UvA-DARE (Digital Academic Repository)

Coping with diversity: exposure to public-affairs TV in a changing viewing environment

Wonneberger, A.

Publication date
2011

Citation for published version (APA):
Wonneberger, A. (2011). *Coping with diversity: exposure to public-affairs TV in a changing viewing environment*.

CHAPTER 2

Dimensionality of TV-News Exposure: A Comparison of Exposure Measures from People-Meter Data

Manuscript under review.

Abstract

This study helps to clarify the validity of different measures of exposure to television news – from the regularity of exposure via viewing durations to deliberate news selection and avoidance behavior. Using Dutch people-meter data on the individual viewer level, nine different exposure measures are compared. The measures are ascribed to different dimensions of exposure. In addition, their ability to be predicted by relevant viewer characteristics is assessed. Our results suggest that measuring exposure to news entails a three-dimensional construct consisting of the amount of watching the news, modes of program selection, and the viewing share. The amount measures are most strongly and most consistently related to individual characteristics. Implications for public opinion research are discussed.

Exposure to news programs often is a crucial variable – as an explanatory as well as a dependent one – for the study of the uses and effects of political communication (e.g., Delli Carpini & Keeter, 1996; Eveland & Scheufele, 2000; Prior, 2007). But all conclusions on the relationships between TV-news exposure and political knowledge, attitudes, or behaviors actually depend on how validly and reliably exposure is measured. Two types of validation studies can be discerned that contribute to the improvement of exposure measures. The first deals with problems that are inherent to self-reported measures. The second taps into definitions of exposure by evaluating dimensions of news exposure. The present study is concerned with the latter problematic.

Almost always, exposure is measured by self-reports, i.e., respondents are typically asked about their TV viewing behavior in surveys or interviews. These kinds of self-reports of media use have often been discussed critically (e.g., Allen & Taylor 1985; Price & Zaller 1993; Prior 2009a, 2009b). Well known problems of self-reported measures, in general, are difficulties of comprehending the questions and of recalling, estimating, and reporting behavior truthfully (e.g., Burton & Blair 1991; Schwarz 2007). Since exposure to TV news is a part of daily routines, often conducted automatically, the accuracy of self-reports is restrained by the ability of respondents to correctly recall their viewing behavior.

In addition to the problem of measuring accurately, previous research has dealt with the more general question how news exposure could be defined in the first place and, then, which kind of measure gauges the proposed concept(s) best. Typically, those studies go beyond measuring the mere exposure to TV news. However, their findings show that TV news exposure – and subsequently its effects – differs from exposure to other news media such as newspapers or the Internet and should, thus, be studied separately (Althaus & Tewksbury, 2007; Coromina & Saris, 2009; Eveland, Hutchens, & Shen, 2009). Also internally, exposure to national news programs has been discerned from exposure to other types of public-affairs TV such as campaign messages or local news (Allen & Taylor, 1985).

Moreover, news exposure has been described as a construct consisting of the frequency of mere exposure and the attention paid to the news (Eveland et al., 2009). However, combining exposure and attention in one measure might be problematic for two reasons. First, self-reported measures of news exposure ought to be confounded with attention since a minimum of attention during exposure is necessary to remember past viewing behavior (Slater, 2004). Second, mere exposure as well as attention can be assumed to be related to prior political

interest, knowledge, or other related attitudes. But especially attention has been discussed as confounded with political outcome variables (Eveland et al., 2009; Slater, 2004; also compare: Romantan et al., 2008). For this reason, this study focuses on exposure to news programs as a pre-condition of being able to pay attention, comprehend, and recall specific news items (see Slater, 2004). Since different measures have been applied on this level of exposure, we compare these measures and assess their dimensionality. TV-news exposure has been typically measured by asking respondents how often or for how long they normally watch the news (Althaus & Tewksbury, 2007; Newton, 2002). But do these measures substitute each other? And do they sufficiently gauge the possible variety in people's news viewing behavior today? Considering changes of the media environment, watching newscasts on television today seems to be less self-evident and less habitual as it might have been some decades ago (e.g., Papper, 2006; Prior, 2007). Every news program competes with newscasts on other channels and with alternative programs. Moreover, with an increasing number of online offers, citizens have many opportunities to keep up with public affairs around-the-clock. So, TV is only an additional news source to choose from. On the one hand, news fans have the opportunity to watch as many different newscasts they want throughout the day. On the other hand, the inattentive or less interested viewers might not even follow one entire program anymore but switch to more interesting programs after the first headlines. Measures that gauge such manners of selectivity towards news programs might, therefore, be a useful complement for the mere amount of exposure.

This study explores how measures of the amount of exposure and the selectivity towards news are interrelated and how they discriminate between viewer groups that are assumed to differ in their news exposure. People-meter data offer highly accurate and detailed measures of individual viewing behavior. Since people meters electronically record exact viewing times and channels watched, these data are not prone to a major problem of self-reports. Respondents do not need to recall and estimate past behavior. The use of observational data also allows us to develop and compare measures of mere exposure to news programs that are not biased towards viewers' attention to the news (Slater, 2004). We simulate different exposure measures that are also used in survey research. This approach enhances our understanding about pure behavioral aspects of exposure to TV news. Knowledge about the interrelations between aspects of news exposure and their ability to discern different viewer styles might help to find appropriate measures for public opinion research as well.

