

**This is an electronic reprint of the original article.
This reprint *may differ* from the original in pagination and typographic detail.**

Author(s): Taipale, Sakari

Title: The relationship between Internet use, online and printed newspaper reading in Finland: investigating the direct and moderating effects of gender

Year: 2013

Version:

Please cite the original version:

Taipale, S. (2013). The relationship between Internet use, online and printed newspaper reading in Finland: investigating the direct and moderating effects of gender. *European Journal of Communication*, 28 (1), 5-18.
doi:10.1177/0267323112453672

All material supplied via JYX is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of the repository collections is not permitted, except that material may be duplicated by you for your research use or educational purposes in electronic or print form. You must obtain permission for any other use. Electronic or print copies may not be offered, whether for sale or otherwise to anyone who is not an authorised user.

Introduction

The Internet can be seen both as a threat and an opportunity for traditional newspapers. On the one hand, increasingly popular Internet use can take up the time people previously devoted to newspapers and other media. On the other hand, the Internet manifests itself as a vehicle to intensify time use: the Internet makes it possible to accomplish various daily tasks quicker, which saves time that can be spend on other tasks. As a digital platform it provides a new distribution channel for traditional newspapers, and its interactive and collaborative functions enrich content (Chung, 2008). The readers, if they wish, can substantially contribute to the production of online newspapers by supplying news topics and photographs as well as by commenting on the published articles. These transformations are likely to increase the time people spend on reading and ‘creating’ online newspapers. Despite the fact that both the Internet and printed newspapers have been widely scrutinised (e.g. Robinson et al., 2002; De Waal et al., 2005; Chung, 2008; Lee and Leung, 2008), little has been done to analyze the interaction effects of the duration of Internet use and socio-demographic variables, such as gender, on the reading of newspapers.

The aim of this study is to explore how the time spent on the Internet (hereafter also referred to as ‘online time’) is associated with the time spent reading printed and online newspapers. The particular focus is on gender and its possible interaction effects with the duration of Internet use on newspaper reading. In terms of theory, the paper is built upon the fundamental debate about whether the use of the Internet has a displacement or an efficacy effect on the traditional means of communication. In previous literature these two divergent effects are studied every time a new medium emerges. As Lee and Leung (2008: 145) state, previous studies are particularly revealing in relation to radio and television, although more recently the displacement and efficacy effects of the Internet (e.g.

Tewksbury and Althaus, 2000; Kaye and Johnson, 2002, 2003; Nie et al., 2002: 245; Shklovski, Kraut and Rainie, 2004) have been scrutinised.

This article contributes to the field of research by posing two questions. First, (RQ1): ‘How is the time spent on the Internet associated with the time spent on reading printed and online newspapers?’ Second, and more importantly, the study seeks to answer the following: (RQ2): ‘Does gender moderate these relationships, and if it does, are the moderating effects similar in relation to both printed and online newspaper media?’ A survey data (N=612) collected from Finland in 2011 is analysed by statistical methods to obtain answers to these questions.

The article begins with a review of previous literature on time use in relation to the Internet and newspaper media. This is followed by an overview of gender differences in the use of the Internet and newspaper reading. Third, the literature review maps the most important socio-demographic predictors of newspaper reading and, fourth, the case of Finland is introduced. Based on this literature review, four hypotheses are presented. Then, the data, applied measurement instruments and statistical tools are described, before the results are examined. The article is concluded by drawing together the theoretical premises of the study dealing with the displacement or efficacy effects of new media and empirical findings, as well as by discussing future research needs.

Previous literature

Time use, the Internet and newspaper media

Previous literature presents two hypotheses dealing with time use and the different modes of media. The efficacy hypothesis (cf. ‘supplementary’ and ‘augmentation’ hypotheses) (Shklovski et al., 2004) argues that the use of one medium, say the Internet, provides the user with an additional resource and enables more efficient use of the other medium. The efficacy hypothesis presumes that the

deployment of a medium may result in less time required to complete other activities (Mokhtari et al., 2009: 610). In light of the efficacy hypothesis, time use is not only about redistributing time between different media activities. Rather, it is an issue of time intensification.

In contrast to the efficacy hypothesis, the displacement hypothesis or, alternatively, the ‘hydraulic’ model, holds that the time spent on one activity cannot be used for another activity (Nie et al., 2002: 245; Shklovski et al., 2004). The displacement hypothesis involves the idea of ‘functional equivalency’ or ‘functional alternative’. If two media have the same function or they serve the same information need, the take-up of one medium may displace the other (Kraut et al., 1998; Robinson et al., 2002: 247; Lee and Leung, 2008: 146). The displacement hypothesis would suggest that Internet use leads to the decline in newspaper reading. Mokhtari et al. (2009: 610) have formulated the same argument: ‘the Internet has created a shift in people’s allocation of time during the day: more time on the Internet equals less time on other activities’.

