Internet in the Daily Life of Journalists: Explaining the use of the Internet by Work-Related Characteristics and Professional Opinions

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Introduction

Over the last 10 years there has been much debate about the impact of the rise of the Internet and other digital technologies on traditional news media, such as newspapers. The influence of the Internet on news reporting is often formulated in terms of threats to existing, traditional journalism, as well as new opportunities for revitalizing journalistic routines. One dominant focus in earlier studies is the technology-driven approach. These studies (e.g., Pavlik, 2000) suggest that news content is crucially determined by the available technologies. Hence, changes in journalism can be explained predominantly by technological developments. Despite their valuable insights, these earlier studies contributed little to our understanding of how adoption processes of digital technologies may evolve in different user-contexts (Boczkowski, 2004). A more fruitful approach in this respect stems from the integrated perspective of social constructivism. Here, the adoption of innovations is seen as a complex interaction process between professional, organizational, and economic factors (Boczkowski, 2004; Paulussen & Ugille, 2008). With this in mind, the role of social context factors, such as working conditions, workplace organization, and professional values, should be taken into consideration when studying the adoption of technological innovations in news media. So far, and despite the growing body of research on these social context factors shaping the impact of digital technology

in journalism, the majority of the existing research is based upon small samples of journalists working with one platform only (often within online newsrooms) (Paulussen & Ugille, 2008; Thurman, 2008), or concentrates on either organizational structures or professional attitudes (Boczkowski, 2004; Singer, 2004). Our study is an attempt to examine how the use of Internet applications by journalists working in mainstream news media is influenced by social context factors, such as background characteristics, work-related factors, and the perceived utility of Internet use as part of the daily journalistic routines. We suggest that implementation of technological innovations not only leads to changes in the daily routines of journalists, but also leads to redefining notions about themselves as professionals (cf. Deuze, 2004). Therefore this study also looks into the relation between journalists' professional opinions about the impact of the Internet on journalistic values on the one hand, and their actual use patterns on the other. It adds empirical insights to the often more contemplative discussions of the impact of the Internet on journalism.

Although journalists may be seen as a homogeneous occupational group, they are not expected to use all possibilities provided by the Internet to an equal extent and for the same purposes. Earlier studies indicate that differences occur between journalists in terms of how, and to what extent they use the Internet in their daily work (Garrison, 2000; Hui-Ming, 2001; Niebauer, Abott, Corbin, & Neibergergall, 2000). Such research often results in descriptive analyses of how journalists use the Internet. However, further research into possible relations between context variables and differences in Internet use remains scarce (cf. Garrison, 2003; Maier, 2000).

This study focuses on the use of Internet applications by journalists in the Low Countries (the Netherlands and Flanders). First, we looked into the variety of Internet applications that journalists use professionally. Subsequently, taking into account background characteristics, work activities, media platforms, and professional opinions about the impact of the Internet on journalism, this study focuses on finding relations between social context variables on the one hand and the differences in the actual use of Internet applications on the other.

Theoretical Considerations

There is no doubt that the rise of the Internet as a technological innovation has influenced journalism. Certain transformations can be highlighted, such as shifts in the news flow, in the daily journalistic routines, and in professional accountability. First, the news flow has evolved; traditionally news was produced mainly by professional journalists who distributed their stories through mainstream news media. Nowadays, the Internet, as an open and accessible source of information, provides broad opportunities for all kind of news exchanges among a wide audience. The Internet offers a platform for a potential group of (non)professional news producers, thereby diminishing traditional boundaries of gathering, producing, and disseminating news. Second, the daily practice of journalists has changed because of the new possibilities provided by the Internet. The importance of the Internet

as a news-gathering instrument is no longer questioned. Throughout the world journalists have incorporated the Internet into their daily routines of news production (Hui-Ming, 2001; Lünenbürger-Reidenbach et al., 2000; Quinn, 1999; Trumbo, Sprecker, Dumlao, Yun, & Duke, 2001). Third, the traditional responsibility for news production and circulation is no longer the task exclusively of journalists. Journalists' occupational roles demand attitudes different from the traditional gatekeeping role, and may shift more to activities such as interpretation and reflection (Bardoel, 2002). The process of storytelling is turned around, as it were: The journalist presents the public with annotated archives from various sources of information that the citizen can access at a later date (Deuze, 2003; Matheson, 2004). The traditional asymmetrical relationship, in which the journalist determines what is important news for citizens, shifts to a more symmetrical relationship in which the journalist is more responsive and assumes the role of a partner (cf. Bardoel, 2002; Pavlik, 2001).

