0,000	-0,035	0,091
Internetactiviteit kopen/verkopen	-0,037	0,384	,199(**)	0,000	-,059(*)	0,011
Aantal werknemers leiding geven	0,07	0,111	-0,047	0,063	0,029	0,208
Respondent heeft inkomen	,173(**)	0,000	,169(**)	0,000	0,02	0,294
Uren per week huishoudelijk werk	-,138(**)	0,001	-,291(**)	0,000	,121(**)	0,000
Duur laatste keer TV bij anderen gekeken EXACT	-0,081	0,177	0,067	0,063	-0,002	0,938
Duur laatste keer TV bij anderen gekeken HERCODERING	-0,106	0,078	0,042	0,242	0,004	0,902
Werkzaamheid zender/omroep/mediabureau	-0,006	0,906	0,023	0,424	-0,01	0,695
media imperative: internet	,182(**)	0,000	,243(**)	0,000	-,062(**)	0,003
media imperative: radio	-0,044	0,282	-,087(**)	0,000	,076(**)	0,000
media imperative: tv	-,103(*)	0,011	-,132(**)	0,000	,449(**)	0,000
media imperative: print dagblad	-0,068	0,092	-,191(**)	0,000	,063(**)	0,002
media imperative: print maandblad	-0,035	0,391	0,033	0,153	0,029	0,165
media imperative: print weekblad	-0,029	0,473	-0,043	0,064	,101(**)	0,000
media imperative: print tijdschriften (combinatie van maand- weekblad)	-0,029	0,481	-0,008	0,725	,085(**)	0,000
Internetactivtiteit: Internetbankieren	-,143(**)	0,001	0,024	0,302	-0,035	0,132
Internetactivtiteit: surfen zonder specifiek doel	,140(**)	0,001	,322(**)	0,000	0	0,997
Internetactivtiteit: e-mail nieuwsbrieven lezen	-0,077	0,069	,091(**)	0,000	0,016	0,491
Internetactivtiteit: radio luisteren	,165(**)	0,000	,315(**)	0,000	-,071(**)	0,002
Internetactivtiteit: bloggen	,105(*)	0,013	,259(**)	0,000	-,067(**)	0,003