Only a few studies, however, have shown that a new medium would displace traditional media that are functionally similar (Lee and Leung, 2008: 146). Earlier studies provide some weak evidence that Internet use could lead to less magazines and newspaper reading. The study by Dimmick et al. (2004), based on a small sample collected from Ohio in the United States, suggested that the Internet would have a competitive displacement effect on traditional media, and that the largest displacement effects would occur in the case of television and newspapers. Nie and Erbing (2000) found that about a third of Internet users reported less time reading newspaper. Nevertheless, besides the fact that their results are relatively outdated, Nie and Erbing do not take into account possible gender differences and control the effects of other background factors. Furthermore, the study was not able to confirm to what extent people substituted printed newspapers reading for online newspaper reading.

Interestingly, a majority of studies have produced opposite results. Shah et al. (2002: 973), based on a large national survey in the United States, noted a positive relationship between the time

spent on Internet and newspaper/magazine reading time. Also, Robinson et al. (2002: 250) have shown that Internet users reported more reading (books, magazines and newspapers) than non-users, although the differences in their study were statistically not significant. Likewise, Junghee and Hyunjoo (2010: 721) have pointed out that the time devoted to traditional media is not likely to be replaced by online behaviour. Similar results have been obtained by De Waal et al. (2005), who concluded that online newspapers did not diminish the use of other media or time spent on them. These studies indicate rather that the Internet could depart from the substantial displacement effects found with some older forms of media, television in particular. Robinson et al. (2002: 257) argued that the Internet is more like a ‘time enhancer’; the use of the Internet does not force people to give up other activities. In fact, this idea is perfectly in line with the fact that the Internet is often used simultaneously with other activities such as TV-viewing and radio listening.

Lastly, there is one methodological issue that has exercised the minds of media scholars in many of the abovementioned studies: how to differentiate between reading printed and online newspapers. Generally speaking, today almost every newspaper in the industrialised Western countries has an online version of its printed paper (De Waal et al., 2005: 628), and the line between these two media has become blurred. It is not at all clear whether survey respondents include their online newspaper reading in the printed newspaper reading time if they know that the newspaper in question is also available in a printed version. Indeed, earlier studies did not typically enquire separately into how much respondents allocated time to online and traditional newspaper reading (e.g. Elvestad and Blekesaune, 2008: 430; Mokhtari et al., 2009). One advantage of this study is that it is premised on the survey data with separate questions for the frequency of printed and online newspaper reading.

On the basis of the reviewed literature, the following hypothesis can be formulated. The displacement hypothesis would speak for a ‘more-less’ hypothesis (the more spent on the Internet, the

less time is available to newspaper reading, cf. Lee and Young, 2008: 147), yet previous research results provide more support for the following ‘no association’ hypothesis.

H1) The time spent on the Internet is not associated with the time spent on printed newspaper reading.

As regards online newspaper reading, there is no point formulating a similar hypothesis dealing with the main effect of Internet usage time on the frequency of online newspaper reading, as this relationship can only be positive. However, as this connection might be different for men and women, an additional hypothesis concerning the possible interaction will be examined next.

Gendered use of the Internet

The relationship between newspaper reading and the time spent online has been mostly studied by investigating the main effects of various predicting variables (e.g. De Waal et al., 2005; Lee and Young, 2008). Many studies seem to take it for granted that socio-demographic variables have a direct relationship to newspaper reading or time spent on it. The possible interaction effects have remained mostly unexplored and reported.

Earlier research found that gender differences in accessing the Internet have vanished since the end of 1990s. Nevertheless, studies consistently show that men still spend more time and are more intensive Internet users than women (e.g. Bimber 2000; Ono and Zavodny, 2003; Wasserman and Richmond-Abbot, 2005). These gender differences in the activity level of Internet use give reasons to believe that online time could be differently associated with (printed and online) newspaper reading when men and women are compared. For what purposes do men use the Internet, when they use it more than women? Is the time allocated to similar activities as newspaper reading (acquiring information) or

other activities that substitute for newspaper reading such as playing online games or downloading and watching movies?

De Waal et al. (2005: 65–55) did not find any significant correlation between the time spent on online and printed newspaper reading when using a data representative of adult Dutch population. Men and women were also compared, but correlation coefficients (-.11 and .00, respectively) were statistically not significant. Instead, the same study found that the time spent on online newspaper reading correlated positively with the duration of using other news sites (.29), and this correlation was slightly higher for woman (.39) than men (.27). Despite these findings, other empirical evidence about the gendered patterns of online and printed newspaper reading, not to mention the possible moderating effects of gender, have been rare if nonexistent.

On a more general level, the quality and nature of Internet access and use have remained heavily gendered (Selwyn et al., 2005: 20; Wasserman and Richmond-Abbott, 2005). Men utilise the Internet mainly for purposes related to entertainment and leisure, whereas women use it for interpersonal communication and educational assistance (Waiser, 2000). More recently, other studies have come up with findings consistent with the result of Waiser's early study. Women use the Internet more for communicative purposes and to look for information related to family and children, but play online games less frequently than men (e.g. Jones et al., 2009: 246-47; Lucas and Sherry, 2004).