In light of the changes the Internet brings to journalism, many authors voice their concerns about the impact of the Internet on journalism (Grabowicz, 2003; Haas, 2006; Lasica, 2003). Pessimists refer mainly to the negative consequences, and view the Internet (and news blogs) as a direct threat to the professional values in the field of journalism. It is feared that the increased complexity in finding and verifying information at the expense of journalistic accuracy, will foster hasty and uncontrolled reports, (Hall, 2001; Manning, 2001). This fear is intensified by the increasing importance of speed and accessibility of information that leads to heightened pressure of workload and stress. Optimists view the changes brought about by the Internet as enriching. According to them, thanks to the Internet, every journalist can consult various sources faster and more easily, as a result of which reports become more varied and gain more contextual depth (Koch, 1991; Pavlik, 2001). Optimism about these developments shows confidence that breaking existing barriers between journalists and the public may improve journalism. The use of news sites and news blogs can demonstrate that news organizations are no longer monolithic companies, but a collection of individuals who work together as a team. Especially young people, who currently have relatively little interest in traditional news media such as newspapers, can be reached more easily through digital platforms. A third strand of researchers puts the strong influence of the Internet and other digital technologies on journalism into a more neutral perspective. Haas (2005) points out that throughout history, every new communication medium was wrongly proclaimed as a radical turning point for old media. According to him, after the initial implementation stage, not much will change, apart from practical improvements, and the changes that do occur will not lead to substantial shifts in journalism in general.

Uses and Gratifications
The 'Uses & Gratifications' (U&G) research tradition focuses on factors influencing motives for use and outcomes for people's media-related behaviour (Newhagen & Rafaeli, 1996). This research tradition assumes that people's use of media is

codetermined by the degree to which this use of media does indeed satisfy people's needs (Palmgreen, Wenner & Rosengren, 1985). This approach allows for investigation of motivational access and online skills, choice of applicatons and diversity, or lack of these among journalists. It can be assumed that journalists, just like any other user group, use media strategically, and therefore will employ the Internet for different purposes. They will select Internet applications based on how well each option helps them to fulfill specific tasks or goals (Cho, Zuniga, Rojas & Shah, 2003). This implies that the degree of Internet use is related to benefits or 'professional gratifications' that journalists expect to find, or have experienced before. The Internet use by journalists depends on the perceived usefulness in their daily journalistic activities. When a new technology enters the daily routines of an organization and is used for the same purposes as older technologies, journalists will prefer the technology which better fits the particular needs of journalistic practice. Previous research (Garrison, 2000, 2003) demonstrated that the Internet as a 'new' technology is seen as a good alternative for the older technology because the characteristics of the former tend to better fit their basic needs in daily newsroom routines. Journalists view the value of the Internet mostly in terms of the speed with which a wider variety of information sources becomes available. Hermans, Vergeer and Pleijter (2009) show that in 2002, the perceived utility of the Internet is strongly associated with Internet use. Whenever practical advantages were attributed to the Internet (e.g., increased efficiency, easier disclosure, and verification of information), Internet use was higher.

Looking at the Internet use of journalists in their occupational situation means that we will concentrate on the use within their work situation. Satisfaction of needs is defined within the news production process, and concentrates on the function as a tool for gathering information . In an effort to study the relation between the perceived utility of the Internet and the actual use of Internet applications, the following research question was formulated:

> RQ1: To what extent do differences in perceived utility relate to the differences in journalists' actual use of Internet applications?

Socialization

Journalists are a group of professionals with a specific occupational identity (Deuze, 2005; Singer, 2003; Weaver & Wilhoit, 1996). The skills and standard routines in this professional group are acquired through socialization processes in vocational training programs and on-the-job experiences (Breed, 1955; Tuchman, 1978). In consequence, journalistic activities tend to consist of daily routines within a structured time frame (Berkowitz, 1992; Tuchman, 1978). Previous studies show that the daily activities of journalists are also determined by professional positions (e.g., chief-editor, desk-editor, reporter, photographer) within the editorial staff (Hermans, 2004; Weaver, Beam, Brownlee, Voakes & Wilhoit, 2007). Furthermore, socialization also depends on organization-specific characteristics. According to Singer (2004), "identification

with a particular medium is part of formative educational and professional processes for many journalists'' (p. 839).