Measures of News Exposure

A literature review on measures of news exposure reveals in principle two types of measures. The first deals with the amount of news exposure. The second type takes the intentionality of viewers into account – in how far do they choose to watch the news? So far, it is not clear how these different types of measures are related. Do they measure the same concept or do they complement one another in the sense that they represent different dimensions of news exposure?

Often, the amount of exposure to news programs is gauged by frequency or time-spent measures. Some studies use general indications about how "often" one watches news programs on TV (Baum, 2002; Robinson & Levy, 1996). Or respondents are asked about their news-media use "yesterday" (Atkin, 1972; Prior, 2009b), on a "normal weekday" (Althaus & Tewksbury, 2007; Blödorn & Gerhards, 2004), during a "typical week", or during the "past week" (Althaus & Tewksbury, 2007; Prior, 2003). Asking for the number of days that people watch the news during a typical week has become the most common measure in survey research. However, exposure frequency might not sufficiently represent the variety of possible news viewing patterns. Quite plausibly so, because we might think of viewers who watch the news regularly on five days a week, news junkies who only watch TV to follow the news throughout the day, or viewers who only scan the news once in a while or even routinely change channels after having seen the first headlines. All of them would watch the news five days a week. So, especially, with a rich offer of different news programs as well as alternative programs to watch, news viewing seems to be a multifaceted activity. That is why measures of news viewing duration have been introduced. The response types of time-spent measures range from ordinal duration categories (Atkin, 1972; Coromina & Saris, 2009) to the exact duration that respondents "normally" spend watching news on TV (Althaus & Tewksbury, 2007; Newton, 2002; Robinson & Levy, 1996).

In addition to the amount of news exposure, research is also interested in the intentionality of program choices. Selective viewing is a key-concept in audience research (e.g., Levy 1978; Rubin, 1984). Selective exposure implies involvement with or interest in the program contents that are watched. That is why it is assumed that exposure effects differ according to the degree of viewing news intentionally (e.g., Rubin, 2009). An indicator for viewing intentions is a viewer's preference for news programs – measured independently or relatively to other program genres (Bower, 1973; Prior, 2003, 2007). Measures of relative entertainment preference account for the fact that viewers choose to watch news

programs relatively to other genres (Prior, 2003, 2007). This gauges the likelihood that viewers would select a news program instead of alternative programs available. Of course, viewing preferences do not automatically describe actual viewing behavior. In terms of actual viewing choices, a preference for news can be expressed by the focus on news programs, for instance, by the percentage of a viewer's overall viewing time that is spent on news (Prior, 2003).

Also, whether a viewer turns a news program on consciously or is "trapped" by programming strategies and then "gives in" and watches political contents is thought of as different qualities of exposure (Schoenbach & Lauf, 2002, 2004). Therefore, actively selecting a news program by changing channels and passively choosing a program by staying with a channel are considered as two distinct manners of approaching news (Bilandzic, 2004; Levy, 1978). "Appointment viewing" is regarded as a special form of selectivity. For this, respondents are asked whether they schedule their everyday life to not miss the news or make sure to start watching on time, even before the beginning of a news program (Levy, 1978; Nelissen, Konig, & Renckstorf, 2008; Rubin, 1984). Finally, selectivity can also be expressed negatively. Viewers that do not like news programs might intentionally avoid such programs (Van den Bulck, 2006). Changing channels during news exposure has been taken as an empirical indicator of avoidance behavior (Morris & Forgette, 2007; Patterson, 2000).

Depending on specific research interests, different measures of news exposure have been used in studies on news viewing behavior. Although the frequency and selectivity of exposure are theoretically regarded as distinct concepts, this has not been empirically tested so far. An assumption implicitly made when using self-reports is that exposure to TV news is a one-dimensional construct, i.e., different manners of measuring news exposure all gauge the same concept: exposure. We put this assumption to the test with following research question:

RQ$_1$:   Is news exposure a one-dimensional concept?

Exposure Differences between Viewer Groups

Measures that are redundant because they represent the same dimension of news exposure should show similar relationships to potential dependent variables. Important characteristics that have been related to news exposure and viewing behavior in general are: age, gender, education, overall TV exposure, news preference, political interest, and turnout probability. Conversely, measures that

differ in their relations to other variables also offer differential insights for the study of news exposure. For instance, older and younger viewers might report similar frequencies of news viewing but the younger might be more prone to switching away while the older tend to watch entire newscasts. This would mean that frequency and selectivity measures might not be equally suited for comparing news viewing behavior of younger and older viewers but should be considered as complementary aspects.

Many studies have shown that exposure to news programs increases with age (e.g., Allen & Taylor, 1985; Hargreaves & Thomas, 2002; Rubin, 1984). But older people have also been found to watch more TV than younger people do (Hargreaves & Thomas, 2002; Hasebrink & Krotz, 1996). Thus, age but also a higher amount of TV consumption in general relate positively to the amount of news exposure. Gender, in contrast, has been found to be unrelated to the amount of news exposure (Althaus & Tewksbury, 2007; Prior, 2007). However, regarding their switching behavior, men have been found to be more active in their program choices than women (Bilandzic, 2004). Similarly, viewers with higher levels of education have been found to be more active in their choice behavior (Bilandzic, 2004), while there is a tendency that better educated viewers watch less news on TV than lower educated ones (Althaus & Tewksbury, 2007; Prior, 2007).