Despite the abovementioned gaps in literature, the following hypotheses dealing with the moderating effects of gender can be formulated. Assuming that men spend more time on the Internet for entertainment and leisure purposes than women, they are likely to have less time to read printed newspapers than women. For the same reason, with the increase in the overall time spent on the Internet, men are likely to invest relatively less of that time in newspaper reading time than women.

H2) The more time men spent on the Internet, the less time they allocate to newspaper reading.

For women, the connection is weaker or nonexistent.

H3) With the increase in overall time spent on the Internet, men devote less of that increased online time to the reading of online newspapers than women.

Socio-demographic predictors of newspaper reading

It has been widely shown that age, gender, education level and household income predict differences in newspaper reading (e.g. De Waal et al., 2005; Elvestad and Blekesaune, 2008). Previous research deals mainly with the traditional paper-based newspapers, and there is considerably less knowledge about the predictors of online newspaper reading.

Studies have found that age is the most powerful predictor of newspaper reading. Older people allocate more time to read newspapers. Elvestad and Blekesaune (2008: 436) emphasise that the difference is more obvious in democratic corporatist countries, such as Finland, than elsewhere in Europe. Additionally, prior studies have discovered an age cohort effect; new generations read less than preceding generations (Lauf, 2001: 234). In Europe, the size of gender difference varies between countries, yet in general it is more common for men than women to read newspapers (Elvestad and Blekesaune, 2008: 435). As regards education, people with higher education read more newspapers than those with low level of education (Schoenbach et al., 1999). Likewise, country-differences between groups of highly and lowly educated are substantial in Europe (Elvestad and Blekesaune, 2008: 429). Newspaper reading is also an economic question and is thus challenged by free online papers. Whilst income has become an essentially important factor predicting newspaper readership in some European countries (Lauf, 2001), the increased consumption of (free) online newspapers may have notably changed the picture (Elvestad and Blekesaune, 2008: 429-30; DiMaggio et al., 2011: 313). Nevertheless, this requires more empirical evidence from survey studies.

Lastly, Elvestad and Blekesaune (2008: 434) skilfully pointed out that age, household income and education may also have curvilinear correlations with newspaper reading. Their study shows that in Finland age has a slight curvilinear relationship to readership, whilst income has a minimal and education no curvilinearity at all. These non-linear effects, however, are not discussed further in this article due to their relatively small importance in the Finnish context. Instead, based on the above-presented literature review, the forth hypothesis may be formulated:

H4) Age, gender and education level predict the use of both printed and online newspapers, whilst household income is only associated with printed newspaper reading.

Newspaper reading and the Internet in Finland

The Finns are still one of the most active newspaper readers in the world. Both the newspaper readerships and industry have remained relatively stable over the last decades (Jyrkiäinen, 2007). Yet, according to Statistic Finland's Time Use Survey, conducted in 2009, regular reading of printed newspapers has decreased in the country. In particular, the youth and young adults read less newspapers than in the beginning of the 1990s, whilst more than 90% of 45+ year-old Finns read newspapers several times a week. In terms of gender, men and women were equally active in newspaper reading at the time of the survey (Statistics Finland, 2011: 21). Elvestad and Blekesaune (2008: 435) have calculated, based on the 2004/5 round of European Social Survey (ESS), that in Finland men (41.9 min) would read slightly more than women (38.4 min) on an average weekday.

The 2009 Time Use Survey also provides information about online newspaper and news service reading. This activity was most common amongst 15 to 24 (83%) and 15 to 44 (84%) year-olds in Finland. Older people read less frequently, although no less than 61% of 65+ year-olds read regularly online newspapers and other news services. In this respect, a gender difference was minimal; 76% of men and 73% of women read news on the Internet (Statistics Finland, 2011: 51). Based on these plain

figures, Finland appears as a relatively gender equal country when it comes to newspaper reading in both offline and online context.

Method

Sampling and data

The data (N=611) was collected from Finland in May-June 2011. The mode of data collection was a structured postal survey. The nationally representative sampling was carried out by the Population Register Centre of Finland. The sampling frame consisted of 15-65 year-old Finnish speaking citizens covering all geographical regions of the country. The survey was pre-tested with 10 persons.

The design of the questionnaire benefitted from two earlier survey studies. A majority of questions were adopted from the ‘Telecommunication and Society in Europe’ telephone survey that was carried out in Italy, Spain, Germany, France and the United Kingdom in 2009. This survey is a partial replica of another survey conducted in the same countries in 1996 (Fortunati and Manganelli, 1998). Both were developed by a group of distinguished scholars and funded by Telecom Italia. Another survey exploited was ‘On the Move: The Role of Cellular Communications in American Life’, that was conducted at the Department of Communication Studies at the University of Michigan in 2005 by Mike Traugott, Thomas Wheeler and Richard Ling (On the Move, 2006). Similarities with these surveys make possible cross-national comparisons between Finland and the other countries with relation to certain variables.