Despite the differences in work-related circumstances, journalists are supposed to possess certain general professional skills in order to carry out their work. They learn these skills in vocational training as well as on the job. Once these practical skills are used regularly and develop according to a certain pattern, we speak of journalistic routines. These routines determine significantly the development of the news production process (Schudson, 2003; Shoemaker & Reese, 1996). With technological innovations like the Internet, journalists need time to learn the specific skills in order to make proper use of them, and subsequently incorporate them into their daily routines (Garrison, 2000, 2003). In order to locate online information efficiently, journalists need to learn technical and journalistic skills, and become familiar with database management and interactive news presentation that were not required in the pre-Internet age.

Another consequence of technological innovations is that convergence occurs in media production as well as at the organizational level (Erdal, 2007; Singer, 2003; 2004). Singer concludes in her study on convergence in the newsrooms of print, television, and online media that print journalists have an ambivalent attitude as they ''are undergoing resocialization to an expanded view of professionalism: Ingrained habits and learned skills related to newsroom structure and storytelling norms are more resistant to change'' (2004, p. 838).

In newsrooms the focus is changing from working for a single medium towards a situation in which journalists are required to produce news for several media platforms simultaneously. This indicates that there is a greater demand for journalists able to work in a multimedia environment, requiring journalists to become multiskilled (Deuze, Neuberger & Paulussen, 2004; Erdal, 2007). In order to carry out this increased workload aimed at cross-media storytelling, journalists need more diversity in both technical and journalistic skills. In the Dutch context, it is interesting to note that the Collective Labor Agreements for journalists allow the possibility to take into account new skill requirements as part of the salary negotiations (i.e. more skills, potentially more salary) (De Journalist, 2008).

Focusing on the influence that background characteristics and work-specific circumstances, such as media types and journalistic activities, have on the use of Internet applications, the following research questions were formulated:

RQ2: To what extent are differences in individual and journalistic background characteristics related to differences in the use of Internet applications?

RQ3: To what extent are work-related factors such as type of media and journalistic activities related to differences in the use of Internet applications?

Journalistic Values: Accuracy and Credibility

The rise of the Internet gave a new impulse to the discussion about the influence of technological innovations on journalism. Against the background of previously

outlined changes in news services, it is to be expected that journalists themselves also take a critical look at the influence that these developments have on their professional field of work. Journalists find themselves part of a new culture of news production. The ongoing changes affecting newsroom organization and communication patterns will influence the way journalists are socialized not only in their work but also in their profession. Journalists, especially the more traditional newspaper journalists, seem to be more ambivalent about the effects of technological innovations in the newsroom on professional norms of credibility, accuracy, and quality (Garrison, 2003).

Accuracy

With the development of the Internet as a major source of information, questions have been raised about the potential impact of the use of the Internet on journalistic values. The Internet provides a great variety of online sources, archives, and databases (Pavlik, 2001). Information becomes globally accessible within an instant (Grabowicz, 2003). Furthermore, geographically dispersed experts and sources have become easily traceable and accessible. Hence, the speed and globalization of the information-gathering process has increased dramatically, significantly altering journalists' work in terms of efficiency and cost-effectiveness (Haas, 2006; Lasica, 2003). However, these developments are not without problems. The sheer supply of unlimited information forces journalists to stay constantly up-to-date with the newest information and to determine the news value of events. The Internet has increased time pressure in the news production process and the competition for scoops. Hence, traditional news values, such as verifying facts and the right of reply, may come under serious pressure with obviously negative consequences for the accuracy of journalism. We expect that journalists' perceived positive or negative impact of the use of the Internet on the professional value 'accuracy' will affect the way they use Internet applications.

Credibility

According to Ruggiero (2004), journalists were initially hesitant in accepting the Internet as a credible source due to their professional ideology. The origin of the extremely diverse Internet sources accessible is not always traceable. Hence, when using such information, it may be difficult to maintain journalistic standards (control and verifiability, among others). Garrison (2000, 2003) also concludes that journalists have reservations about the credibility of Internet information, as the often uncertain origin of the information on offer makes verification difficult. Given that credibility is an important journalistic value, it is to be expected that journalists have to have a certain degree of trust in the information they find on the Internet in order to actually make use of it (Cassidy, 2007). Journalists differ in the degree to which they find the Internet a credible source (Chan, Lee & Pan, 2006; Ruggiero, 2004). As the origin of the information and therefore the credibility of the source are important factors in the selection process, these are expected to affect the decisions whether or not to use Internet information. Journalists who traditionally made frequent

use of official, institutional sources can now gain access to a broad spectrum of digital databases. Furthermore, the Internet with its accessibility to many nonofficial sources, allows journalists to gather useful information from a much wider range.

Since the use of the Internet has been accepted and integrated into the daily activities of journalists, the question is to what extent the ascribed credibility of Internet information may influence the use of various Internet applications.