Whether a viewer has a positive attitude towards a program type is, generally, assumed to be an important predictor for the selection of that type of program (Klövekorn, 2002; Webster & Wakshlag, 1983). Although they should not be confounded, in some studies, news preference is even used as a substitute for news exposure (Prior, 2007). Conversely, also preferences for non-news programs might influence news consumption, by drawing people away from it. Prior's (2003, 2007) "relative entertainment preference" represents that viewers – who have to choose between competing programs – may find entertaining content more interesting. Thus, quite plausibly, a stronger preference for entertainment programs should lead to watching news programs less often. Finally, political involvement, for instance, expressed by political interest and turnout to vote, has been found to be positively related to news exposure (Aarts & Semetko, 2003; Delli Carpini & Keeter, 1996; Hargreaves & Thomas, 2002; Prior, 2007).

In sum, previous studies have identified a range of viewer characteristics that are related to one's level of news exposure. For the purpose of comparing the discriminating power of the exposure measures, we are interested in the direction and strength of the relationships between these viewer characteristics and the different manners of gauging news exposure. Our second research question

addresses potential differences between exposure measures in their ability to discriminate between viewer groups:

  RQ₂: How do measures of news exposure differ in their ability to discern viewers according to their individual background?

Data

Our analysis was based on Dutch people-meter data. Since 2002, the Dutch Audience Research Foundation, *Stichting KijkOnderzoek* (SKO), has been responsible for the collection of television audience research in the Netherlands. SKO is a joint venture of the public broadcasting foundation and the national associations of commercial channels, advertisers, and media agencies. The audience data are collected by Intomart GfK from a panel consisting of about 1,220 households, or about 2,900 persons representative for all Dutch three years and older. People-meters are installed in every household and connected to every television set. Every time a panel member watches TV, he or she needs to log on to the meter as a viewer using a separate remote control device. Then viewing behavior is electronically registered – including the viewing times, the channels watched and the exact moments of switching between channels. An annual survey is held among the panel members that provides a wide range of socio-demographic information about each household and each individual. In addition, MediaXim Nederland collects programming data so that watching a channel at a particular time can be allocated to a specific program. The programming of the 17 main Dutch channels is coded. These include all main national plus foreign TV stations that account for a market share of about 80 percent (see SKO, 2008a, 2008b).

  We merged all three data sources – viewing-, program-, and individual background data – for one week in autumn of 2007 (October 29 – November 4). Typically, measures of news exposure gauge the amount of exposure during one week – the last one, for instance, or a "typical" one (Althaus & Tewksbury, 2007; Newton, 2002). The sample week was a quite regular week in terms of TV audience behavior – compared to, for instance, the lower levels of exposure during summer or the peaks during winter holidays. Typical for the fall, the average viewing time of about 208 minutes per person per day was a little higher than the average of the year as a whole, 186 minutes (SKO, 2008b). There were also no unusual events that could have increased viewing time.

  The sample included all viewers thirteen and older because watching the news on a regular basis seems to start with adolescence (Van den Bulck, 2006). Our

sample comprised a total of 2,388 panel members who watched television at least once during the week.

Of course, as every measuring procedure, people-meter data are not free of validity concerns (see for an overview Napoli, 2003; Webster, Phalen, & Lichty, 2006). A first problem that has been discussed critically is the sample quality and its consequences for the representativeness of the population, especially, of smaller subgroups such as ethnic minorities. A second issue is the accuracy of the measurement as such. People have to log on and off to indicate that they watch TV. In addition to simply forgetting to do so, participants could also intentionally produce false measures due to social desirability or to support their favorite programming. This is why the Dutch data are carefully checked at least for systematic errors – for instance, for being manipulated by panel members (for instance, by coincidental checks). Also, the quality of the sample is assessed on a daily basis (Peeters, Jager, & Kalfs, 2005; SKO, 2008a). Again, people-meter data are not free of measurement errors. But still, their automatic measuring of time and station that the TV set shows as well as their large and carefully watched sample offer a level of precision hardly to be reached by other observational techniques or survey measures. Compared to self-reported measures of news exposure, people-meter data, in particular, have the advantage to virtually exclude memory as a source of error. Our aim is to study interrelationships of exposure measures. So, we are mainly concerned with the internal validity of the measures of news exposure. The amount of news exposure in general may be higher in the Netherlands than in other Western countries (Tenscher, 2008), but the way its measures are related to each other should be about the same as elsewhere.

Measures

Based on the definition of SKO (Peeters et al., 2005), we considered exposure to news as having registered as watching TV while a political news program is broadcast. In accordance with the minimal requirement for "watching any TV program," as defined by SKO (2008a), a viewer had to watch a news program for at least one minute. We considered all news programs that were explicitly and primarily concerned with political issues, as opposed to "soft news" about, e.g., celebrities and other human-interest issues (Baum & Jamison, 2006; Patterson, 2000). The Dutch TV news landscape is dominated by two main news programs – a public-service and a commercial one – that are broadcast several times a day. Nearly every hour, the viewers have the opportunity to watch news on public as

well as on commercial channels. Programs of regional and foreign channels are not coded (see above) and, therefore, their newscasts are also not included in our analysis. However, these channels and their news programming only are of minor importance – because, together, the channels that are coded and included in our analysis reached a market share of about 80 percent in 2007 (SKO, 2008b). It should be noted that regional newscasts in the Netherlands do not substitute national news programs since they exclusively cover regional issues and events. Hence, virtually all offerings of national news are included in the analysis. We used the data to simulate measures of news exposure that are also used in survey research and employed nine different exposure measures. Table 2.A1 shows the descriptives of all these measures.

