

Online newspapers: A substitute or complement for print newspapers and other information channels?

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Abstract

Research suggests that online newspapers are not as good as their printed counterparts in widening the range of topics their audience is aware of. But should we be concerned about that? So far, visiting online newspapers does not seem to be a substitute for reading traditional newspapers. But the evidence is scarce; only a few studies specifically look at the impact of online newspapers. In this study we look at to what extent online newspapers 'take over' from printed newspapers and other information channels. We investigate the relation between using online newspapers and other media channels, and look into the usefulness of online newspapers for different types of information compared to their offline counterparts and other information channels. A recent survey of almost 1,000 respondents, representative for the Dutch adult population, shows that visiting online newspapers is negatively related to using print newspapers among the young, and more time spent on them seems to reduce the time spent watching television, at least, among males and lower educated respondents. Online newspapers do not seem to diminish the use of other media or the time spent on them though. On the contrary, their visitors use some information channels more often and more extensively, even after other plausible reasons for media use are controlled for. Furthermore, they regard printed newspapers and television as better suited for their information needs.

Keywords: online newspapers, media use, print newspapers, The Netherlands, media audience

Introduction

Printed newspapers improve their readers' knowledge of what is going on around them (see, more recently, Guo and Moy, 1998; McLeod,

Scheufele and Moy, 1999; Schulz, 2003). Traditional printed newspapers often serve as a 'Daily Us'. In 1995, Nicholas Negroponte had heralded the advent of a 'Daily Me', an (electronic) newspaper that would quickly 'know' what every individual reader is really interested in and would subsequently not bother her or him anymore with other topics. The typical universality of printed newspapers, however, confronts everyone with a wide variety of political or 'public affairs' topics, but also with reports on, for instance, opera performances, sports, celebrities and accidents. This confrontation is also fairly inevitable, given the nature of that medium. Typically, printed newspapers also make their readers aware of those 'other' topics outside the range of their individual interests; they convey knowledge (and even concern) about a wider array of events and issues in one's community. The number of studies supporting this idea by comparing the impact of print newspapers and other media on the diversity of the audience agenda is limited, but provides consistent results. In general, newspapers indeed seem to help create a richer public agenda than other information channels, such as television (Ferguson and Weigold, 1986; Allen and Izcaray, 1988; Culbertson, Evarts, Richard, Sandell, and Stempel III, 1994).

But what if the slow but steady decline of printed newspapers in Western countries (e. g., Lauf, 2001) continues? What if these newspapers are replaced by their online counterparts? Virtually all newspapers in Western developed countries have an online edition (e. g., Peng, Tham, and Xiaoming, 1999). What if more and more people turn to them and stop reading print papers completely? Not implausible, given the advantages of online newspapers. Online papers are mostly still free of charge, often updated throughout the day, easily accessible for everyone with an Internet connection, and they can be visited while working at one's PC anyway. No surprise, then, that as early as in 2002, 23% of U.S. web users also visited newspapers online at least once a week (Runett, 2002).

There are some differences between online and print newspapers suggesting that it matters whether one reads the one or the other. For instance, it is likely that one encounters fewer articles, and certainly fewer *complete* articles, while surfing an online newspaper compared to paging through a printed paper. Of course, the offer of online papers becomes more extensive with the access to an archive, but this does not necessarily correspond to the wealth of articles that printed newspapers provide daily and without any archival research (Zürn, 2000; d'Haenens, Heuvelman, and Jankowski, 2001). In addition, some online newspapers present more leisure information and less news, and editorial content in general is sometimes reduced in favor of services and transactions (Sparks, 2000).