Internetactivtiteit: lezen RSS feeds, news alerts	,087(*)	0,042	,218(**)	0,000	-,091(**)	0,000
Internetactivtiteit: Skypen/Vider/Facetime	,119(**)	0,005	,214(**)	0,000	-,095(**)	0,000
Internetactivtiteit: Communities bezoeken	,132(**)	0,002	,397(**)	0,000	-,055(*)	0,017
Belang betere wereld - rapportcijfer	-0,051	0,208	-,143(**)	0,000	0,038	0,065
Belang hulpvaardigheid - rapportcijfer	-0,056	0,170	-,172(**)	0,000	0,028	0,174
Belang handhaven orde - rapportcijfer	-0,036	0,371	-,179(**)	0,000	,118(**)	0,000
Belang vriendelijker samenleving - rapportcijfer	-0,063	0,118	-,156(**)	0,000	,071(**)	0,001
Belang misdaad bestrijding - rapportcijfer	-0,041	0,316	-,160(**)	0,000	,114(**)	0,000
Belang ideeen belangrijker dan geld - rapportcijfer	-0,024	0,558	-,111(**)	0,000	0,038	0,065
Aantal personen leiding geven	0,071	0,106	-,054(*)	0,031	0,03	0,183
Stelling NL te veel regels	0,018	0,656	-,109(**)	0,000	,097(**)	0,000
Stelling verwennen met mooie dingen	0,058	0,151	,163(**)	0,000	-0,032	0,119
Stelling luxe en comfort belangrijk	,096(*)	0,017	,204(**)	0,000	-0,03	0,148
Stelling milieu bewust	-,101(*)	0,013	-,156(**)	0,000	0,016	0,445
Stelling milieu neutraal	-,112(**)	0,006	-,147(**)	0,000	0,005	0,812
Uren per week op het werk Internetten	0,028	0,498	,096(**)	0,000	-,071(**)	0,001
Uren per week elders Internetten	0,058	0,153	,232(**)	0,000	-,049(*)	0,019
Uren per week elders internetten (exact)	0,07	0,086	,146(**)	0,000	-0,031	0,136
Internetactivtiteit: Twitter	,136(**)	0,001	,326(**)	0,000	0,003	0,882
Interactief TV via social media	0,023	0,571	,076(**)	0,001	0,001	0,963
Interactief TV via internetsite tv-programma	0,005	0,912	,056(*)	0,015	0,018	0,398
Interactief TV op een andere manier via internet	,(a)	,	,(a)	,	,(a)	,
Aantal PCs thuis aanwezig	0,056	0,165	,052(*)	0,025	-,044(*)	0,022
Aantal laptops/netbooks thuis aanwezig	0,069	0,088	,223(**)	0,000	-,132(**)	0,000
Aantal tablets thuis aanwezig	,143(**)	0,000	,155(**)	0,000	-0,001	0,975
Internettoegang thuis via PC	0,042	0,301	-0,024	0,298	0,006	0,759
Internettoegang thuis via laptop/netbook	0,054	0,183	,178(**)	0,000	-,056(**)	0,007
Internettoegang thuis via tablet	,131(**)	0,001	,149(**)	0,000	0,008	0,691
Internettoegang thuis	,(a)	,	-0,04	0,085	-,042(*)	0,027
Kabelaar obv postcode huishouden	-0,041	0,348	-0,014	0,573	0,011	0,579
Leest Computerbladen	-0,017	0,677	-0,016	0,495	-,039(*)	0,044
Leest Opiniebladen	0,009	0,853	-0,008	0,797	-0,006	0,835
Leest woonbladen	-0,041	0,412	-0,044	0,155	0,014	0,624
Leest damesglossies	,103(*)	0,038	0,042	0,171	-0,02	0,477
Leest roddelbladen	-0,033	0,505	0,002	0,961	0,045	0,108
Leest zakelijke bladen	-0,003	0,945	0,023	0,448	-0,022	0,423
Leest damesbladen	-,133(**)	0,007	-,112(**)	0,000	0,054	0,050
Leest Auto-, motorbladen	0,061	0,225	0,037	0,232	-,057(*)	0,041
Leest natuurbladen	-0,084	0,092	-0,008	0,797	-0,007	0,800
Leest mannenbladen	,120(*)	0,016	,100(**)	0,001	0,036	0,192
Leest seniorenbladen	-,129(**)	0,009	-,176(**)	0,000	0,004	0,899
Leest Audio-, video-, fotografiebladen	-0,005	0,919	,089(**)	0,004	0	0,989
Aantal bladtypes lezen	-0,018	0,663	-0,002	0,920	0,017	0,366
NRC Next lezen	0,036	0,378	,055(*)	0,018	-,128(**)	0,000
Abonnement Turkse zenders	,(a)	,	-0,023	0,313	0,005	0,813
Abonnement Marrokaanse zenders	-0,054	0,182	-0,037	0,107	0,002	0,937
Abonnement Eredivisie Live	0,03	0,460	-0,002	0,924	0,009	0,631
Aantal steunlidmaatschappen respondent	0,048	0,239	0,009	0,706	0,03	0,144
UPC TV signaal	0,006	0,892	0,012	0,615	0,011	0,582
Ziggo TV signaal	-,111(**)	0,006	-0,014	0,555	-0,012	0,532
KPN Digitenne TV signaal	-0,032	0,434	0,002	0,919	0,019	0,326
Interactieve TV KPN TV signaal	,130(**)	0,001	,046(*)	0,044	-0,007	0,707
Tele2 TV signaal	0,007	0,854	0,019	0,420	-,040(*)	0,039
CanalDigitaal TV signaal	0,005	0,907	-,051(*)	0,028	0,027	0,154
Caiway signaal	-0,006	0,889	0,001	0,959	0,009	0,639