The main characteristics of the data are presented in Table 1. Apart from the percentual distribution of the explanatory variables used in the analysis, the table describes mean comparisons for

two independent variables. It can be noticed that female respondents (61.3%) are overrepresented in the data. However, as the data does not indicate differences between men and women with regard to the duration of printed and online newspaper reading, it was considered plausible to analyse the non-weighted data. Like in survey studies usually, this kind of biases are related to non-response and in this case to the higher non-response of male subjects. The table also hints that printed newspaper reading increases with age, but online newspaper reading becomes less frequent. Respondents aged 55+ years represent the largest age group in the data, followed by 45-54 year-olds. Other three groups (15-24, 25-34 and 35-44 year-olds) are more or less of same size (between 13.7 to 15.9%). Higher education seems to be connected to the higher reading activity of both types of newspaper media. Respondents with middle level of education represent about one-half of all respondents (54.4%), followed by respondents with high (27.9%) and low (17.7%) level of education. Household income, on the other hand, is associated with printed newspaper reading only. The table shows that respondents are distributed relatively evenly across different household income groups. However, two groups (60,001-70.000 and 70.001-80.001 euros) have a slightly smaller proportion of respondents (8.2% each) than other groups (13.3 to 14.8%). And lastly, the time respondents spend on the Internet seems to increase both the reading of printed and online newspapers. Respondents spend most often less than one hour a day on the Internet (44.0%).

Table 1. Data characteristics

	Printed Newspaper reading	Online Newspaper reading	Total Sample
	Mean value (range 1-5 ^a) (F, sig)	Mean value (range 1-5 ^a) (F, sig)	% (N)
<i>Gender</i>	(F=2.01, p=.157)	(F=3.58, p=.059)	(N=612)
- Men	4.39	3.40	38.7
- Woman	4.25	3.14	61.3
<i>Age</i>	(F=29.39, p=.000)	(F= 14.90, p=.000)	(N=604)
- 15-24 year-olds	3.41	3.76	13.7
- 25-34 year-olds	3.73	4.00	15.9
- 35-44 year-olds	4.32	3.48	14.9
- 45-54 year-olds	4.65	3.07	23.0
- 55+ year-olds	4.69	2.66	32.5
<i>Education</i>	(F=6.51, p=.002)	(F=10.05, p=.000)	(N=603)
- Low (ISCED 1-2 ^b)	3.93	2.71	17.7
- Middle (ISCED 3-4)	4.39	3.24	54.4
- High (ISCED 5-6)	4.40	3.63	27.9
<i>Household income (per year)</i>	(F=7.13, p=.000)	(F=.086, p=.541)	(N=595)
- Less than 20.000 €	3.53	3.31	13.4
- 20.001 - 30.000 €	4.25	3.23	14.1
- 30.001 - 40.000 €	4.18	3.19	13.9
- 40.001 - 50.000 €	4.54	3.14	13.3
- 50.001 - 60.000 €	4.47	3.36	13.9
- 60.001 - 70.000 €	4.38	3.56	8.2
- 70.001 - 80.000 €	4.59	2.82	8.2
- 80.000 or more €	4.58	3.26	14.8
<i>Time spent on the Internet</i>	(F=7.388, p=.000)	(F=46.132, p=.000)	(N=600)
- Less than one hour a day	4.54	2.47	44.0
- Every/nearly every day, about 2 hours	4.24	3.61	23.7
- Every/nearly every day, about 3 hours	4.15	4.18	16.0
- Every/nearly every day, about 4 hours	3.93	3.97	16.3

Note. ^a Values correspond to: 1='Less often than Once/twice a month or never', 2='Once/twice a month', 3= 'Once a week', 4='Several times a week', 5='Every day'.

^b Education is presented here in a form of three category variable based on 'The International Standard Classification of Education (ISCED97)'.

Measurement instruments

Dependent variables

To measure the reading of printed and online newspapers, the questions ‘How frequently do you read daily newspapers (free press excluded)?’ and ‘How frequently do you read online papers?’ were used. The following answering categories were given to respondents: 1=‘Every day’, 2=‘Several times a week’, 3=‘Once a week’, 4=‘Once/twice a month’, 5=‘Less often’, 6=‘Never’. The variables were recorded so that categories 5 and 6 were combined and the scales reversed. As regards the recoded printed (Range=1-5, M=4.30, SD=1.21) and online newspaper variables (Range=1-5, M=3.24, SD=1.67), higher values indicate more frequent reading and smaller values less frequent reading activity. These two indicators were adopted from the ‘Telecommunication and Society in Europe’ survey of 2009.

Independent variables

To measure the duration of Internet use, the question ‘How often, and how much, do you personally use the Internet from home?’ was applied. It is worth noting that only home-based use was measured, and thus uses at work, schools, Internet cafés and other public places remained outside the focus of this study. This indicator was also adopted from ‘Telecommunication and Society in Europe’ survey, and it involved nine answering choices ranging from 1=‘Every/nearly every day – 4 hours or more’ to 9=‘Rarely’. Recodings were made to reduce the scale and to present the scale in reverse order. In the recoded variable, values correspond to the following statements: 1=‘Less than one hour a day’, 2=‘Every/nearly every day, about 2 hours’, 3=‘Every/nearly every day, about 3 hours’ and 4=‘Every/nearly every day, about 4 hours’ (Range=1-4, M=2.05, SD=1.12).