But more important are the differences in the structure of two outlets. The non-linear, layered structure used online makes it more difficult to come across 'all' articles. Large parts of online newspapers consist of teasers and tables of contents. To access complete articles one has to scroll and use links. Clicking on links may draw readers away from the other articles in the online paper, whereas other stories on a (double unfolded) page in a print paper remain visible for a print reader. In other words, online newspaper readers are encouraged to be more active and selective (Cameron and Curtin, 1995; Peng et al., 1999; Tewksbury and Althaus, 2000; d'Haenens et al., 2001; see also Boczkowski, 2002). In contrast, print newspaper readers should be more often surprised by articles they would probably not click on when only offered a headline in an online newspaper.

Typically, print newspapers also consciously want to guide their audience through the content as a whole in an attempt to serve as the 'Daily Us'. Journalists try to convey a rank order of what is socially relevant, suggesting to their readers that these are the topics they *should* be aware of as involved citizens, even if they are not personally interested in them. Cues that are supposed to direct and structure attention are used for this purpose (see e.g., Mueller and Kameron, 1995; Fallows, 1996; Zürn, 2000). Those cues comprise the position of an article within the paper, within a section and on a page; the use of pictures and graphs; size (of stories, headlines, pictures); the use of paragraphs; typographical elements; colors, and so forth. Cues are obviously able to lure readers into reading stories that they would not find worth their while if they only knew their mere topic (Garcia and Stark, 1991; Schönbach, 1995; see also McCombs and Mauro, 1977; d'Haenens et al., 2001). Certainly, cues also exist online. Examples of these cues are: Icons, the blinking of a headline, or the location and order of headlines and teasers on the screen (Fico, Heeter, Soffin, and Stanley, 1987). But compared to the print version, online newspaper readers, on average, are exposed to a smaller number of cues and less variation in cues, and thus to less guidance. In the online edition there is typically little variation in the amount of space and the number of pictures devoted to stories, and stories are often ranked by their recentness rather than by their importance (see, e.g., Thiel, 1998; Tewksbury and Althaus, 2000; Butzelaar, 2001; Eveland, Marton, and Seo, 2004).

In sum, online newspapers may not be as good as printed newspapers at conveying public topics of all kinds to their audience. Whereas the printed newspaper serves more often as a '*display* medium', online papers are more suited to be used as a '*research* medium' (see Schönbach and Lauf, 2004) for more information on issues that one was interested in beforehand (Jankowski and Van Selm, 2000). As explicated by Tewks-

bury (2003): “It appears online readers are particularly likely to pursue their own interests, and they are less likely to follow the cues of news editors and producers” (694). A second online newspaper function may be the one of an ‘alarm medium’, useful to obtain breaking news at one quick glance throughout the day. As a consequence of both functions, online users may miss out on whole areas of societal topics if those topics are neither top news nor cater to their individual interests. This is why Tewksbury (2003: 694) is afraid of the implications of online reading for “the long-term health of democratic nations” (see also Sunstein, 2002).

In a recent study we found that print newspapers are indeed better at expanding awareness of issues than their online counterparts for some groups in society; especially those with average or below average interest in news seem to benefit. The online editions only seem to broaden the horizon of the highest educated, that is, those with a university degree or higher vocational education (Schönbach, De Waal, & Lauf, in press).

The possibly limited impact of online newspapers on the span of issues one is aware of would be less worrying, of course, if their visitors still read printed newspapers and use other information channels. So far, visiting online newspapers does not seem to substitute reading traditional newspapers. The scarce evidence available does not suggest that electronic newspapers have substituted the traditional print equivalent (Schulz, 2001; Chyi and Lasorsa, 1999; Paimans in Jankowski and Van Selm, 2000; Althaus and Tewksbury, 2000; Peng et al., 1999). But any media use pattern of some years ago seems to become outdated quickly. Also, substitution effects may be blurred by differences in *age*. We know that print newspaper reading has lost ground among younger cohorts (e. g., Lauf, 2001). We also know that, at the beginning, the use of every new technology, and consequently also of the Internet, is always more widespread among the young and subsequently becomes more popular among the older audience too (e. g., Rogers, 1995). In their study on changing media use patterns Stempel III, Hargrove and Bernt (2000) found that use of newspapers, and most news media, increased with age, whereas the use of Internet decreased with age. They also found different patterns for different groups of education, e. g., use of print media increased with education, and different patterns for men and women, e. g., men used the Internet substantially more than women.