Delta TV signaal	0,014	0,724	-0,006	0,791	0,023	0,242
Ons Net Eindhoven TV signaal	,(a)	,	-,050(*)	0,029	0,013	0,493
Ander TV signaal	0,06	0,139	,050(*)	0,028	-0,008	0,691
Pers in hh van 20-24	0,048	0,235	,112(**)	0,000	-,126(**)	0,000
Huur woning	-0,036	0,368	,049(*)	0,032	-,055(**)	0,004
Koop woning	0,036	0,368	-,050(*)	0,031	,055(**)	0,004
Bezit mobiele telefoon	-0,072	0,076	,095(**)	0,000	-0,021	0,307
Aantal DVD recorders met HD	0,04	0,321	0,002	0,936	-0,034	0,099
Aantal settopbox zonder harddisk in huishouden	-0,076	0,059	,090(**)	0,000	0,024	0,205
Aantal HDrecorders ingebouwd in TV	0,044	0,283	0,017	0,480	-,076(**)	0,000
Aantal Mediaspelers	-0,014	0,727	,123(**)	0,000	-0,022	0,286
Aantal Mediacenters	-0,001	0,977	,067(**)	0,007	-,045(*)	0,028
Beschikking Spelcomputer	0,016	0,698	,284(**)	0,000	-0,039	0,061
Luisteren Radio 1	-0,002	0,957	-,110(**)	0,000	-0,012	0,564
Luisteren Radio 2	-0,016	0,689	-,067(**)	0,004	0,02	0,325
Luisteren 3FM	0,035	0,391	,163(**)	0,000	-0,036	0,086
Luisteren Radio 4	-0,05	0,220	-,107(**)	0,000	-0,01	0,642
Luisteren Radio 5'	-0,05	0,213	-,070(**)	0,002	0,014	0,486
Luisteren Arrow Classic Rock	-0,034	0,401	0,033	0,152	-,062(**)	0,003
Luisteren Regionale zender'	-,102(*)	0,012	-,129(**)	0,000	,075(**)	0,000
Luisteren Radio 10 Gold	0,026	0,527	0,02	0,391	0,022	0,291
Luisteren Sky radio	-0,06	0,137	-0,038	0,096	0,035	0,088
Luisteren 538	0,041	0,313	,128(**)	0,000	0,01	0,636
Luisteren Radio Veronica	0,024	0,547	,103(**)	0,000	0,006	0,765
Luisteren Q-music	-0,004	0,913	,160(**)	0,000	-0,018	0,391
Luisteren SLAM FM'	0,011	0,788	,126(**)	0,000	-,043(*)	0,036
Geen van de zenders, luistert nooit	0,047	0,243	0,037	0,109	-,066(**)	0,001
Leestijd dagbladen/kranten per dag (totaal)	-0,073	0,072	-,159(**)	0,000	0,015	0,469
Ontvangst TV (week 27)	-0,004	0,914	-0,017	0,456	0,025	0,188
Kabel digitaal DVB-C (wk27)	-0,04	0,328	-0,024	0,298	0,023	0,229
Schotel digitaal DVB-S (wk27)	0,045	0,263	-0,041	0,073	,043(*)	0,025
Terrestrial digitaal (Digitenne) DVB-T (wk27)	0,01	0,805	,087(**)	0,000	0,004	0,831
IPTV DVB-I (wk27)	0,076	0,059	0,024	0,303	-0,016	0,409
Gebruik dig.ontvanger: Uitzendingen in HD	0,022	0,603	,156(**)	0,000	-,054(**)	0,008
Gebruik dig.ontvanger: Programma gemist	0	0,991	,130(**)	0,000	-,066(**)	0,001
TVtype LED aanwezig	-0,043	0,286	0,045	0,052	0,002	0,927
TVtype 3D aanwezig	-0,004	0,923	,073(**)	0,002	-0,02	0,288
TVtype t/m 26 inch aanwezig	0,023	0,571	,056(*)	0,014	0,029	0,136
TVtype 27-40 inch aanwezig	0,023	0,563	-0,014	0,546	0,034	0,080
TVtype =>40 inch aanwezig	0,003	0,933	,081(**)	0,000	0,028	0,153
Ontvangst via glasvezel	-0,013	0,757	0,015	0,502	0,025	0,188
Welstand 2009	-0,01	0,807	-,143(**)	0,000	,067(**)	0,000
Luistert licht klassiek	-0,061	0,135	-,105(**)	0,000	-0,015	0,481
Luistert zwaar klassiek	-0,064	0,111	-0,031	0,184	-,057(**)	0,006
Luistert nederlandstalige popmuziek	-0,072	0,075	-0,016	0,485	,054(**)	0,009
Luistert nederlandstalig levenslied	-0,05	0,215	-,076(**)	0,001	,098(**)	0,000
Luistert nederlandstalig luisterlied	-,138(**)	0,001	-,131(**)	0,000	,100(**)	0,000
Luistert rock	-,081(*)	0,046	,175(**)	0,000	-0,036	0,085
Luistert popclassics, gouwe ouwe	-,184(**)	0,000	-0,042	0,070	0,028	0,170
Luistert top 40 pop	0,01	0,798	,186(**)	0,000	-0,023	0,265
Luistert soft pop	-0,046	0,260	,095(**)	0,000	-0,016	0,449
Luistert hip hop, rap	0,008	0,849	,253(**)	0,000	-0,016	0,431
Luistert wereldmuziek	-0,076	0,059	,045(*)	0,049	-,050(*)	0,015
Luistert country, folk music	-0,067	0,100	-,089(**)	0,000	0,032	0,125
Luistert jazz	-0,045	0,265	,056(*)	0,015	-0,012	0,572
Luistert blues	-,114(**)	0,005	0,011	0,622	0,001	0,943
Luistert soul	-0,063	0,121	,058(*)	0,012	0,026	0,203