Gender was measured with fixed answering categories: 1=‘Man’ and 2=‘Woman’. The age was enquired by asking for the year of birth, which was then recoded into full years (Range=15-74,

M=44.45, SD=15.07). Education level was measured as the highest completed level of education in accordance with The International Standard Classification of Education (ISCED97). The ordinal ISCED scale was recorded into continuous variable (Range=6-16.5; M=12.9, SD=3.17) by using estimated years of education as suggested by prior literature (OECD, 2009: 475). Lastly, household income was measured by asking ‘What is the total annual income of your household that is the approximate total of all salaries, pensions and other revenues?’ The following answering categories were supplied: 1=‘Less than 20.000 Euros’, 2=‘20.001-30.000 Euros’, 3=‘30.001-40.000 Euros’, 4=‘30.001-50.000 Euros’, 5=‘50.001-60.000 Euros’, 6=‘60.001-70.000 Euros’, 7=‘70.001-80.000 Euros’, and 8=‘More than 80.001 Euros’ (Range=1-8, M=4.32, SD=2.32). The bivariate correlations of the dependent and the independent variables are presented in Annex 1.

Procedure

In terms of statistical methods, the article is premised on a hierarchical regression analysis. Two hierarchical regression analyses were implemented to analyse the variability of continuous dependent variables – online and printed newspaper reading – by resorting to information available on controlled background variables and the main explanatory variable that is the duration of Internet use. The regression analyses were executed with a hierarchical procedure where personal background variables were entered at the first step (age, gender and education) and the household level variable ‘income’ at the second step. Next, the main explanatory variable, the duration of the Internet use, was incorporated in the model to test its main effect. Lastly, the interaction term of gender and online time was added to the model in order to find out whether gender has a moderating effect. Other interaction effects between background variables (education, age) and the duration of Internet were also explored whilst building the model, yet they turned out to be not significant. All predicting variables were standardised

for the regression analyses to make sure that the interaction terms could be appropriately tested and illustrated.

The study also took advantage of various statistics to investigate the robustness of the regression models. Tolerance and the Variance Inflation Factor (VIF) ($1/\text{Tolerance}$) values were examined to detect multicollinearity. If VIF exceeds the critical value 10 (Tolerance, correspondingly, is less than 0.1) further investigations are required (e.g. Gross, 2003: 304). Finally, the Adjusted R squared is used to measure the proportion of the variation in the dependent variable and accounted for the explanatory variables.

Results

Multivariate hierarchical regression models predicting the reading of printed and online newspapers are presented in Table 2. The full models including all predicting variables explain 20.8% of the total variance of printed newspaper reading and 21.1% of the variance of online newspaper reading. In addition, the indicators of multicollinearity varied between the acceptable limits. In the full model for printed newspapers, VIF values varied between 1.007 and 1.252 and with regard to online newspaper reading between 1.006 and 1.258.