Taking the professional values into consideration, the following research question is formulated:

RQ4: Is there a relationship between journalists' perceived impact of the Internet use on professional values such as credibility and accuracy on the one hand, and the differences in actual use of Internet applications on the other?

Method

Data

Data was collected in the Netherlands and the Dutch-speaking part of Belgium (Flanders). The Dutch data was collected in February 2006, using a random sample of 2,000 journalists from the NVJ membership database, which consists of approximately 9,500 members out of about 12,000 journalists in the Netherlands. The paper questionnaire was sent to the journalists, followed by a reminder 2 weeks later. Ultimately 642 journalists responded, a response rate of 32%.

The Flemish data was collected in the spring of 2007 using a web questionnaire. All members of the Flemish Association of Journalists (VVJ) were approached. An estimated 90% of all Flemish journalists are members of the VVJ. Of the 2,063 journalists approached, 526 participated, a response of 25.5%.

Operationalization

Dependent variable: Adoption of Internet applications
The adoption of the Internet was measured by asking journalists to indicate to what extent they use different Internet applications. We selected applications that were broadly available to journalistys in 2006. The following 12 Internet applications were included in the analysis: (1) surfing the web, (2) e-mail, (3) search engines, (4) instant messaging, (5) chatting, (6) RSS, (7) online databases, (8) newsletters/e-zines, (9) electronic clipping services, (10) blogs, (11) web forums, and (12) Usenet/discussion groups. The ordinal answer categories were subsequently converted to numeric values indicating how many days of the week Internet applications were used (i.e. daily = 7, weekly = 1, monthly = 12/52 = 0.23, seldom = 6/52 = 0.12, never = 0). Subsequently a sum-score was calculated for these applications, indicating the daily frequency with which journalists use the 12 Internet applications each week. Although this operationalization does not take into account repeated daily use of an

Internet application, the index does indicate the degree to which the use of Internet applications is structurally embedded in journalistic routines.

Independent variables

Journalistic opinions about utility, credibility and accuracy. Attitudes and opinions of journalists with regard to journalism and the Internet were grouped into an integral factor analysis. On the basis of the latter (criteria: KMO > .50, own value > 1, communality > .20, factor loading > .30, factor loading foreign factor < .20), four dimensions could be distinguished (see appendix, table 3). In parallel with previous research (Hermans, et al., 2009), the dimensions refer to (1) utility of the Internet, specified in the degree to which the Internet is perceived as an important source for new ideas/information/informants; and (2) increased work efficiency due to the Internet. The third and fourth dimensions can be interpreted as representations of important journalistic values, i.e. credibility and accuracy. Perceived credibility of Internet information can be divided into three different subdimensions: (3a) credibility of Internet information in general, (3b) credibility of Internet information from nongovernment organizations; (3c) credibility of Internet information from government organizations. The fourth dimension refers to the (4) perceived consequences of journalistic Internet use for accuracy, or lack thereof (i.e. superficiality, carefulness) of journalism. The reliability of the scales is presented in Table 1.

The items belonging to these dimensions were measured on a 4-point scale (agree completely - agree - disagree - disagree completely). Mean sum-scores were calculated, whereby a higher score indicates a higher agreement with the dimension (see appendix, table 3). Because items measuring opinions and attitudes showed partial nonresponse, only those respondents were included in the mean score calculation when they had responded to at least two-thirds of the items of each factor.

Table 1 Reliability of scales

		Cronbach's α	N
(1)	The Internet is an important source for finding new ideas/information/informants	0.781	1062
(2)	The Internet increased work efficiency	0.717	1070
(3a)	Perceived credibility of Internet information in general	0.672	1090
(3b)	Perceived credibility of Internet information from nongovernment organizations	0.780	1010
(3c)	Perceived credibility of Internet information from government organizations	0.770	989
(4)	Consequences of Internet use for journalism accuracy	0.762	1060

Journalistic activities and fields of activity. The journalists were asked to indicate which *journalistic activities* they carry out on the job. The differentiated activities were (1) writing own texts/messages/articles, (2) editing other people's texts, (3) taking photographs, (4) presenting, (5) reporting, (6) managing websites, and (7) directing/supervising/coordinating; more than one activity could be chosen from this list. Furthermore, journalists were asked to indicate within which *fields of activity* they carried out these activities. A multiple response was possible: (1) press agency, (2) national public service broadcasting, (3) national commercial broadcasting, (4) regional broadcasting, (5) local broadcasting, (6) national newspapers, (7) regional newspapers, (8) door-to-door papers, (9) opinion magazines, (10) general interest magazines, (11) specialist journals, (12) cable news, (13) corporate publications, (14) nonprofit newsmagazines (15) websites, and (16) blogs.