Luistert R&B	-0,013	0,743	,158(**)	0,000	0,001	0,950
Luistert dance	-0,005	0,900	,279(**)	0,000	-0,039	0,062
Luistert alternative	-0,059	0,142	,197(**)	0,000	-,061(**)	0,003
Luistert reggae	-0,077	0,056	,128(**)	0,000	0,008	0,713
Luistert gospel	-0,05	0,218	-0,015	0,503	-0,013	0,521
Luisteren 100% NL	0,004	0,920	-0,042	0,071	0,024	0,244
luisteren Lichte muziek	-0,079	0,051	-,084(**)	0,000	0,035	0,088
luisteren Religieuze muziek	-,080(*)	0,048	-,061(**)	0,008	-0,015	0,477
Internet thuis kabel	-0,018	0,658	,046(*)	0,048	0	0,989
Internet thuis ADSL	-0,075	0,067	0,004	0,865	,042(*)	0,033
Internet thuis glasvezel	,097(*)	0,018	-0,011	0,646	-0,037	0,065
Internet thuis vaste telefoonlijn	0,023	0,578	-,083(**)	0,000	0,023	0,238
Internet thuis ISDN	-0,052	0,202	-0,035	0,133	-,065(**)	0,001
Internet thuis LAN/bedrijfsnetwerk	-0,019	0,643	0,006	0,803	-0,024	0,234
Internet thuis mobiel abonnement	0,079	0,053	0,008	0,735	-,053(**)	0,007
Kleinkinderen	0,029	0,661	-,152(**)	0,000	,127(**)	0,000
Interesse nationaal en internationaal nieuws	-,120(**)	0,003	-,173(**)	0,000	,115(**)	0,000
Interesse nieuws uit de regio	-,133(**)	0,001	-,169(**)	0,000	,144(**)	0,000
Interesse speelfilms	0,036	0,379	,197(**)	0,000	-0,009	0,679
Interesse tv-series	0,002	0,970	,162(**)	0,000	,055(**)	0,008
Interesse spelletjes/quizzen	-0,065	0,109	-,057(*)	0,014	,101(**)	0,000
Interesse sport	0,078	0,054	0,008	0,719	,072(**)	0,000
Interesse programmas over mensen en relaties	-0,06	0,137	-,131(**)	0,000	,116(**)	0,000
Interesse kunstprogrammas	-,121(**)	0,003	-,166(**)	0,000	,079(**)	0,000
Interesse talentenshows	0,036	0,381	,056(*)	0,016	0,023	0,261
Sport kijken: voetbal	,125(*)	0,013	0,022	0,445	,068(**)	0,009
Sport kijken: schaatsen	-0,087	0,083	-,132(**)	0,000	,067(*)	0,011
Sport kijken: atletiek	-0,084	0,093	-0,028	0,330	0,025	0,341
Sport kijken: zwemmen	0,018	0,722	-0,034	0,246	0,044	0,096
Sport kijken: hockey	0,023	0,651	-0,033	0,250	-0,001	0,961