Table 2. Hierarchical regression models for printed and online newspaper reading

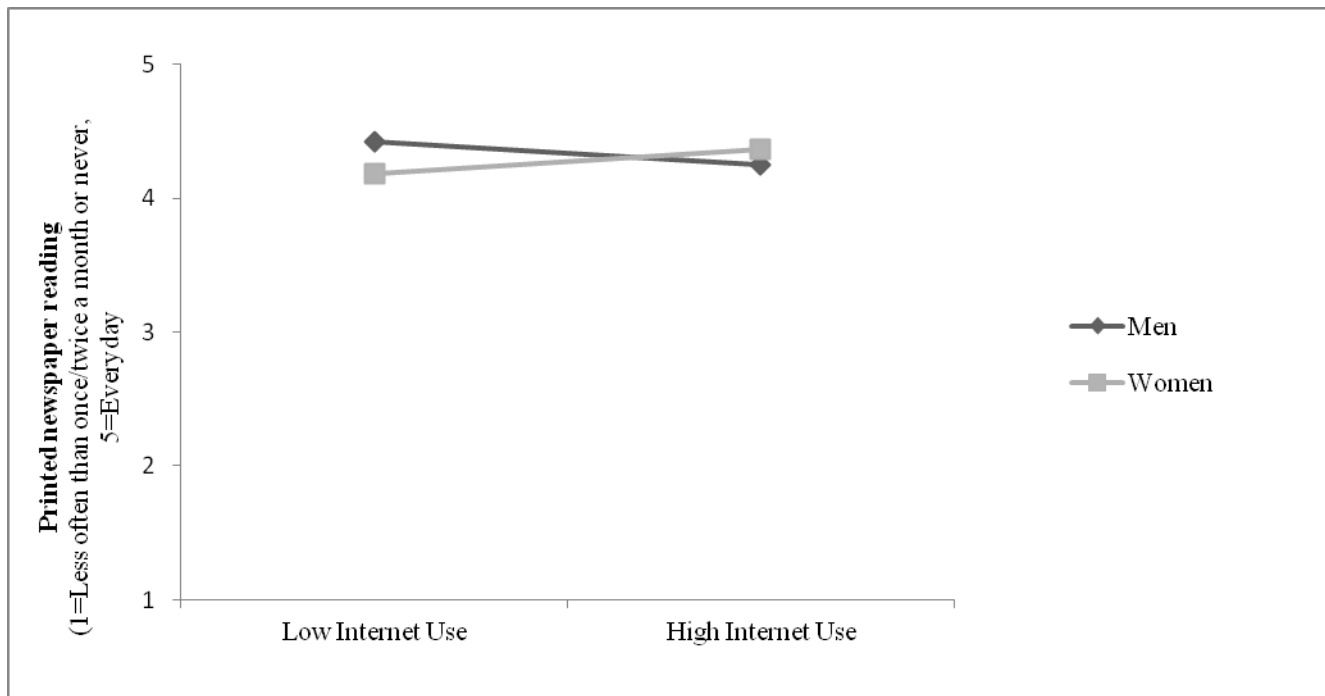
	Printed newspaper				Online newspaper			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
<i>Step 1</i>								
Gender (0=man,1=women)	-.033	-.025	-.025	-.025	-.147***	-.149***	-.132***	-.132***
Age	.406***	.383***	.383***	.383***	-.295***	-.290***	-.152***	-.153***
Education (years)	.141***	.098*	.098*	.100*	.196***	.205***	.211***	.212***
<i>Step 2</i>								
Household income		.165***	.165***	.169**		-.036	.009	.012
<i>Step 3</i>								
Online time			-.001	.003			.334***	.226***
<i>Step 4</i>								
Gender*Online time				.075*				.040
ΔR^2	.186***	.025***	.001	.006*	.128***	.001	.089***	.002
Adjusted R ²	.182	.206	.204	.208	.124	.123	.211	.211
N				565				569

Note: * p< .05; ** p<.01; *** p<.001

As it was hypothesised based on earlier literature (H1), the analysis shows that the time spent on the Internet is not associated with the reading of traditional newspapers. The main effect of online time to the frequency of printed newspaper reading (Model 3; $B=-.001$, $p=n.s.$) is virtually nonexistent when individual and household characteristics are controlled. To put it in terms of the displacement theory, the increase in Internet use does not seem to supersede newspaper reading in Finland. However, at this phase possible interaction effects were not yet controlled.

The effect of the duration of Internet use becomes visible only when its relation to gender is examined. The results of regression analyses show that gender and the time spent online have an interaction effect on printed newspaper reading (Model 5; $B=.075$, $p=.45$). In order to study this interaction effect more carefully Figure 1 was produced. The figure provides information that is conflicting with H2. As it was hypothesised, the more time male respondents spent on the Internet, the less time they allocated to printed newspaper reading. However, the finding that this connection is opposite for women is contrary to H2. The more women use the Internet, the more they read printed newspapers.

Figure 1. The interaction effect of the time spent on the Internet and gender on printed newspaper reading



Hypothesis concerning the interaction effect of gender and online time on the frequency of online newspaper reading (H3) was relatively difficult to formulate in a plausible manner due to a lack of prior literature. Nevertheless, the results of the study do not provide support for the presented hypothesis. The regression model did not reveal a similar interaction effect (Model 5; $B=.040$, $p=ns.$) that was found in relation to printed newspaper reading. The analysis shows rather that the time spent on the Internet increases the reading of online newspapers similarly in the case of women and men.

Hypothesis 4 anticipated that age, gender and education level would predict the use of printed and online newspapers, whilst household income is only associated with printed newspaper reading. In terms of printed newspapers, analysis confirms expectations; older and more educated respondents read more frequently traditional newspapers than their younger and less educated counterparts. Thus, age is

proven to be the most powerful single predictor. In addition, household income is associated with printed newspaper reading as expected; the higher levels of household income are linked to more frequent newspaper reading. Gender, however, was not directly connected to newspaper reading, yet its interaction effect with the time spent on the Internet should be kept in mind.

Hypothesis 4 addressed the role of socio-demographic background factors as the predictors of online newspaper reading. The analyses revealed only partial evidence in this regard. Not surprisingly, older respondents read less online newspapers than younger respondents. However, age was not the strongest single predictor as it was in the case of printed newspaper reading. The length of education was also positively associated with online paper readership. A more unpredictable finding was that men read more online newspapers than women in Finland ($B=-.132$, $p<.000$). Even if Finland's printed newspaper readership seems to be slightly gender neutral in comparison with many other European countries where men read newspapers more than women (Elvestad and Blekesaune, 2008), as regards online newspaper readership the country is perhaps more old-fashioned. This result may also stem from the fact that men spend greater time on the Internet in general and have, therefore, visited online newspaper sites more frequently than women. The regression analyses also confirmed a much debated issue that online newspaper reading is less dependent on household income than printed newspaper reading. In fact, household income had no explanatory capacity in this respect at all.