Number of news viewing days. The number of days per week on which at least one news program was watched.

Number of news programs. The number of news programs watched during one week.

News viewing duration. The total time in minutes spent on news programs in one week.

News viewing share. The proportion of the overall viewing time a viewer spent on news programs in one week.

News selection. The proportion of news programs that were selected by switching to the channel at most five minutes before or after the beginning of that program. The number of active switches to news in one week was divided by the number of newscasts watched.

Appointment viewing. The proportion of newscasts viewers started to watch television with. The number of times a news program was watched during the first five minutes of a viewing session was divided by all news programs watched in one week.

Dropping out. The proportion of newscasts during which a viewer dropped out, i.e., exposure was stopped five minutes before the newscast ended or earlier. The number of news programs that were left by changing the channel or turning the TV off in one week was divided by the total number of news programs watched in one week.

Hopping. The proportion of newscasts watched during that a viewer switched back and forth. We counted all news programs watched in one week that were interrupted by changing channels and divided this by the total number of news a viewer watched.

News avoidance. Viewers who were not exposed to at least one news program during the week were considered "news avoiders" and coded as "1." Viewers who watched at least one news program were coded as "0."

Viewer characteristics. Sociodemographics that were gauged by the survey were *age*, g*ender*, and *education*.[1] In addition, respondents were asked to indicate their *news preference*, i.e., their interest for news and current-affairs programs, on a four-point scale ranging from little to strong interest (M = 3.6; SD = 0.69)[2]. The average of preferences for nine different entertainment programs constituted the score of viewers' e*ntertainment preference* (M = 2.3; SD = 0.57). *Political interest* was captured on a three-point scale, ranging from little to strong interest (M = 1.76; SD = 0.73)[3]. A viewer's overall amount of *TV exposure* was derived from the viewing data. We calculated the time that a viewer spent watching TV, in hours, excluding the duration of his or her news viewing (M = 21.5; SD = 14.9).

Results

Dimensionality

Zero-order correlations between the different exposure measures of the first week gave a first idea about their interrelationships. The measures of the amount and of the selectivity of news exposure seemed to form two different groups. The number of days at least one newscast was watched, the number of news programs viewed, and the duration of news viewing showed very high correlations among each other (.67 ≤ r ≤ .89) with duration and the number of programs nearly perfectly related. Also the news viewing share was moderately correlated with these three amount measures (.37 ≤ r ≤ .54) with the highest correlation for viewing duration. News selectivity was fairly positively correlated with appointment viewing (r = .48) and dropping out (r = .44) and even weakly related to hopping (r = .20). The correlations between the amount measures and the ones of program choice, in contrast, were much weaker and some even negative. Finally, news avoidance showed negative correlations with all other measures, in particular, with selectivity (r = -.68) and exposure days (r = -.52).

These relationships were confirmed by an exploratory factor analysis.[4] Generalized least-squared factoring was used as extraction method. Because the factors might be correlated, we chose oblique rotation and interpreted the structure matrix to account for possible interrelations between the factors (Park, Dailey, & Lemus, 2002). Three factors with an eigenvalue greater than one were extracted (Table 2.1). According to this solution, we could discern measures that reflect the

Table 2.1: Factor Solution of News Exposure Measures from People-Meter Data

	Factor		
	Absolute amount	Selection mode	Viewing share
News viewing days	**.742**	.340	.361
Number of news programs	**.967**	.066	.236
News viewing duration	**.930**	-.043	**.450**
News viewing share	**.427**	.109	**.861**
News selection	.062	**.912**	.196
Appointment viewing	-.073	**.492**	.354
Dropping out	-.105	**.485**	-.047
Hopping	.098	.202	.066
News avoidance	-.315	**-.762**	-.343
Eigenvalues	2.662	2.066	1.418
% of explained variance	33.8	25.8	17.7

Note: Representative sample of Dutch citizens of 13 years and older, n = 2,388, measures based on viewing behavior from October 29 – November 4, 2007. Structure matrix of exploratory factor analysis. Extraction method: Generalized least-squared factoring. Rotation method: Oblique rotation.

absolute amount of news viewing, the manner of selecting news programs, and the share of news in a viewer's amount of TV exposure. Taking our large sample size into account, we considered variables with a loading greater than |.4| to substantively contribute to a factor (see also Stevens, 2002). Hopping was the only variable that could not be allocated to one of the factors.

The *absolute amount* of news exposure was best represented by the number of news programs watched in one week. Counting the news viewing days had the lowest loading compared to counting programs or viewing minutes. However, with a loading of .74, this measure still accounted for about 55 percent of the factor variance.

The other two factors were dominated by one variable each: news selection, i.e., switching to a channel in order to watch a news program, and news viewing share. The *selection mode* was almost uncorrelated (r = .07) with the amount of exposure and also only weakly correlated with the viewing share (r = .21).[5] This dimension of news exposure might be interpreted as a viewer's general level of switching activity or selectivity towards news programs. In addition to switching to news, also appointment viewing and, surprisingly, dropping out loaded positively on this factor. Thus, viewers who actively chose news programs also seemed to

switch away from the news more often. News avoidance, however, was strongly negatively associated to the selection mode.

The *viewing share* was positively related to the amount of exposure. The loading of the viewing duration on this factor indicated that viewers who focused on news when they watched TV also spent relatively much time watching news programs. However, since the correlation between the factors *share* and *amount* was relatively low (r = .30), they still can be considered as two discrete exposure dimensions.