In this contribution we want to investigate what the media-use-‘diet’ of online readers typically looks like. More specifically, we would like to assess if traditional newspapers as well as other channels such as television, are likely to suffer or profit from readers using online newspapers. We will take a look at effects of age, gender and education. In addition, we want to find out if online newspapers are likely to take over specific

functions from printed newspapers and other information channels. In other words, we will investigate if online newspapers, when compared to their offline counterparts and other information channels, are used for similar or different types of information. Specifically, we will deal with the following questions:

- RQ 1: How does reading online newspapers relate to the use of other information channels and in particular print newspapers? How does this online reading relate a) in terms of using these media channels at all, and b) in terms of the time spent on them?
- RQ2: What are the differences between the media use behaviors among groups that differ in terms of age, gender, and education?
- RQ 3: What kind of information are online newspapers used for, compared to other media channels?

To answer these questions, we will take a closer look at the information behavior of online newspaper readers.

Method and measurements

Our analyses of online newspaper reading and the use of other channels are based on a telephone survey conducted among the Dutch population, aged 18 years and older, funded by The Netherlands Press Fund (*Bedrijfsfonds voor de Pers*). The fieldwork was conducted in December 2002 by TNS NIPO Amsterdam, a market research institute. In total, 986 respondents were randomly selected for that purpose¹. We oversampled the readers of online papers 2.22 times, to achieve a proportion of 40% of the sample instead of the actual 18% of the Dutch adult population. Therefore, 6,725 people were first screened by a daily representative telephone omnibus survey. The criterion for their inclusion into the online newspaper part of the sample was that they had to have visited the website of a Dutch national or local newspaper at least once in the two weeks prior to the interview. The telephone interviews took 16 minutes on average. The minimum response rate² was 41%.

To find out about the use of online and print newspapers, as well as other information channels, the survey contained questions about the frequency and/or the duration of using the following media: Printed newspapers, online newspapers, other news sites on the Internet, television, teletext, radio, free local papers, and magazines. The *frequency* questions read:

“On average, how many days a week do you read Dutch national or local printed newspapers?” This question was also asked for “visiting

websites of Dutch national or local daily newspapers on the Internet” and for “other news sites on the Internet.”

For websites of newspapers and other news sites, questions about the frequency of their use were even more extensive. Respondents were also asked:

“On average, how many times a day do you read Dutch national or local newspapers’ websites on the Internet?” Again the same question was asked for “other news sites on the Internet”.

The average amount of *time* spent on specific channels was measured by the following questions:

“On average, how long do you spend reading Dutch national or local printed newspapers at a time?” The same question was asked for “reading websites of Dutch national or local newspapers on the Internet” and for “other news sites”.

“On average, how much time do you spend watching television per day?” The same question was asked for “reading teletext on television or the Internet” and “listening to the radio”.

“On average, how much time do you spend reading free local papers a week?” The same question was asked for “magazines”.

For our analysis we constructed two different kinds of variables from the answers to all these questions³: A dichotomous one stating the mere fact whether or not somebody uses a specific medium, and the duration of the use, which indicates the time in minutes per day or week. For this purpose, time (in minutes) was multiplied by the number of times the channel is used per day or per week in the case of newspapers and news websites.

In this analysis we are interested in how reading *online newspapers* specifically relates to the use of all other media. But of course, the use of those other channels may not or only partly depend on whether one reads an online newspaper, but (also) on socio-demographic characteristics of the users and on their information interests. A number of those interests were measured by the following question:

“In general, how much are you interested in politics; sports; theater, films, and literature; finances and economy; reports on celebrities; reports on accidents and crime; and local news? Are you very much, somewhat or not interested?”