Sport kijken: auto-, motorsport	-0,008	0,872	,074(*)	0,011	0,025	0,341
Sport kijken: tennis	-0,01	0,839	-,077(**)	0,008	0,002	0,949
Sport kijken: wintersporten	0	0,999	-0,037	0,200	0,038	0,149
Sport kijken: wielrennen	-0,017	0,736	-,094(**)	0,001	0,044	0,097
Sport kijken: turnen	-0,031	0,535	-0,032	0,273	0	0,986
Sport kijken: paardensport	0,017	0,729	-,076(**)	0,009	0,039	0,139
Sport kijken: darten	0,055	0,272	0,039	0,184	,054(*)	0,039
Sport kijken: pokeren	-0,043	0,396	,127(**)	0,000	0,015	0,580
Sport kijken: andere sport	-0,032	0,525	,091(**)	0,002	-0,022	0,402
Beschikking PC	-0,05	0,213	-,076(**)	0,001	0,021	0,321
Beschikking Laptop of notebook	0,039	0,339	,152(**)	0,000	-,089(**)	0,000
Beschikking mobiel zonder 3G of Wifi	-,131(**)	0,001	-,213(**)	0,000	,053(*)	0,011
Beschikking Smartphone	,116(**)	0,004	,331(**)	0,000	-,121(**)	0,000
Beschikking Tablet	0,066	0,103	,106(**)	0,000	0,026	0,217
Beschikking Mediaspeler	0,07	0,085	,268(**)	0,000	-,064(**)	0,002
Beschikking Mediacenter	0,005	0,902	,106(**)	0,000	-0,013	0,545
SMS, MMS, Chat via PC, Mobiel of Tablet	0,018	0,657	,198(**)	0,000	-,070(**)	0,001
Foto, film via PC, Mobiel of Tablet	0,041	0,313	,352(**)	0,000	-,055(**)	0,009
Internet via PC, Mobiel of Tablet	,108(**)	0,008	,131(**)	0,000	-0,018	0,384
E-mail via PC, Mobiel of Tablet	0,011	0,795	,118(**)	0,000	0,007	0,752
Luisteren muziek via PC, Mobiel of Tablet	,098(*)	0,015	,473(**)	0,000	-,077(**)	0,000
Luisteren radio via PC, Mobiel of Tablet	,089(*)	0,028	,281(**)	0,000	-,068(**)	0,001
Kijken video via PC, Mobiel of Tablet	0,029	0,469	,495(**)	0,000	-,075(**)	0,000
Kijken TV via PC, Mobiel of Tablet	,157(**)	0,000	,282(**)	0,000	-0,034	0,102
Bluetooth via PC, Mobiel of Tablet	0,069	0,089	,218(**)	0,000	-0,034	0,105
Agendabeheer via PC, Mobiel of Tablet	0,024	0,561	,254(**)	0,000	-,068(**)	0,001
GPS, Navigatie via PC, Mobiel of Tablet	-0,042	0,303	,253(**)	0,000	-,082(**)	0,000

