

A GENRE PERSPECTIVE ON ONLINE NEWSPAPER FRONT PAGE DESIGN

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Received December 30 2003
Revised March 16, 2004

Taking a genre perspective on design, this article proposes eight design recommendations for online newspapers. These recommendations are based on features that mediate a specific purpose and use between publisher and audience, which we describe as genre rules in terms of purpose, form, and positioning. They are also based on genre change regarding design, and the heritage from print regarding form and shared content elements. We have a) studied genre change through a web page analysis of nine Swedish online newspapers in 2001 and 2003, using the genre concepts content, form, functionality and positioning, and b) derived genre rules through publishers and audience understanding of the genre. We have interviewed managers, designers and editors-in-chief at the nine newspapers as well as 153 members of their audience. We show that in the design process for digital documents, it is useful to have genre awareness, i.e. to be aware of the genre characteristics, the producer's design purpose and the audience recognition and response.

Key words: Online newspapers, genre, genre change, genre rules, genre awareness, genre characteristics, design recommendations
Communicated by B White and C Watters

1. Introduction

Newspapers as a phenomenon have a long history. Following the first daily publication in Germany, daily newspapers were established in most Western countries throughout the 1700s and 1800s [38]. Given the long history of daily news, the wide recognition of today's formats and layouts is no surprise. As an example, the broadsheet format is recognized by audiences all over the world.

Recently, publishers have started to publish online versions of their newspapers. Despite early attempts of electronic dissemination of text and graphics (e.g. Teletext), the first fully web based newspaper, The Palo Alto Weekly, appeared as late as in 1994 [10]. Since then, the number of online newspapers has exploded. In the US, for instance, there were already as many as 1.296 online editions

in 2002 [46]. In the process of designing online newspapers, publishers seek to identify good ways to use web technology for establishing their online editions. Today, there is a demand from both academics and practitioners for more knowledge about how to design the online newspapers to become as recognizable and familiar as the printed ones [6; 18].

To address the perceived need of knowledge about design, this article uses genre theory [50; 35] for developing empirically based design recommendations for online newspapers. Newspapers and TV news broadcasts can be perceived as sub genres of the news genre [4] and the integration of the web medium and the traditional newspaper genre defines a genre for online newspapers.

Genres are produced, reproduced and changed over time [50]. A genre can be characterized by its content, form, functionality [35] and positioning [21], and a specific genre consists of a set of genre rules that are recognized and enacted by human actors in their use of the genre [50]. The genre rules of online newspapers, for instance, are enacted by both publishers and audience in the daily production and consumption of news. Genre awareness is a notion of how users and designers reduce the complexity of the web [15]. When establishing a new site with a purpose similar to existing sites, the genre characteristics may be copied and refined to reflect resemblance to an existing genre, i.e. designers may want to draw on already accepted genres that correspond to their design purpose [12]. It is also essential to be aware of the users' expectations of the genre [12].

Earlier research on design or use of online newspapers has so far mostly relied on experimental design and surveys [6]. Research on design of online newspapers concerns e.g. location of information [44; 45], content features [42; 17] and interactive functions [42; 22; 17]. Several studies of the use of online newspapers have also been conducted [e.g. 25; 11; 19; 2; 41].

In order to obtain a comprehensive understanding of online newspaper design we have conducted a qualitative study. We have conducted web page analysis in 2001 and 2003, using the genre concepts content, form, functionality and positioning to identify genre characteristics and to study design changes of the genre. We have also derived genre rules by analysing publishers design purpose, and audience recognition and use, through qualitative interviews and usability tests.

The theoretical framework is presented in the following section. The methods used in this study are described in section 3 followed by a presentation of the empirical results in section 4. In section 5, we discuss the findings and present the design recommendations. Section 6 concludes the paper.

2. Theoretical Framework

Aristotle's original concept of genre was adopted as a tool to help with the analysis of popular texts [23]. According to the online version of Encyclopedia Britannica [14], genre is defined as "a distinctive type or category of literary composition, such as the epic, tragedy, comedy, novel and short story". Genre theory has been used within the field of discourse analysis of textual units [40; 5; 29] but was introduced to the Information Systems (IS) field in 1992 by Yates and Orlikowski [50]. The concept of genre has proven its value as an analytical tool in IS research on topics spanning from organizational communication to web enabled communication [50; 52; 47; 48; 31; 35]. Furthermore, the concept of genre has been advocated as a potential tool for structuring design of new IT appliances [9].

Genre concepts

There are different views of what characterizes a genre. A genre could be characterized by having similarities in substance (i.e. the semantic meaning) and form [24; 50], or it may be characterized by its purpose and form [40; 28; 12; 51]. Swales [40] argues that the communicative rationale of a genre will constrain content, positioning and form. In addition to content and form, purpose and function have become most relevant to modern genre analysis [8].

Digital genres are often characterized by its content, form and functionality as the medium have functional capabilities [35; 32]. *Content* refers to themes and topics [35], whereas *form* refers to observable physical and linguistic features [50]. *Functionality* refers to capabilities available through the new media [35; 36]. According to Shepherd and Watters [35], functionality cannot be discussed without reference to the goal or purpose of the genre. The purpose must be viewed from the perspective of the author of the site and thus, the functionality incorporated into the site is driven by this purpose.