Three socio-demographic variables were gauged in our survey: Age, gender and education – age by the year of birth and education by the highest school or university degree. To show these characteristics clearly, we divided age into three more or less equally large groups: 18–37 years, 38–50, and 51 years and older. A relevant study by Schulz (2001) shows that changes in newspaper and Internet use by age follow a more or less gradual pattern, and does not call for specific cutting points. The study of Stempel III et al. (2000) shows different patterns for the age groups 18–34, 35–54, and 55 and over. These age groups are fairly close to the equally large age groups we used in our study. Both gender groups are also of similar size, and so are the two groups of education. ‘Higher education’ is then defined by a higher general secondary or vocational education or a university degree.

Finally, to find out for what types of information online and print newspapers as well as other information channels are considered to be useful, the survey contained the following questions:

“How important are printed newspapers for you personally if you want to be informed about politics; sports; theater, films and literature; finances and economy; celebrities; accidents and crime; local news? Are they very, somewhat or not important?” This question was also asked for “online newspapers”, other “news sites”, “television”, “teletext”, “radio”, “free local papers”, and “magazines”.

To answer our research questions, there is no need to reverse the oversampling of online newspaper readers. Since the purpose of this study is to provide insight into the mutual relations between media use behaviors, our results always deal with specific user groups within the sample. Thus internal validity is the type of validity we want to achieve.

Results

Online newspaper readers in 2002 are mainly younger, highly educated and male. They are also more interested in finances and economy, politics, and in theater, films and literature than those who do not visit an online newspaper (see Table 1).

Thus the composition of this group may contribute to their media behavior pattern. And indeed, their media-use-diet is different: Online newspaper readers use other news sites on the Internet and teletext considerably more than those who do not visit newspapers online. Both are typical ‘research’ media. Nonetheless, radio, magazines, and television are also used by relatively more online newspaper readers (Table 1). Moreover, our data show an overlap between print and online newspa-

Table 1. *Differences between online newspaper readers and all other respondents.*

	Online newspaper reader		Significance t-test
	Yes %	No %	
Demographics			
18–37 years	41	26	**
38–50 years	38	30	**
51 years and older	21	44	**
Female	39	56	**
Finished school of higher vocational education or a university degree	65	38	**
Interest (at least “some”) in:			
Politics	93	85	**
Sports	71	67	n. s.
Theater, films and literature	79	71	**
Finances and economy	79	67	**
Reports on celebrities	39	40	n. s.
Reports on accidents and crime	76	78	n. s.
Local news	93	95	n. s.
Media (mere use):			
Printed newspapers	88	89	n. s.
Other news sites	57	10	**
Television	99	96	*
Teletext	63	47	**
Radio	86	77	**
Free local papers	73	77	n. s.
Magazines	86	77	**
N	419	567	

Note: Column percentages are reported; * $p < .05$; ** $p < .01$

per reading. Of those visiting an online newspaper, 88% read a printed edition as well, and 42% of those reading printed newspapers also visit the online edition.

So, the question now is: Is it really reading *online newspapers* that relates to the use of other media, or is it other media behavior that possibly goes with it, or is it, for instance, the youth of online newspaper readers that furthers a specific media behavior? This is why we now use partial correlations between online newspaper use, on the one hand, and the use of other channels, on the other – to control for the three demographic variables and all the information interests measured. In addition, the other media use variables, respectively, will be used to control for each other.

Our first, and still fairly rough, analysis is based on mere use (a dichotomy of either reading/watching/listening or not doing so) and shows

which other media the readers of online newspapers are also in touch with, compared to those who do not read online newspapers. On the one hand, print newspaper reading is slightly negatively related to the use of online newspapers. On the other hand, and not surprisingly, online newspaper readers often visit other news websites. But there are also more radio listeners among them. As far as all the other media behaviors are concerned, this group does not differ significantly from people who do not read online newspapers (see Table 2).