Spelletjes via PC, Mobiel of Tablet	0,058	0,151	,297(**)	0,000	-0,033	0,119
Download Apps via PC, Mobiel of Tablet	,095(*)	0,019	,421(**)	0,000	-,082(**)	0,000
Mobiel betalen via PC, Mobiel of Tablet	-0,018	0,662	,159(**)	0,000	-,059(**)	0,005
Frequentie dagblad/krant lezen papier	-,092(*)	0,023	-,235(**)	0,000	,076(**)	0,000
Leestijd dagbladen/kranten papier per dag	-,093(*)	0,022	-,231(**)	0,000	0,037	0,073
Frequentie dagblad/krant lezen digitaal	,094(*)	0,020	,139(**)	0,000	-0,019	0,366
Leestijd dagbladen/kranten digitaal per dag	-0,013	0,750	,079(**)	0,001	-,050(*)	0,017
Aantal Weekbladen (op papier)	-0,001	0,978	-0,041	0,075	,089(**)	0,000
Aantal Weekbladen (digitaal)	0,021	0,612	,051(*)	0,027	-0,005	0,815
Aantal Maandbladen (op papier)	0,009	0,821	0,014	0,551	0,024	0,237
Aantal Maandbladen (digitaal)	0,018	0,660	0,033	0,156	-0,003	0,895
luisteren Radio 6 soul en jazz	-0,024	0,560	-0,009	0,707	0,026	0,175
luisteren Classic FM	0,02	0,621	-0,013	0,586	0,031	0,112
luisteren BNR Nieuwsradio	-0,02	0,618	-0,033	0,153	0,027	0,158
luisteren Arrow Jazz FM	0,007	0,864	0,008	0,738	0,027	0,155
luisteren FunX	0,06	0,140	-,059(**)	0,010	0,027	0,161
Social Media via PC, Mobiel of Tablet	,107(**)	0,008	,235(**)	0,000	,042(*)	0,028
Skypen via PC, Mobiel of Tablet	,110(**)	0,006	,120(**)	0,000	,038(*)	0,047
RSS feeds/news alerts lezen via PC, Mobiel of Tablet	,088(*)	0,029	,107(**)	0,000	,045(*)	0,020
Weblogs bezoeken via PC, Mobiel of Tablet	0,002	0,961	,135(**)	0,000	,045(*)	0,020
Producten (ver)kopen via PC, Mobiel of Tablet	-,081(*)	0,044	,098(**)	0,000	,047(*)	0,015
TV-kijken via desktop/PC	-,115(**)	0,005	0,014	0,731	-0,014	0,722
TV-kijken via laptop/netbook	-0,047	0,245	,119(**)	0,004	-0,064	0,108
TV-kijken via smartphone	,090(*)	0,027	,260(**)	0,000	-0,046	0,244
TV-kijken via tablet	,128(**)	0,001	0,06	0,153	0,047	0,240
TV-kijken via mediaspeler	-0,047	0,243	,083(*)	0,047	-0,007	0,869
TV-kijken via spelcomputer	0,022	0,590	0,035	0,402	-,121(**)	0,002
Freq. TV Kijken via PC/desktop	,848(**)	0,000	,277(**)	0,000	-0,114	0,094
Freq. TV Kijken via laptop/netbook	,823(**)	0,000	,330(**)	0,000	-0,1	0,078
Freq. TV Kijken via smartphone	,866(**)	0,000	0,109	0,230	0,059	0,505
Freq. TV Kijken via tablet	,752(**)	0,000	,239(**)	0,000	-0,054	0,410
Freq. TV Kijken via mediaspeler	,548(*)	0,028	-,565(*)	0,035	-0,076	0,779
Freq. TV Kijken via spelcomputer	,955(**)	0,001	-0,531	0,220	-0,383	0,396
Via apparaten kijken naar gemiste uitzendingen	-0,008	0,850	0,026	0,548	-0,069	0,089
Via apparaten kijken naar uitzendingen live internet en tv	,174(**)	0,000	,085(*)	0,050	,117(**)	0,004
Via apparaten kijken naar uitzendingen alleen live internet	,137(**)	0,001	,157(**)	0,000	-0,022	0,598
Via apparaten kijken naar ander soort programmas	0,06	0,144	,095(*)	0,027	-0,031	0,444
Freq. tablet gebruik tijdens tv kijken	,136(*)	0,015	,185(**)	0,000	,095(**)	0,009
Gebruik tablet tijdens TV: gebruik apps tv-programma	0,049	0,504	-0,005	0,923	-0,043	0,409
Gebruik tablet tijdens TV: website tv-programma	0,122	0,092	-0,004	0,949	-0,067	0,199
Gebruik tablet tijdens TV: communities tv-programma	-0,002	0,976	0,057	0,300	-0,003	0,958
Gebruik tablet tijdens TV: communicatie reacties tv-programma	0,086	0,235	,190(**)	0,000	0,037	0,479
Gebruik tablet tijdens TV: zoeken achtergrondinfo tv-programma	-0,031	0,674	,137(*)	0,012	0,01	0,845
Frequentie Internetgebruik CTV	-0,092	0,285	0,101	0,063	-0,064	0,210
Gebruik tablet tijdens TV: anders	-,193(**)	0,008	0,003	0,958	0,075	0,150
Rol in organisatie aanschaf producten	0,019	0,761	0,009	0,804	-0,015	0,642
RC van TV op een willekeurig device	,157(**)	0,000	,101(*)	0,015	-0,029	0,464