Demographic and professional characteristics. To test for spuriousness of relations, several demographic variables, such as gender, region (Flanders, the Netherlands), age, journalistic experience and education, were also taken into account. *Age* was measured in five classes with equal class intervals of 10 years (starting from 20 years), excluding the highest age category (i.e. 60+). *Education* was measured asking respondents' highest educational level (senior secondary vocational education, higher professional education, university). As the response incidence of the lowest education categories was very low, these were merged with higher professional education. *Journalistic experience* was measured by asking journalists how many years they have been working in the profession of journalism. They were also asked whether or not they have had *journalistic training*.

Analysis

In order to estimate the effects, multiple regression analysis was applied. Regression analysis presumes variables of minimal interval level and linearity of relations. Hence, categories of education and age groups were included in the regression equation as dummy variables. The lowest age group (20–30) was chosen as a reference category with which the remaining age categories were compared (Cohen, Cohen, West, & Aiken, 2002). The different journalistic activities and fields of activity are dichotomous. The non-standardized regression coefficients of all dichotomous variables (i.e. region, age groups, education, gender, journalism education, activities, media type) can be interpreted as differences in the average frequency of weekly use of Internet applications. The standardized regression coefficients are indicative for the explanatory/predictive power.

Results

Adoption of Internet Applications

Unsurprisingly, our results show that today some applications are common in the daily practice of journalists. Almost all journalists use three applications on a daily

basis, e-mail, websites and search engines (see Table 4; Appendix). Of the remaining applications, newsletters and electronic clipping services are used a couple of times a week. The use of Internet applications such as blogs, web forums, Usenet (discussion groups), RSS, instant messaging, and chatting seem to be used only occasionally. The frequency of use of these applications for professional purposes is relatively low (on average once a week or even less).

The use of Internet Applications

The results of the multiple regression analysis can be found in Table 2. The findings show that in accordance with the Uses and Gratifications approach, the Internet is used to satisfy daily professional requirements: It appears to be a useful tool to improve the work of the journalists. First, we looked at the relation between journalists' perception of the Internet as a utility for their professional work (new ideas and efficiency) and their actual use of Internet applications. With regard to the utility of the Internet, a significant difference appears between the perceived importance of the Internet to find new ideas/information/informants (factor 1), the perceived impact of the Internet on increased efficiency (factor 2), and actual use of Internet applications. The estimated positive contribution of the Internet to finding new information, sources, informants, and ideas correlates positively with the extent to which journalists use Internet applications (b = 3.052). Moreover, journalists who consider the Internet as an efficient tool to fulfill the needs of their daily work, tend to use Internet applications more often than colleagues who attribute less efficiency (b = 2.623) to it.

With respect to professional values (credibility of Internet information, estimated credibility of specific types of websites, and perceived impact on accuracy) and the ways in which these aspects relate to the extent to which journalists use Internet applications, findings indicate a negative relation between perceived credibility of Internet information in general on the one hand, and actual use (b = −2.743) on the other. However, journalists who perceive Internet information as more credible, tend to use Internet applications less. This finding is contrary to our expectation. Nevertheless, there was no significant effect related to perceived credibility of online information coming from known sources: i.e. government or nongovernment organizations. Apparently, in the case of easily identifiable sources, journalists appear to evaluate the source itself, irrespective of whether the source provides its information online or offline.

Regarding the other dimensions of journalistic values, accuracy, no statistically significant associations were found with the use of Internet applications. So the perceived positive or negative impact of the Internet use on journalistic accuracy does not seem to affect the use of Internet applications itself.

Our findings show only small differences among journalists in the use of Internet applications in terms of background characteristics and work-related factors. With regard to age, it appears that older journalists (61 years and older) use Internet applications significantly less than journalists belonging to younger age groups (b = −6.107). Neither educational level nor journalistic training appears to play a