Once we split our respondents into the three equally large age groups, the partial correlation (using the same model) between online newspaper reading and visiting other news sites becomes stronger with age. The negative relationship between reading online and printed newspapers is no longer significant for the two oldest age categories, but becomes stronger in the youngest category, among the 18–37 year olds. The positive link with radio listening shows the same pattern: It becomes stronger among the younger online newspaper readers and is no longer significant for the two older groups. Moreover, a positive relationship also appears between reading online newspapers and watching television among the 18–37 year-olds (Table 2).

Splitting the same model into men and women reveals stronger significant correlations between online newspaper reading and visiting other news sites for the latter. The negative relationship between reading online and printed newspapers is no longer significant for either group, nor is the positive link with radio listening. Again, a significant positive relationship appears between reading online newspapers and watching television, this time among the female respondents only (cf. Table 2).

Finally, separating those who have a higher vocational education or a university degree from those who do not, reveals significant and positive correlations between online newspaper reading and whether people from both groups visit other news sites. For those lower educated these correlations are definitely stronger though. The positive link with radio listening which we found in the total population now seems to be restricted to those online newspaper readers with a higher educational level. In addition, this division reveals a positive significant relationship between online newspaper reading and using teletext exclusively for those with a higher level of education (see Table 2).

In the next step, we investigated the relations between the *time* spent on reading online newspapers and the *duration* of use of the other information channels. In this analysis only those who read an online newspaper at all are further analyzed. The reason is that the majority of our sample never visits an online paper at all, and thus would enter the analysis with a huge number of zero-minute cases, dominating all the results. Does the reading of online newspapers reduce time spent on

Table 2. *Relationships between online newspaper reading and using other media (mere use).*

	All respondents ¹	18–37 years ²	38–50 years ²	51 years and older ²	Female ³	Male ³	Finished school of higher vocational education or a university degree	
							No ⁴	Yes ⁴
Printed newspapers	-.06*	-.12*	-.08	-.01	-.05	-.07	-.06	-.08
Other news sites	.42**	.37**	.44**	.51**	.46**	.41**	.49**	.36**
Television	.06	.13*	.01	-.02	.09*	.03	.09	.04
Teletext	.05	-.04	.08	.08	.09	.02	0	.09*
Radio	.07*	.14*	.04	.05	.07	.07	.03	.11*
Free local papers	-.01	.02	-.04	.04	-.04	.01	-.02	.01
Magazines	.03	-.03	.06	.07	-.01	.07	.07	0
N	981	319	326	336	479	502	492	489

Note: Cell entries are partial correlation coefficients, controlled for

¹ age, gender, education and interests, and use of 'other' media channels;

² gender, education and interests, and use of 'other' media channels;

³ age, education, interests, and use of 'other' media channels;

⁴ age, gender, interests, and use of 'other' media channels.

* p < .05; ** p < .01

other media behaviors? The answer is simple: On average, no. On the contrary, the time spent on reading online newspapers does not significantly relate to the time spent on any of the other information channels, except for other news sites – but this is a positive correlation (cf. Table 3).

Once we separated the three age groups, the positive relation between the time spent on reading online newspapers on the one hand, and other news sites on the other, seems to be especially true for the youngest and oldest age groups. The longer these groups visit online papers, the longer they visit other news sites on the Internet as well. Interestingly, the time for print newspaper reading does not show any special relationship with the time spent on online newspaper reading in any of the three age groups. Thus, the negative impact of online newspaper reading on reading the printed edition is limited to reading them at all among ‘the young’, but does not affect the time actually spent on reading them. Similarly restricted, the positive effect on listening to the radio and watching television in the youngest age group (see Table 2) does not persist in this ‘time use’ model (Table 3).

The separation between men and women shows similar results as earlier ones. The correlations between *the time spent on* online newspapers and *the time spent on* other news sites are significant and positive, but stronger for females. As for the correlation between the time spent on online newspapers on the one hand and television on the other, males and females again show distinctive results, but this time the significant correlation is negative and applies to males (Table 3).