Discussion and conclusions

This article aimed to explore how the time spent on the Internet is associated with the frequency of printed and online newspapers reading. The particular focus of the study was on the direct and moderating effects of gender. Four hypotheses were set in order to find answers to two research questions that are discussed next.

Research question one aimed to clarify how time spent on the Internet is associated with the time spent on reading printed and online newspapers. Many previous studies suggested that the Internet does not have a displacement effect on printed newspaper reading. The results of this study show that this conclusion can only be made if the interaction effects of Internet use and gender are not analysed. It was pointed out, as a response to RQ2, that the displacement hypothesis actually gains support with regard to Finnish men; as the time spent online increases, men read less printed newspapers. For women, the results of regression analyses support the efficacy hypothesis. Findings indicate that women use the Internet in ways that are likely to boost their printed newspaper reading. The Internet might satisfy men's hunger for news better than it does women's, who seem to want more supportive information from printed papers. Nevertheless, more detailed research is needed to clarify gender differences in motivation to use different forms of media. The study also showed in response to RQ1 and RQ 2 that the time spent online increases online newspaper reading, but that this connection is not differentiated by gender as it is in relation to printed newspapers.

All in all, the patterns of newspaper reading are still gendered in the age of digital media. In the course of the study, it became evident that research on newspaper readership and reading activity would merit more sophisticated statistical approaches, which take into account various moderating effects of socio-demographic variables. Prior research has stated that the use of other media types may substitute for newspaper reading, but such tendency has turned out to be ambiguous (Elvestad and Blekesaune, 2008: 428). This study, however, has suggested ways in which this ambiguity may be reduced by taking into account the moderating effect of gender. Furthermore, the study revealed that more research is required to understand what online newspaper readers do on the web that might contribute to their reading behaviour (the efficacy hypothesis), and what kind of online behaviour is prone to take time from reading (the displacement hypothesis). This is a starting point, but a more

advanced time use survey based on a diary record would allow a detailed analysis of online practices that overlap with newspaper reading and practices that ‘steal’ time from newspaper reading.

Funding

(Removed due to identifying author information)

References

- Bimber, Bruce (2000) ‘Measuring the Gender Gap on the Internet’. *Social Science Quarterly* 81(3): 868-76.
- Chung, Deborah S. (2008) ‘Interactive Features of Online Newspapers: Identifying Patterns and Predicting Use of Engaged Readers’. *Journal of Computer-Mediated Communication* 13(3): 658-79.
- De Waal, Ester, Klaus Schoenbach and Edmund Lauf (2005) ‘Online Newspapers: A Substitute or Complement for printed Newspapers and Other Information Channels?’. *Communications* 30(1):55-72.
- DiMaggio, Paul, Eszter Hargittai, Russel W Neuman, and John P Robinson (2001) ‘Social Implications of the Internet’. *Annual Review of Sociology* 27(1): 307-36.
- Dimmick, John, Yan Chen and Zhan Li (2004) ‘Competition Between the Internet and Traditional News Media: The Gratification-Opportunities Niche Dimension’. *Journal of Media Economics* 17(1): 19-33.
- Elvestad, Eiri and Arild Blekesaune (2008) ‘Newspaper Readers in Europe: A Multilevel Study of Individual and National Differences’. *European Journal of Communication* 23(4): 425-47.

- Fortunati, Leopoldina and Anna-Maria Manganelli (1998) 'La comunicazione tecnologica: Comportamenti, opinioni ed emozioni degli Europei' [Technological communication behaviour, opinions and emotions in Europe], pp. 125-94 in L. Fortunati (ed.) *Telecomunicando in Europa* [Telecommunication in Europe]. Milan: Angeli.
- Gross, Jürgen (2003) *Linear Regression*. Berlin: Springer-Verlagen.
- Jones, Steve, Camille Johnson-Yale, Sarah Millermaier and Francisco Seoane Perez (2009) 'U.S. College Students' Internet Use: Race, Gender and Digital Divides'. *Journal of Computer-Mediated Communication* 14(2): 244–64.
- Junghee, Lee and Lee Hyunjoo (2010) 'The Computer-mediated Communication Network: Exploring the Linkage Between the Online Community and Social Capital'. *New Media & Society* 12(5): 711–27.
- Jyrkiäinen, Jyrki (2007) 'The Finnish Media Landscape', pp. 99-110 in G. Terzis (ed.) *European Media Governance. National Regional Dimensions*. Bristol: Intellect Books.
- Kaye, Barbara K. and Thomas Johnson (2002) 'Online and in the know: Uses and Gratifications of the Web for Political Information'. *Journal of Broadcasting and Electronic Media* 46(1): 54–71.
- Kaye, Barbara K. and Thomas Johnson (2003) 'From here to Obscurity? Media Substitution Theory and Traditional Media in an On-line world'. *Journal of the American Society for Information Science & Technology* 54(3): 264–74.
- Kraut, Robert, Michael Patterson, Vicki Lundmark, Sara Kiesler, Tridas Mukopadhyay and William Scherlis (1998) 'Internet Paradox: A Social Technology that Reduces Social Involvement and Psychological Well-Being'. *American Psychologist* 53(9): 1017-31.
- Lauf, Edmund (2001) 'Research Note: The Vanishing Young Reader. Sociodemographic Determinants of Newspaper Use as Source of Political Information in Europe, 1980–98'. *European Journal of Communication* 16(2): 233–43.