Table 2 Multiple regression analysis of the use of Internet applications on background characteristics, activities, media type, and professional opinions

	b	SE(b)	β	
Constant	17.341	4.281		
Professional opinions				
(1) The Internet is an important source for finding new ideas/ information/informants	3.052	0.646	0.185	***
(2) The Internet increases work efficiency	2.623	0.773	0.135	***
(3a) Perceived credibility of online information in general	−2.743	0.532	−0.171	***
(3b) Perceived credibility of online information from nongovernment organizations	0.550	0.818	0.025	
(3c) Perceived credibility of online information from government organizations	−0.417	0.748	−0.020	
(4) Consequences of Internet use for accuracy journalism	0.314	0.472	0.022	
Background characteristics				
Region (Flanders = 0, the Netherlands = 1)	−2.520	0.984	−0.121	**
Age 20−30		reference category		
31−40	−2.054	2.433	−0.094	
41−50	−1.007	2.157	−0.044	
51−60	−2.061	1.947	−0.078	
61+	−6.107		−0.114	**
Education (0 = professional, 1 = university)	0.119	0.737	0.006	
Gender (male = 0, female = 1)	−1.176	0.740	−0.054	
Journalism education (no = 0, yes = 1)	0.744	0.930	0.033	
Working experience as journalist	−0.006	0.066	−0.006	
Activities				
Writing own texts/messages/articles	0.898	1.023	0.033	
Editing other people's texts	0.027	0.805	0.001	
Taking photographs	1.083	0.940	0.043	
Presenting	−0.011	0.913	0.000	
Reporting	−1.283	0.770	−0.060	*
Managing websites	1.488	1.054	0.051	
Directing/supervising/coordinator	0.834	0.745	0.039	
Media type				
Press agency	1.319	1.155	0.039	
National service broadcasting	−0.025	0.864	−0.001	
National commercial broadcasting	−0.447	1.272	−0.012	
Regional broadcasting	−0.337	1.135	−0.010	
Local broadcasting	5.299	2.412	0.076	**
National newspaper	1.055	0.812	0.044	
Regional newspaper	0.897	0.908	0.036	
Free door-to-door newspaper	−1.391	1.467	−0.033	
Opinion magazine	−0.402	1.444	−0.010	
General interest magazine	−1.597	0.928	−0.060	*
Specialist journal	0.737	0.963	0.030	
Cable news	0.025	3.640	0.000	
Corporate publication	−1.772	1.274	−0.054	
Non profit newsmagazines	−2.424	1.347	−0.063	*
Website	1.769	0.956	0.071	*
Blog	6.075	1.553	0.130	***

% explained variance (adjusted) = 22.4%,

*p < .10, **p < .05, ***p < .01.

N = 835; regression coefficients are nonstandardized

Table 3 Factor analysis of statements about the Internet and journalism

	Factor 1 The Internet as source for new ideas/ information	Factor 2 Efficiency gain by the Internet	Factor 3a Credibility Internet information	Factor 3b Credibility govern-mental websites	Factor 3c Credibility non govern-mental websites	Factor 4 The Internet beneficial for journalistic accuracy	Commonality -
Factor 1							
-Through the Internet I often find new informants/experts	0.861						0.538
-Through the Internet I often find new information sources	0.700						0.509
-I often use the Internet when searching for an idea for a story or coverage	0.638						0.473
-Through the Internet I often find new ideas	0.636						0.526
-Looking for an expert on a specific subject I often search on the Internet	0.620						0.395
Factor 2							
-The Internet is a good tool for finding information		0.901					0.544
-Without the Internet my work would be more difficult		0.681					0.411
-I almost never find useful online information		−0.467					0.230
-Due to the Internet it is less important to be where the action is		0.466					0.262
Factor 3a							
-I always check online information from other sources			0.787				0.330
-I always check email information			0.554				0.238
-I always try to find the original source for online information			0.552				0.234

Table 3 Continued

	Factor 1 The Internet as source for new ideas/ information	Factor 2 Efficiency gain by the Internet	Factor 3a Credibility Internet information	Factor 3b Credibility governmental websites	Factor 3c Credibility non governmental websites	Factor 4 The Internet beneficial for journalistic accuracy	Commonality -
Factor 3b							
-Web information from international governmental organizations is credible				0.732			0.430
-Web information from government agencies is credible				0.826			0.424
Factor 3c							
-Web information from interest groups is credible					0.846		0.495
-Web information from professional associations is credible					0.814		0.519
-Web information from businesses is credible					0.568		0.363
-Web information from non-profit organisations is credible				0.270	0.409		0.313
Factor 4							
-Frequent use of the Internet makes journalists superficial						0.807	0.417
-Internet use may pose a threat to the carefulness of journalists						0.737	0.402
Eigen value	4.352	1.031	1.826	1.273	2.797	1.602	
% explained variance	21.758	5.155	9.129	6.367	13.984	8.012	

Note. N = 882; KMO = .780; factor loadings <.200 are not printed; 'credibility of nonprofit organizations' shows factor loadings on two factors. Elimination of this item from the analysis leads to computational problems. The final scale does not include this item.