Regarding our first research question, thus, we concluded that news exposure was a three-dimensional construct. Different types of exposure measures could be discerned into amount measures, viewing share, and selectivity measures.

Discerning Viewer Characteristics

In addition to their interrelations, we looked at the relationships of the exposure measures to other viewer characteristics. Because these viewer characteristics could be assumed to be interrelated, we used multivariate regression analysis to disentangle the relationships between viewer characteristics and news exposure. The measures viewing days, news selection, appointment viewing, and deselection were normally distributed and applicable for OLS regression (Table 2.2). Since the distributions of the number of programs, viewing duration, viewing share, and hopping had a count structure, negative binomial regression was employed (Table 2.3). Finally, a logistic regression was conducted for the dichotomous variable news avoidance (Table 2.4).

The models of news viewing days, news programs watched, and time spent watching news showed considerably high R-squares. The viewer characteristic could explain, for instance, about 46 percent of the variance in news viewing days. The three amount measures also had more significant relationships to the viewer characteristics than the remaining exposure measures. Moreover, they behaved highly similar in terms of the direction and strength of these relationships. Viewers scored higher on all three measures if they were interested in news and in politics, if they were older, better educated, and spent more time watching TV. The duration of watching the news was lower for male viewers and those with a higher preference for entertainment programs. Voting had no influence on the amount of exposure.

For the selectivity measures, we only found a small number of significant – but weak – relationships. Overall, these relationships were less consistent than those of the amount measures. Viewers selected news programs by switching to a

different channel more often when they were better educated or interested in news and in politics. Interest in news also had a weak positive influence on appointment viewing. Men and higher educated viewers dropped out of the news more often. Their relatively low correlations as well as the differences in their relationships to other viewer attributes indicate that the three selectivity measures actually represent different aspects of choice behavior. Finally, hopping was not related to any of the characteristics. Although news avoidance did not form a separate factor, we found three significant relationships. News avoiders were more often younger, watched less TV in general, and were less interested in politics.

Finally, we found three significant relationships for viewer's news viewing share. Older viewers focused relatively more on news programs. The share of news exposure was also higher for those viewers who watched less TV in general and those who had a stronger preference for news programs.

Regarding our second research question, we concluded that amount measures discriminated better between viewer characteristics than selectivity measures. Moreover, the different amount measures behaved consistently and could, therefore, be regarded as alternatives for each other. Viewing share was an independent measure although it is positively related to the viewing amount. Selectivity measures, in contrast, were less consistent and could be considered as complementary measures to gauge additional aspects of news exposure.

Table 2.2: OLS Regression of Viewer Characteristics on Measures of News Exposure

	News viewing days		News selection		Appointment viewing		Dropping out	
Age	0.04***	(0.00)	0.00	(0.00)	0.00*	(0.00)	-0.00	(0.00)
Gender (men)	-0.06	(0.07)	0.02	(0.01)	0.01	(0.01)	0.03**	(0.01)
Education	0.06**	(0.02)	0.01**	(0.00)	0.01	(0.00)	0.01*	(0.00)
TV exposure	0.07***	(0.00)	0.00*	(0.00)	-0.00***	(0.00)	-0.00	(0.00)
News preference	0.44***	(0.06)	0.04***	(0.01)	0.02*	(0.01)	0.00	(0.01)
Entertainment	-0.10	(0.06)	-0.01	(0.01)	-0.01	(0.01)	-0.00	(0.01)
Political interest	0.31***	(0.05)	0.02*	(0.01)	0.01	(0.01)	0.01	(0.01)
Voting	0.12	(0.08)	0.02	(0.02)	0.01	(0.01)	0.00	(0.01)
Constant	-1.21***	(0.26)	0.45***	(0.05)	0.23***	(0.04)	0.30***	(0.04)
Adjusted R^2	0.461		0.032		0.069		0.009	

Note: Representative sample of Dutch citizens of 13 years and older, n = 2,388, recorded viewing behavior of week 44, 2007. Unstandardized coefficients of OLS regression. Standard errors in parentheses.
*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$ (two-tailed).

Table 2.3: Negative-Binomial Regression of Viewer Characteristics on Measures of News Exposure

	Number of news programs	News viewing duration	News viewing share		Hopping	
Age	0.02***(0.00)	0.03***(0.00)	0.02***(0.00)		0.00	(0.01)
Gender (men)	-0.01 (0.03)	-0.09* (0.04)	-0.11	(0.14)	0.08	(0.16)
Education	0.02* (0.01)	0.05***(0.01)	0.05	(0.05)	0.07	(0.05)
TV exposure	0.05***(0.00)	0.03***(0.00)	-0.02**	(0.01)	0.00	(0.01)
News preference	0.24***(0.03)	0.31***(0.04)	0.29*	(0.15)	0.04	(0.14)
Entertainment	-0.03 (0.03)	-0.11** (0.04)	-0.18	(0.13)	-0.00	(0.15)
Political interest	0.18***(0.03)	0.19***(0.03)	0.18	(0.11)	0.16	(0.12)
Voting	0.06 (0.04)	0.07 (0.05)	0.10	(0.20)	0.13	(0.22)
Constant	-0.39** (0.13)	1.17***(0.17)	-4.32***(0.67)		-3.81***(0.66)	
Cragg-Uhler (Nagelkerke) R^2	0.436	0.375	0.071		0.012	

Note: Representative sample of Dutch citizens of 13 years and older, n = 2,388, recorded viewing behavior of week 44, 2007. Unstandardized coefficients of negative-binomial regression. Standard errors in parentheses.
*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$ (two-tailed).