Totaal frequenties TV op Devices	-1,000(**)	.	-,229(**)	0,000	,092(*)	0,022
Sociale klasse	0,051	0,204	-0,002	0,937	,059(**)	0,002
Boodschapper 20-49	,195(**)	0,000	,219(**)	0,000	-0,027	0,159
Groepen leeftijd WEB-TV	-,224(**)	0,000	-,444(**)	0,000	,151(**)	0,000
Spiegel RC001	1,000(**)	.	,229(**)	0,000	-,092(*)	0,022
Etniciteit RC Westers versus Niet-Westers	0,05	0,214	,047(*)	0,040	-0,03	0,116
Netto maandelijks inkomen RC	0,012	0,772	,059(*)	0,017	-0,011	0,605
Jonger dan 13 jaar	.(a)	.	.(a)	.	0,027	0,164
13 tot en met 19 jaar	,228(**)	0,000	,278(**)	0,000	-,038(*)	0,048
20 tot en met 34 jaar	0,05	0,217	,254(**)	0,000	-,142(**)	0,000
35 tot en met 64 jaar	-,189(**)	0,000	-,210(**)	0,000	0,027	0,153
65+	-0,019	0,637	-,270(**)	0,000	,112(**)	0,000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

a Cannot be computed because at least one of the variables is constant.

Appendix C Respondent characteristics and realized viewing behavior

Table 1 : Correlations perceived online and linear viewing versus characteristics webtv profiles

Correlaties respondentkenmerken STIR met online TV en streams				
	Online TV kijken dagen per week *(rc002)*		**Online streams kijken** *(rcdem595)*	
	Geaggregeerd alle devices, gepercipieerd n=608		*1 = nooit / 2 = af en toe / 3 = vaak* n=1873	
	K-S Z= 4,227	*p=0,000*	*K-S Z=*	*p =*
Leeftijd	-0,223	*0,000*	-0,445	*0,000*
13-19				
20-34				
35-64				
65+				
Sociale klasse	0,192	*0,053*	0,002	*0,917*
AB1 (=1)				
B2CD (=2)				
Geslacht	-0,106	*0,009*	-0,132	*0,000*
Man				
Vrouw				
TV gebruik	-0,101	*0,013*	-0,137	*0,000*
Laag				
Midden				
Hoog				
Internet gebruik	0,182	*0,000*	0,243	*0,000*
Laag				
Midden				
Hoog				
Boodschapper 20-49	0,192	*0,000*	0,216	*0,000*
Geen boodschapper, wel 20-49				

Table 2 : Realized online viewing behavior versus respondent characteristics

WEBTV data per respondentkenmerk STIR					
	GCF	**BEREIK**	**RESULTAAT TOTAAL (ONGEWOGEN)**	**%**	**ASPEELDUUR (TOTAAL) BEREIKTEN**
Leeftijd					
13-19	8,74	39,70%	1999	12,90	8571
20-34	6,94	34,43%	5909	38,14	7140
35-64	5,16	22,06%	6604	42,62	5063
65+	5,45	11,20%	982	6,34	5281
				100	
Sociale klasse					
AB1 (=1)	6,43	26,42%	8203	52,94	6236
B2CD (=2)	6,14	22,74%	7291	47,06	6320
				100	
Geslacht					
Man	5,02	23,02%	5757	37,16	4544
Vrouw	7,40	26,15%	9737	62,84	7757
				100	
TV gebruik					
Laag	7,98	32,26%	6135	39,60	7830
Midden	5,57	28,87%	4522	29,19	5531
Hoog	5,37	24,94%	4837	31,22	5479
				100	
Internet gebruik					
Laag	6,30	18,65%	5307	34,25	6324
Midden	5,67	29,89%	5366	34,63	5606
Hoog	7,22	30,97%	4821	31,12	7178
				100	
Boodschapper 20-49	6,28	30,01%	6509		6449
Geen boodschapper, wel 20-49					

GCF = Gemiddelde contact frequentie: Aantal contacten met stream

Table 3 : Realized online viewing to genre versus respondent characteristics

	Genre / Afspeelduur (totaal) bereikten						
	Informatie/educatie	**Fictie**	**Amusement**	**Sport**	**Muziek**	**Kinderen (0-12)**	**Overig**
Leeftijd							
13-19	2780	7119	5031	3285	1554	3605	0
20-34	3711	6019	4409	6844	1758	1997	1342
35-64	3216	5056	3962	3895	1230	1709	0
65+	2662	6461	4782	2883	1402	1026	0
Sociale klasse							
AB1	2991	6152	4483	4937	1278	2306	1342
B2CD	3561	5573	4425	5642	1677	1870	0
Geslacht							
Man	2755	4438	2898	5559	1463	1908	1342
Vrouw	3755	6655	5493	4195	1412	2302	0
TV gebruik							
Laag	3826	7276	4816	4939	996	3034	0
Midden	3168	5589	3816	7061	1825	1544	1342
Hoog	2735	4948	4542	3066	1629	1517	0
Internet gebruik							
Laag	3065	5848	4906	4602	1249	2637	0
Midden	3049	5034	4542	3789	1699	2224	1342
Hoog	3760	7091	4112	8378	1412	1070	0
Boodschapper 20-49	3876	5269	4477	6392	1712	1857	1342
Geen boodschapper, wel 20-49							