Table 4 Frequency of use of Internet applications per week

	N	Means	Std. Deviation
E-mailing	1,162	6.837	1.052
Visiting websites	1,164	6.564	1.614
Online search engines	1,166	6.391	1.867
Newsletters, e-zines	1,154	2.523	3.033
Electronic clipping service	1,146	2.180	3.021
Visiting weblogs	1,148	0.989	2.128
RSS	1,134	0.727	2.052
Instant messaging	1,146	0.505	1.667
Web forums	1,143	0.480	1.445
Consulting online databases	1,148	0.470	1.459
Usenet	1,137	0.448	1.449
Chatting	1,141	0.115	0.726

significant role in the frequency of the daily use of Internet applications. The same applies to journalistic experience. In all, secondary socialization effects regarding Internet applications are not significant.

Despite our expectations of finding more differences between work-related factors and the use of Internet applications, the differences found were minor and appeared in only a few instances. However, journalists who work as a reporter use Internet applications ($b = -1.283$) less than journalists performing other activities. This may be explained by the fact that reporters often work outside the office and receive information from bureau editors. Surprisingly, journalists who manage websites (i.e. acting as a web master) do not use Internet applications more often than their counterparts who perform other activities. Looking at the types of media in which journalists work, our results show that journalists involved in local broadcasting use Internet applications much more ($b = 5.299$) than colleagues working for other media types. Journalists working for general interest magazines ($b = -1.597$) and nonprofit news magazines ($b = -2.424$) tend to use fewer Internet applications than their colleagues. Moreover, there is a significant positive relation between journalists working for electronic media such as websites ($b = 1.769$) and blogs ($b = 6.075$) and their use of Internet applications. These results show that particularly those journalists working for blogs use Internet applications significantly more often than journalists working for other media types. As this result was controlled for the activities journalists carry out, these differences can only be attributed to the different types of media in which journalists work.

Conclusions

It seems that the perceived benefits of practical improvements are cogent enough reasons for journalists to use the Internet. This finding is in accordance with the

assumptions formulated in the U&G approach. Journalists use Internet applications more often when they think the tool fulfills their needs to do their job. In this study this relation is exemplified in two ways: first, the expansion of new sources of information, and secondly, perceived improved efficiency. Furthermore, looking at journalistic values, such as credibility of Internet sources and accuracy of journalism, in relation to the rise of the Internet and journalists' use of Internet applications, our results indicate that journalists' ideas about the positive or negative impact of the Internet on journalism have almost no relation with their actual use of Internet applications.

First, regarding the perceived practical benefits of the Internet for journalists, there is a relation between the manner in which journalists estimate the usefulness of the Internet for finding new sources, informants, and also ideas for new stories on the one hand, and their actual use of Internet applications on the other. The diversity of accessible channels for obtaining useful information is continually expanding (Pavlik, 2001). Second, another functional improvement provided by the Internet is the apparent efficiency gain. Journalists experiencing advantages of Internet use in their daily work, such as time saving, improved accessibility, and speed, will also come to use Internet applications more often (cf. Grabowicz, 2003; Haas, 2006; Lasica, 2003). We conclude that a positive experience with the Internet, improving daily news-gathering processes for fast-tracking new ideas, sources, and informants as well as perceived improved efficiency, affect how journalists use those Internet applications. Practical benefits are thus important enough reasons for journalists to adopt digital technologies.

The applications making use of more interactive and communicative characteristics such as blogs, web forums, instant messaging, Usenet, and chatting were only used occasionally up to now. A plausible explanation for this may be that it takes time for a large group of potential users to implement new technologies into their routine daily activities . Moreover, it is important to ask ourselves to what extent journalists will need to use these newer applications in the future. Not all new applications will succeed as a utility for journalists to the same degree. For instance, chatting is only useful when sources, informants, or colleagues also use it. Recent discussions about the changing role of the citizen in news reporting, e.g., civil and participatory journalism, as well as developments in the area of "user generated content," indicate that a greater variety of news sources, as well as a shift in the hierarchy of sources, may change the nature of the news flow. In light of this, follow-up studies monitoring the extent to which journalists will assess the usefulness of these applications with user-generated content in the future are to be recommended.

Yet another important change in journalism due to the rise of the Internet, is the change in the workload of journalists (Bardoel, 2002; Deuze, 2002). Journalists are expected to be ever more flexible and multiskilled. Due to rigorous reorganizations, especially in the newspaper industry, instigated by declining subscription rates and increased competition by free news services (Bakker, 2008), efficiency and cost reduction are important issues in contemporary journalism. Changes in the daily newsroom

routines often require new skills and procedures. This leads to a resocialization of the newsroom (Boczkowski, 2004). Journalists are increasingly expected to deliver products that meet the specific demands of the various types of media (cf. discussions about convergence and cross-media development in newsrooms) (Erdal, 2007).