Table 2.4: Logistic Regression of Viewer Characteristics on News Avoidance

	News avoidance
Age	-0.04***(0.01)
Gender (men)	0.14 (0.18)
Education	-0.08 (0.06)
TV exposure	-0.12***(0.01)
News preference	-0.24 (0.12)
Entertainment preference	-0.06 (0.17)
Political interest	-0.65***(0.17)
Voting	-0.22 (0.20)
Constant	3.04***(0.60)
Cragg-Uhler (Nagelkerke) R^2	0.358

Note: Representative sample of Dutch citizens of 13 years and older, n = 2,388, recorded viewing behavior of week 44, 2007. Unstandardized coefficients of logistic regression. Standard errors in parentheses.
*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$ (two-tailed).

Conclusions and Discussion

Improving the quality of measuring news exposure is of crucial importance for the study of the use and the effects of public-affairs information. So far, how a broad range of measures are interrelated has not been tested, and whether they complement or even supplement each other. People-meter data on the level of individual viewers offer the unique opportunity to simulate measures of news exposure without the measurement errors that come from failures of memory or are caused by rough estimates, often requested in surveys. So, "purer" characteristics of viewing behavior can be gauged. In our analysis we found three dimensions of news exposure, represented by three different groups of measures. They reflect (a) the amount of news viewing, (b) the way how news programs are selected, and (c) the share of news in a viewer's overall diet of TV exposure.

Overall, the amount of watching news appears to be the most informative aspect of news exposure in terms of its relationships to relevant viewer characteristics. Moreover, the high consistency of different amount measures coincides with the evidence that also self-reported measures of the frequency and the duration of news exposure are highly correlated and similarly related to political knowledge, issue perception, and political discussion (Althaus & Tewksbury, 2007). Althaus and Tewksbury showed that measuring the amount of news exposure any more precisely than by the number of days per week did not yield additional explanatory power. Our findings add that different amount measures are also related almost equally to sociodemographics, political interest, and news preference.

Quite plausibly, measures that require not that much precision should be more easily produced correctly by respondents in surveys (see Prior, 2009a). Hence, the number of days per week lends itself as a reasonable measure for survey research. Of course, the choice for any exposure measure always depends on the specific research questions to be studied. But presumably the amount of news exposure suits many research interests best – for instance, regarding the effects of news exposure on political knowledge, attitudes, or behavior. Knowledge about characteristics of measures and their interrelationships can thereby help make informed choices. Since this study was a secondary analysis, the relationships to third variables that could be tested were restricted to the ones available in the dataset. Tests with potential outcome variables such as knowledge gain or opinion change should be considered for future research.

Differences between findings based on our observational measures and those from previous survey research once again emphasize how important it is to improve self-reported measures of exposure. For instance, overreporting of news consumption in surveys seems to be as common in the Netherlands as in other countries such as the U.S. (Prior, 2009a). Our people-meter measures yielded an average viewing duration of 113 minutes per person per week, which would translate to about 16 minutes per day. A Dutch representative survey conducted in 2007, however, resulted in an average of 47 minutes per day (Van der Burg, Lauf, & Negenborn, 2011). This may explain why, in our analysis, voting turnout was unrelated to news consumption although survey studies showed positive relationships (Aarts & Semetko, 2003; Prior, 2007). A possible reason: A questionnaire about political issues makes respondents aware that they should be somehow consistent in their answers. So, people who claim to be interested in politics should plausibly insist that they also vote and watch TV news about politics (see Prior, 2009a). As opposed to the positive relationship in our analysis, education has been found to be unrelated or negatively associated with self-reported exposure to TV news (Allen & Taylor, 1985; Althaus & Tewksbury, 2007; Prior, 2009a). An of course still to be examined explanation for this difference could be that higher educated viewers generally underestimate their TV consumption if they are asked about – and this may also apply to news viewing. An immediate comparison between survey- and people-meter measures in the same study could further assess possible inaccuracies of self-reports.

To what extent are the other variants of measuring news exposure investigated here of practical relevance for research? For specific purposes, such as research particularly interested in news viewing situations or in patterns of program choice, news viewing share and selectivity measures can be utilized for more specific insights into the uses and effects of TV news. Which viewers watch news programs accidentally between other types of programs? And who belongs to those news junkies who rarely use the TV for other purposes than for watching news? The ways of how news programs are selected for viewing could, thus, be relevant to study, for instance, a possible polarization of information- and entertainment-oriented viewers (Prior, 2007; Rubin, 1984). In our analysis, however, news selection as well as the share of news viewing actually offer little additional information about news exposure compared to the amount measures.

Viewers seem to be remarkably alike in their way of choosing and abandoning news programs. But although viewers may have more or less the same switching patterns, their motivations to switch channels of course could differ. Turning away

from the news might express disliking news as such. But, alternatively, it could simply be led by not wanting to miss a somewhat more attractive program scheduled at a different channel at the same time. If we knew more about why people switch channels – toward news or away from it, we could tell.

Similarly, the share that watching the news takes of watching TV in general allows to discern viewers whose TV diet mainly consists of news – independent of the absolute duration of watching the news. Surprisingly, we found that those interested in news did not spend relatively more time watching it, but older viewers did – a result that could point to engraved viewing habits more than conscious motives.