- Lee, Paul S.N. and Louis Leung (2008) 'Assessing the Displacement Effects of the Internet'. *Telematics and Informatics* 25(3): 145-55.
- Lucas, Kristen and John L. Sherry (2004) 'Sex Differences in Video Game Play: A Communication-Based Explanation'. *Communication Research* 31(5): 499-523.
- Mokhtari, Kouider, Carla A. Reichard and Anne Gardner (2009) 'The Impact of Internet and Television Use on the Reading Habits and Practices of College Students'. *Journal of Adolescent & Adult Literacy* 52(7): 609-19.
- Nie, Norman H. and Lutz Erbring, (2002) *Internet and Society: A Preliminary Report*. Accessed 31 August 2011 at <http://www.bsos.umd.edu/socy/alan/webuse/handouts/Nie%20and%20Erbring-Internet%20and%20Society%20a%20Preliminary%20Report.pdf>
- Nie, Norman H., D. Sunshine Hillygus and Lutz Erbing (2002) 'Internet Use, Interpersonal Relations, and Sociability: A Time Diary Study', pp. 215-43 in B. Wellman and C. Haythornthwaite (eds) *The Internet in Everyday Life*. Malden, MA: Blackwell.
- OECD (2009) *PISA Data Analysis Manual: SPSS Second Edition*. Paris: Programme for International Student Assessment, OECD.
- On the Move: The Role of Cellular Communications in American Life* (2006) Department of Communication Studies. Michigan, University of Michigan. Accessed 9 August 2011 at <http://itudcmc.files.wordpress.com/2010/03/onthemove1.pdf>.
- Ono, Hiroshi and Madeline Zavodny (2003) 'Gender and the Internet'. *Social Science Quarterly* 84(1): 111-21.
- Robinson, John P., Meyer Kestenbaum, Alan Neustadtl and Anthony S. Alvarez (2002) 'The Internet and Other Uses of Time', pp. 244-62 in B. Wellman and C. Haythornthwaite (eds) *The Internet in Everyday Life*. Malden, MA: Blackwell.

- Schoenbach, Klaus, Edmund Lauf, Jack M. McLeod and Dietram A. Scheufele (1999) 'Research Note: Distinction and Integration. Sociodemographic Determinants of Newspaper Reading in the USA and Germany, 1974–96', *European Journal of Communication* 14(2): 225–39.
- Selwyn, Neil, Stephen Gorard and John Furlong (2005) 'Whose Internet is it Anyway? Exploring Adults' (Non)Use of the Internet in Everyday Life'. *European Journal of Communication* 20(1): 5-26.
- Shah, Dhavan, Michael Schmierbach, Joshua Hawkins, Rodolfo Espino and Donovan Janet (2002) 'Nonrecursive Models of Internet Use and Community Engagement: Questioning Whether Time Spent Online Erodes Social Capital'..*Journalism and Mass Communication Quarterly* 79(4): 964-87.
- Shklovski, Irina, Robert Kraut and Lee Rainie (2004) 'The Internet and Social Participation: Contrasting Cross-Sectional and Longitudinal Analyses'. *Journal of Computer-mediated Communication*, 10(1): n.a.
- Statistics Finland (2011) *Ajankäyttötutkimus 2009 [Time use survey 2009]*. Helsinki: Statistics Finland.
- Tewksbury, David and Scott L. Althaus (2000) 'Differences in Knowledge Acquisition among Readers of the Paper and Online Versions of a National Newspaper'. *Journalism & Mass Communication Quarterly* 77(3): 457-79.
- Wasserman, Ira M. and Marie Richmond-Abbott (2005) 'Gender and the Internet: Causes of Variation in Access, Level, and Scope of Use'. *Social Science Quarterly* 86(1): 252-70.
- Weiser, Eric B. (2000) 'Gender Differences in Internet Use Patterns and Internet Application Preferences: A Two-Sample Comparison'. *CyberPsychology & Behavior* 3(2): 167-78.

Annex 1

Table 3. Bivariate correlations of dependent and independent variables

	1.	2.	3.	4.	5.	6.	7.
1. Gender (0=men, 1=women)	-						
2. Age	-.120**	-					
3. Education (years)	.151***	-.036	-				
4. Household income	-.037	.121**	.269***	-			
5. Online time	.000	-.414***	-.044	-.192***	-		
6. Printed newspaper reading	-.057	.389***	.121**	.220***	-.186***	-	
7. Online newspaper reading	-.077	-.280***	.181***	-.011	.392***	-.021	-

Note: * p< .05; ** p<.01; *** p<.001