Finally, education also seems to further different relationships between media behaviors in the ‘time use’ model. However, findings reveal new patterns compared to the ‘mere use’ model (see table 2); i. e., the more time those with a higher educational level spend on online newspapers, the more time they spend on other news sites on the Web as well. For those with a lower educational level, the time spent on online newspapers seems to take away time from watching television, or more precisely: The more time they spend on online newspapers, the less time they spend on television. The significant relations with teletext and radio completely disappear once time spend on media is inserted into the model (Table 3).

Do online newspapers substitute other channels if not generally, then for a specific area of information? To answer this question we investigated what type of information online newspaper readers find online papers and other information channels useful for: Politics; sports; theater, films and literature; finances and economy; celebrities; reports on accidents and crime; and/or local news. There is, of course, the possibility that people may not find a specific medium important for learning about, for instance, politics because they are simply not interested in

Table 4: *Usefulness of online newspapers and other media channels, for online newspaper readers.*

	Politics	Finances and economy	Sports	Theater, films and literature	Reports on accidents and crime	Local news	Reports on celebrities
Online newspapers	67	61	58	57	48	48	42
Printed newspapers	83	78	74	73	72	79	52
Other news sites	39	37	40	37	30	29	27
Television	91	76	90	67	72	59	71
Teletext	42	38	58	27	34	33	20
Radio	59	46	52	41	45	41	36
Free local papers	43	24	42	50	47	72	21
Magazines	50	52	49	58	28	21	53
N	390	330	297	331	320	390	164

Note. Cell entries are percentages, reported for online newspaper readers that are at least somewhat interested in the respective field.

politics. This is why we have looked at the perceived usefulness of a specific media channel only among those respondents who are at least somewhat interested in the respective area of information.

What catches the eye is that online newspaper readers believe that a printed newspaper always fulfills the need for information better than the online version, in all domains. Neither can online newspapers compete with television. For information on theater, films and literature, and on finances and economy we have found the smallest distance between the usefulness of online newspapers and television and print papers – but even there, printed newspapers and television are perceived as considerably more useful. Sometimes other channels are also regarded as more useful than online newspapers, or at least equally valuable. Magazines are judged to be as good as online newspapers for information on theater, films and literature. For the local news, online newspaper readers rather use free local papers too. For information on celebrities, magazines are considered a better source as well. And when it comes to sports, teletext is regarded as equally suitable as online newspapers.

Conclusions and discussion

In sum then, Dutch online newspaper readers in late 2002 still have the characteristics of the early adopters of new technologies (Rogers, 1995); i. e., they are younger, male, and higher educated. The use of online

newspapers negatively relates to the use of print newspapers among the young. In contrast, online newspaper reading is more often accompanied by using other news sites on the Internet and, specifically among younger readers, by listening to the radio and watching television. In addition, online newspaper use also significantly correlates with television viewing among our female respondents, and with teletext use and radio listening among those with a higher educational degree. In terms of the time spent on them, online newspapers only seem to take away time from watching television among our male respondents, and among those with a lower educational degree. Online newspapers do not relate negatively to other media behaviors. The positive relationship with using other news sites, however, only partly remains for the youngest and the oldest age groups, and the higher educated group.

Interestingly, the correlations between the mere use of online newspapers and online news sites become stronger with age. A tentative explanation is that the older generation may be somehow polarized in their online use: The older one is, the more reading online papers is connected to using other information offers on the Internet. Among the younger users, the relationship is not as strong; they may show a more leisurely, even playful, media behavior, with a greater variety of use. As far as the time spent on news sites is concerned, this pattern does not seem to remain constant though. Contrary to the other age groups, the generation of the 38 to 50 year-olds does not spend more time on news sites. A possible explanation could be that for this age group it may be more difficult to find the time.