In spite of the now more and more possible diversification of news viewing behavior, we find that variations in news exposure can best be explained by the mere amount of exposure. The advantage of straightforward measures of news exposure is surprising, because often high expectations are raised regarding the selectivity of media users with more and more alternatives and specialized channels available or with technologies that allow for an individualized scheduling of preferred contents. But maybe it takes more time to change old habits? – A reason to continue with the evaluation of measures of media exposure to maintain valid and reliable measures as a basis for future communication studies.

References

Aarts, K., & Semetko, H. A. (2003). The divided electorate: Media use and political involvement. *The Journal of Politics, 65*(03), 759–784.

Allen, R. L., & Taylor, B. F. (1985). Media public affairs exposure: Issues and alternative strategies. *Communication Monographs, 52*(2), 186.

Althaus, S. L., & Tewksbury, D. H. (2007). *Toward a new generation of media use measures for the ANES: Report to the Board of Overseers American National Election Studies.* Retrieved from http://www.electionstudies.org/resources/papers/ Pilot2006/nes011903.pdf

Atkin, C. K. (1972). Anticipated communication and mass media information-seeking. *The Public Opinion Quarterly, 36*(2), 188–199.

Baum, M. A. (2002). Sex, lies, and war: How soft news brings foreign policy to the inattentive public. *American Political Science Association, 96*(1), 91–109.

Baum, M. A., & Jamison, A. S. (2006). The Oprah effect: How soft news helps inattentive citizens vote consistently. *Journal of Politics, 68*(4), 946-959.

Bilandzic, H. (2004). *Synchrone Programmauswahl: Der Einfluss formaler und inhaltlicher Merkmale der Fernsehbotschaft auf die Fernsehnutzung.* München: Fischer.

Blödorn, S., & Gerhards, M. (2004). Informationsverhalten der Deutschen. *Media Perspektiven*, 1, 2–14.

Bower, R. T. (1973). *Television and the public.* New York [etc.]: Holt, Rinehart and Winston.

Burton, S., & Blair, E. (1991). Task conditions, response formulation processes, and response accuracy for behavioral frequency questions in surveys. *Public Opinion Quarterly, 55*(1), 50-79.

Coromina, L., & Saris, W. E. (2009). Quality of media use measurement. *International Journal of Public Opinion Research, 21*(4), 424-450.

Delli Carpini, M. X., & Keeter, S. (1996). *What Americans know about politics and why it matters.* New Haven/London: Yale University Press.

Eveland, W. P., & Scheufele, D. A. (2000). Connecting news media use with gaps in knowledge and participation. *Political Communication, 17*(3), 215–237.

Eveland, W. P., Hutchens, M. J., & Shen, F. (2009). Exposure, attention, or "use" of news? Assessing aspects of the reliability and validity of a central concept in political communication research. *Communication Methods and Measures, 3*(4), 223-244.

Hargreaves, I., & Thomas, J. (2002). *New news, old news: An ITC and BSC research publication.* London: Broadcasting Standards Commission/Independent Television Commission.

Hasebrink, U., & Krotz, F. (1996). Individuelles Nutzungsverhalten von Fernsehzuschauern. In U. Hasebrink & F. Krotz (Eds.), *Die Zuschauer als Fernsehregisseure? Zum Verständnis individueller Nutzungs- und Rezeptionsmuster* (pp. 116–137). Baden-Baden, Hamburg: Nomos.

Klövekorn, N. (2002). *Sehen wir, was wir wollen? Die Fernsehprogrammauswahl unter Berücksichtigung langfristiger Zuschauerpräferenzen und Programmierungsstrategien der Fernsehsender.* München: Fischer.

Levy, M. R. (1978). The audience experience with television news. *Journalism Monographs*(55), 1–29.

Morris, J. S., & Forgette, R. (2007). News grazers, television news, political knowledge, and engagement. *Harvard International Journal of Press/Politics, 12*(1), 91–107.

Napoli, P. M. (2003). *Audience economics: Media institutions and the audience marketplace.* New York: Columbia University Press.

Nelissen, P., Konig, R., & Renckstorf, K. (2008). Occupational position and consumption of news: A research note. *Communications, 33*(4), 473–484.

Newton, K. (2002). *Media and communication question. Chapter 4. ESS report on questionnaire development.* Retrieved from http://www.europeansocialsurvey.org/index.php?option=com_docman&task=doc_view&gid=123&Itemid=80

Papper, B. (2006). *Future of news.* Washington, DC: The Radio Television News Directors Foundation.

Park, H. S., Dailey, R., & Lemus, D. (2002). The use of exploratory factor analysis and principal components analysis in communication research. *Human Communication Research, 28*(4), 562–577.

Patterson, T. E. (2000). *Doing well and doing good: How soft news and critical journalism are shrinking the news audience and weakening democracy – and what news outlets can do about It.* Cambridge, Massachusetts: Joan Shorenstein Center. Retrieved from http://www.hks.harvard.edu/presspol/publications/reports/soft_news_and_critical_journalism_2000.pdf

Peeters, A., Jager, R., & Kalfs, N. (2005). *Wie kijkt? De meting achter de kijkcijfers.* Amsterdam: Boom onderwijs.

Price, V., & Zaller, J. (1993). Who gets the news? Alternative measures of news reception and their implications for research. *Public Opinion Quarterly, 57*(2), 133-164.

Prior, M. (2003). Any good news in soft news? The impact of soft news preference on political knowledge. *Political Communication, 20*(2), 149–171.