Appendix D Base for profile plot

Table E.1 : Base figures for profile plots

	1	2	3	4	5	6	7
Leisure time	**134.79**	**126.26**	**146.86**	**133.44**	**127.95**	**136.32**	**132.80**
Relative position	5	7	1	4	6	3	2
Economic capital	**33.69**	**45.74**	**24.38**	**36.59**	**42.43**	**34.82**	**37.09**
Work hours/week - Relative pos.	5	1	7	4	2	6	3
Monthly income - Relative pos.	7	1	3	4	5	2	6
Cultural capital	**13.11**	**17.97**	**12.92**	**14.95**	**12.21**	**18.38**	**15.29**
Completed education - Relative pos.	7	1	5	4	6	2	3
Cultural affinity *	8.19 - 8.14 = 0.05	8.19 - 7.28 = 0.91	8.19 - 9.06 = -0.87	8.19 - 7.36 = 0.83	8.19 - 8.28 = -0.09	8.19 - 8.72 = -0.53	8.19 - 8.16 = 0.03
Political * affinity	1.77 - 1.82 = -0.05	1.77 - 1.50 = 0.27	1.77 - 2.01 = -0.24	1.77 - 1.38 = 0.39	1.77 - 1.59 = 0.18	1.77 - 1.90 = -0.13	1.77 - 1.88 = -0.11
Age	**60**	**52**	**33**	**43**	**51**	**51**	**30**

**) Relative cluster score is calculated by : Total mean - cluster mean = deviation from overall mean*

***) The relative positions are determined on interpretation of data, 1 stands for highest scoring cluster*

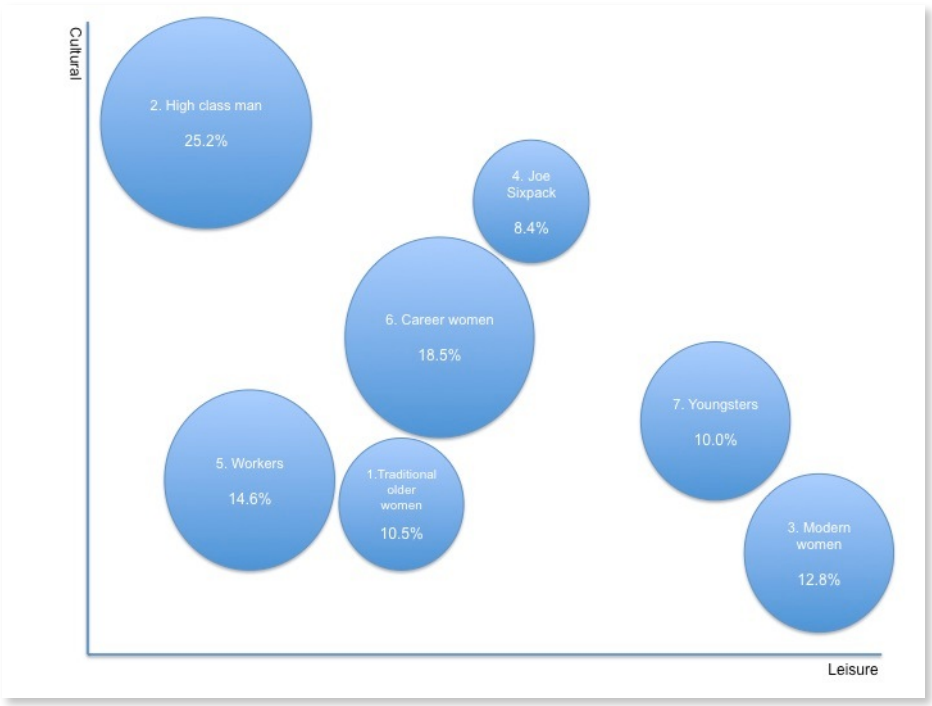

Figure E.1 : Try out for profiling in 2D