We found a different relationship between online newspapers and television among men and women. The mere use of both media is positively related among our female respondents, whereas the males in our sample seem to spend less time on television the more time they spend on online newspapers. In addition, the correlations between online newspapers and other news sites are stronger for women than for men. Maybe men are more likely to make a strict selection of the media they want to use at all and spend time on. A look at the educational level shows that for the higher educated group, there is a significant relation between the mere use of online newspapers on the one hand, and teletext and radio on the other. The lower educated group does not show these relations, and, moreover, time spent on online newspapers seems to even reduce time spent watching television. In addition, the correlations between the mere use of online newspapers and other news sites are stronger for those with a *lower* education level. However, once duration is used in the model, this relation only remains significant among those with a *higher* education. Again, an explanation could be that those with a lower education are more likely to select media more strictly (not due to the fact that

they are men, as we controlled for that). Those with a higher educational level seem to have a more diverse media use pattern.

Once we compare the usefulness of online newspapers for specific areas of information with print newspapers and the other information channels, online papers cannot compete with printed newspapers or television. Both are considered more suitable for all kinds of information.

In sum, reading online newspapers is negatively related to reading printed newspapers, but only to a small extent, and in terms of mere contact, not in terms of the time spent on them once they are read at all. Online newspaper reading in general does not seem to diminish other media behaviors – only with regard to the time spent on television did we find negative correlations with online newspaper reading, but then again, only in specific groups (male respondents, and those lower educated). In addition, online newspapers do not seem to be capable of substituting a whole range of information functions of printed newspapers or television.

Of course, a cross-sectional study such as this cannot strictly reveal a causal relationship, and answer the question if former behavior (e. g., reading traditional newspapers) is actually substituted by new behavior (e. g., reading newspapers online). So, we cannot be sure that, for instance, the (young) online newspaper readers in our sample read traditional newspapers less *because of* the online edition. Still, it is plausible that media use behavior of those who do not read online newspapers is comparable to the general media use pattern if the online version had never been invented, and that our partial correlations indicate the impact of online newspaper reading on other media use behaviors.

In conclusion, online newspapers still do not seem to be a substitute for print newspapers or other information channels, but can better be described as complementary. So, there is no need to be concerned about the important functions of printed newspapers for society. But, we do have to be on our guard for a possible negative impact of online newspapers on print newspaper use, especially among youngsters – particularly, because online newspapers so far have not replaced the information functions of the printed editions. Yet, online newspaper users also regard *television* as a more suitable source of all kinds of information. And, as those younger online newspaper readers are more frequent television watchers, in this group, television may compete with printed newspapers more than online newspapers do. So, print newspapers, as information sources, may not be solely important. Nevertheless, there are signs that print newspapers as a source of information are threatened. Their steady decline since the 1970s may have begun long before there were online newspapers, but online newspapers may give it an extra push downward. The fact that some online newspaper readers, especially the

younger readers, do not read the printed edition *at all* should keep us alert. Finally, we have to be aware of the fact that our study is another, albeit more recent and extensive, snapshot of an ongoing process of the changes in media behavior.

Notes

1. TNS NIPO drew a random selection from all Dutch private telephone numbers (at the time of the interview 95% of the Dutch population had a telephone connection), and replaced the last two digits by two new randomly selected numbers. To prevent underrepresentation of young people and especially young males, the youngest male person present was asked for the interview, and if not present, the youngest female person present. Representativity for the Dutch population of 18 years and older was checked and achieved for age, gender, education, and district)
2. The minimum response rate, or Response Rate 1, is defined in the AAPOR standard definitions (AAPOR, The American Association for Public Opinion Research, 2004: 28)
3. In methodological literature, it has been shown that time use estimates are best obtained through 24 hour-time-use-diaries. Other estimations, like direct estimates, appear to lead to overestimations (e.g., Robinson and Godbey, 1997). Since we have no reason to expect differences in those overestimations across the various media channels, the correlations we are interested in should be valid indicators of relationships *between* media behaviors (see also Huysmans, Lammers, and Wester, 1997).

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