Prior, M. (2007). *Post-broadcast democracy: How media choice increases political inequality and polarizes elections.* New York: Cambridge University Press.

Prior, M. (2009a). The immensely inflated news audience: Assessing bias in self-reported news exposure. *Public Opinion Quarterly, 73*(1), 130-143.

Prior, M. (2009b). Improving media effects research through better measurement of news exposure. *Journal of Politics, 71*(3), 893-908.

Robinson, J. P., & Levy, M. R. (1996). News media use and the informed public: A 1990s update. *The Journal of Communication, 46*(2), 129-135.

Romantan, A., Hornik, R., Price, V., Cappella, J., & Viswanath, K. (2008). A comparative analysis of the performance of alternative measures of exposure. *Communication Methods and Measures, 2*(1), 80-99.

Rubin, A. M. (1984). Ritualized and instrumental television viewing. *Journal of Communication, 34*(3), 67-77.

Rubin, A. M. (2009). The uses-and-gratifications perspective on media effects. In J. Bryant & M. B. Oliver (Eds.), *Media effects: Advances in theory and research* (Vol. 3, pp. 165-184). New York: Routledge.

Schoenbach, K., & Lauf, E. (2002). The "trap" effect of television and its competitors. *Communication Research, 29*(5), 564–583.

Schoenbach, K., & Lauf, E. (2004). Another look at the "trap" effect of television – and beyond. *International Journal of Public Opinion Research, 16*(2), 169–182.

Schwarz, N. (2007). Cognitive aspects of survey methodology. *Applied Cognitive Psychology, 21*(2), 277-287.

Slater, M. D. (2004). Operationalizing and analyzing exposure: The foundation of media effects research. *Journalism & Mass Communication Quarterly, 81*(1), 168-183.

Stichting KijkOnderzoek (2008a). *Het kijkonderzoek: Methodologische beschrijving.* Retrieved from http://www.kijkonderzoek.nl/images/stories/Methodologie/methodologischebeschrij08.pdf

Stichting KijkOnderzoek (2008b). *SKO Jaarverslag 2007.* Retrieved from http://www.kijkonderzoek.nl/images/stories/Publicaties/jaarverslag2007.pdf

Stevens, J. (2002). *Applied multivariate statistics for the social sciences* (Vol. 4). Mahwah, NJ Lawrence Erlbaum.

Tenscher, J. (2008). Massenmedien und politische Kommunikation in den Ländern der Europäischen Union. In O. W. Gabriel & S. Kropp (Eds.), *Die EU-Staaten im Vergleich: Strukturen, Prozesse, Politikinhalte* (pp. 412-447). Wiesbaden: VS Verlag für Sozialwissenschaften.

Van den Bulck, J. (2006). Television news avoidance: Exploratory results from a one-year follow-up study. *Journal of Broadcasting & Electronic Media, 50*(2), 231–252.

Van der Burg, M., Lauf, E., & Negenborn, R. (2011). *Mediamonitor: The Dutch media in 2010.* Hilversum: Commissariaat voor de Media.

Webster, J. G., Phalen, P. F., & Lichty, L. W. (2006). *Ratings analysis. The theory and practice of audience research* (Vol. 3). Mahwah, New Jersey: Lawrence Erlbaum Associates.

Appendix

Table 2.A1: Descriptive Statistics of Measures of News Exposure from People-Meter Data

	News viewing days	Number of news programs	News viewing duration	News viewing share	News selection	Appoint-ment viewing	Dropping out	Hopping	News avoidance
Mean	4.01	11.42	112.67	0.09	0.72	0.29	0.32	0.07	0.07
Std. Dev.	2.20	11.75	129.77	0.09	0.30	0.26	0.26	0.14	0.26
Skewness	-0.28	2.29	2.41	2.82	-1.17	0.97	0.89	4.67	3.23
Kurtosis	-1.10	9.15	9.65	14.70	0.47	0.70	0.50	35.56	8.44

Note: Representative sample of Dutch citizens of 13 years and older, n = 2,388, recorded viewing behavior of week 44, 2007.

Notes

[1] Education comprised six categories that comply with the Dutch educational system.

[2] Question wording translated from Dutch: "To what extent are you interested in the following television programs? You can choose from: highly, somewhat, hardly, and absolutely not interested. News and current affairs (such as Journaal, RTL Nieuws, and Netwerk)." The scale was converted so that "1" was no, "2" low, "3" medium, and "4" strong news preference.

[3] Translated question wording: "The following questions concern your interest for different issues. In a moment, I will name some issues. Could you indicate for each issue whether you are strongly, fairly, or little interested? Politics: Could you indicate how much you are interested in that?" This scale was converted to "1" was low, "2" medium, and "3" strong political interest.

[4] The distributions of the number of programs, the news viewing duration and proportion as well as hopping and avoidance showed relatively high skewness and kurtosis (see Table 2.A1). Also according to the Kolmogorov-Smirnov test these variables were non-normally distributed ($p<.05$). Nevertheless, we conducted the analysis with the original variables to facilitate interpretations. To check for biased results, we repeated the factor analysis after logarithm and square-root transformations. The transformed variables yielded exactly the same three factors that were correlated in the same manner as the factors derived by the untransformed variables.

[5] Factor correlation matrix:

Factor	Absolute amount	Viewing share	Selection mode
Absolute amount	1.000	.304	.072
Viewing share		1.000	.212
Selection mode			1.000