Our study included work-related factors in order to take a closer look at aspects of the socialization process. Contrary to our expectations, activities that journalists perform and the type of media platform in which journalists work appear to have hardly any effect on the use of Internet applications. Regarding activities journalists perform, only reporters use Internet applications less frequently than others. As to the remaining activities journalists perform, no significant differences in Internet use were found. Even Internet-related activities, such as acting as a webmaster, did not lead to increased use. This indicates that journalist stick to very general patterns when using the Internet, due to their different specializations, and thus different requirements to carry out journalistic activities.

The type of medium in which the journalists work does not generally lead to significant variety in journalists' Internet use. However, we do observe that journalists who produce content for websites and blogs use Internet applications more extensively. However, apart from the blogs, differences are minor. We conclude that there is hardly any differentiation due to the circumstances in which the journalists work. The assumption that newspaper journalists have more resistance towards digital technologies than journalists working at other media types (cf. Garrison, 2003; Singer, 2004) is not supported by our data. A possible explanation is that there are indications that specifically traditional media such as newspapers have recently caught up in the technological professionalization of their newsrooms. This implies that journalistic activities and tasks will be adopted and embedded further in daily practice (Erdal, 2007; Singer, 2004). As today the restructuring of traditional newsrooms into a multimedia environment is still taking place, possible consequences of this transformation may only become visible at a later stage. In the literature, authors indicate the question is no longer whether this transformation will take place, but rather how and at what speed (Erdal, 2007).

As mentioned in our introduction, studying the impact of changes in the news flow also involves rethinking the profession of journalism. As to the impact of the Internet, there is a concern that professional standards and values in mainstream journalism are changing for the worse (Grabowicz, 2003; Lasica, 2003). We looked at possible ways in which opinions about perceived impact of the Internet use on professional values (i.e. credibility and accuracy) really affect the actual use of Internet applications.

It seems that the credibility of easily identifiable Internet sources, governmental as well as nongovernmental, is unrelated to the actual use of Internet applications. Online information from these established sources is dealt with the same way as offline information. A perceived problem with Internet information in general is that it is sometimes considered hard to track the information's origin, and thus evaluate the source's overall credibility. Credibility of the news source as well as of the information itself is seen as important when deciding whether or not to use certain information.

Nevertheless, it appears from our study that the higher journalists estimate the credibility of Internet information in general, the less frequently they tend to use Internet applications. This is a puzzling result, because one would expect a positive relation between perceived credibility and actual use. Audience studies are inconclusive when it comes to showing positive as well as nonexisting relations between Internet use and perceived credibility (Johnson & Kaye, 2000, 2002; Kiousis, 2001). A possible explanation is that those journalists with a high level of trust in online information do not feel the need to verify the information coming from other online sources, in contrast to their colleagues who have a more critical approach to the Internet, and thus search additional sources for verification. Another explanation could be that journalists who use a greater variety of Internet applications have experienced the difficulties of evaluating information coming from unverifiable origins, such as news groups and news blogs. Therefore they perceive the Internet Information in general as less credible, as compared to their colleagues using fewer Internet applications altogether. This finding needs further exploration in in-depth follow-up research.

With regard to accuracy, no relation was found between perceived positive or negative impact of Internet use on journalistic accuracy on the one hand and the actual use of Internet applications on the other. This leads us to conclude whether or not journalists believe using the Internet is a threat for accuracy and their actual use, has no impact whatsoever on use.

We can conclude that in the year 2006, experienced practical benefits are a sufficient reason to adopt the Internet, as shown by the relationship between perceived utility and actual use (cf. Garrison, 2003). It seems that the Internet is a very useful tool for journalists and is incorporated extensively in daily journalistic practice. Individual variation in the use of Internet applications is not linked to work-related aspects or to background characteristics. The findings suggest that journalists' opinions about the perceived impact of the rise of Internet on journalistic values have no relation to the extent and the ways in which journalists actually use Internet applications. Journalists' critical stance towards the impact of the Internet on professional standards such as credibility and accuracy does not relate to their use of the Internet. Journalists who are more negative about the impact of Internet use on journalistic standards such as profundity and carefulness do not differ in their actual Internet use from colleagues with a more positive view on the matter. In all, these professional considerations do not seem to be directly involved in the use of the Internet in daily news practice.

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