It is the content that gives a genre its uniqueness and this is important when discussing genres like online newspapers [3]. When looking at a web page from a genre perspective, all page elements can be seen as content items. Each content element is presented in one or several forms, is sometimes requiring functionality and is positioned on the web page [21]. Genre specific content elements for the online newspaper genre have been identified by Eriksen and Ihlström [15], e.g. the news stream, the archives and the headlines. The news stream presents recent stories ordered by publishing time. The main criterion for arranging articles is the time stamp of the article. Neither broadcast nor print media applies this form of organization. The archive has also become a part of the online newspapers. This construct allows users to search or browse historical content. Headlines are the presentation of stories that are valued as most interesting, these are presented at the front page of the online newspapers.

Genre rules

A specific genre consists of a set of genre rules that are recognized and enacted by human actors in their use of the genre [50]. Yates and Orlikowski describe genre rules as social rules that "...associate appropriate elements of form and substance with certain recurrent situations" [50, p. 302]. Genre rules "may operate tacitly, through socialized or habitual use of the communicative form and substance, or they may be codified by an individual or body into specific standards designed to regulate the form and substance of communication...genre rules may also be standardized by being embedded in a medium..." [50, p. 303]. The genre rules of online newspapers are enacted by both publishers and audience in the daily production and consumption of news.

Genre change

Genres are produced, reproduced and changed over time [50]. They are altered both deliberately and in response to conditions in the situation and community using the genre [5]. When changes to established genres become widely shared among members of a community, genre variants or even new genres may emerge. Such changes may be triggered by the introduction of a new communication medium [50; 51]. Yates and Sumner [52] describe how technology first has a disruptive force on genre, but that in use, the documents changed in response to social needs and technological opportunity, towards a generic form. According to Erickson [16] change of media may even speed up the evolution of a genre. One example of a genre enabled by new media is the online newspaper genre.

Genre awareness

Genre awareness is a notion of how users and designers reduce the complexity of the web [15]. Rather than learning and recognizing each and every site, users categorize sites as belonging to distinctive genres. For designers, genre awareness is a tool to target audiences. When establishing a new site with a purpose similar to existing sites, the genre characteristics may be copied and refined to reflect resemblance to an existing genre, i.e. designers may want to draw on already accepted genres that correspond to their design purpose [12]. It is imperative for designers of new media to have a good understanding of who are using the media and how they are using it [1]. It is also essential to be aware of the users' expectations of the genre [12].

The idea of genre as an interface metaphor was discussed by Toms and Cambell [43], who means that a document provides various cues that enable users to quickly grasp its form, purpose and functionality. They argue that a user can recognize, even before reading the content, e.g. a newspaper through the appearance of headlines and columns. Watters, et al., [49] discussed the newspaper metaphor for electronic use, which was preferred by the users according to their results. This so called broadsheet metaphor is also described as "a newspaper layout of text and photographs...integrated into a coherent presentation (p.151)" by Shepherd, et al. [37].

To gain good quality in design different approaches could be taken, e.g. the use of guidelines. Guidelines could be used as checklists against a design [39; 27; 33; 26]. Genre theory helps to look at the design problems from a different perspective than prevailing usability engineering strategies [8].

3. Research Approach

In order to obtain a comprehensive understanding of online newspaper design, we have conducted a qualitative study. We have conducted interviews with management, designers and editors-in chief at nine Swedish newspapers with online editions and interviewed and usability tested 153 of their users, in order to derive genre rules based on publishers design purpose and audience recognition and use. We have also analysed the front pages of the nine online newspapers in 2001 and again in 2003 to identify genre characteristics and to study design changes of the genre. The analysis of 2001 was also used to interpret the statements of the respondents, whereas the 2003 analysis showed what features had gained dominance two years later.

There are three reasons for why it is relevant to study the publishers, the online newspapers and their audience in Sweden, to gain more knowledge of the design and use of online newspapers. *Firstly*, Sweden had the fourth largest newspaper consumption per capita in the world in 2002, only Norway, Japan and Finland had larger consumption [46]. *Secondly*, most Swedish daily newspapers have online editions today [18]. *Thirdly*, reading newspapers online was the fourth activity (after e-mail, surfing and banking) in time spent on the net in Sweden during 2002 [53].

We define online newspapers, as the online editions of daily newspapers, not branch specific or other newspapers. To get a good representation of Swedish newspapers we contacted Citygate, which is an association of newspapers located from Halmstad in the south of Sweden to Umeå in the north. Nine of their ten newspaper members agreed to participate, giving us access to their audience as well, resulting in a sample that is representative for Sweden. The URL:s, the daily average circulation of the printed newspaper, unique visitors online per day and the number of staff at their Internet divisions

from 2001 are presented in table 1. In the remainder of the paper we refer to the newspapers by their numbers in table 1.

Table 1 The online newspapers in the study

Nr	Online newspaper	Average circ.	Unique visitors	Staff
1	www.ekuriren.se	33.000	3500	6
2	www.hallandsposten.se	32.500	2400	4-5
3	www.nerikes.se	69.000	8000	5
4	www.nt.se	49.900	4000	3-4
5	www.stonline.se	38.600	1100	2-3
6	www.unt.se	62.100	9000	6-7
7	www.vlt.se	47.600	7000	4-5
8	www.vk.se	45.000	10000	6
9	www.corren.se	67.300	5000	8

3.1. Web page analysis

We have conducted a web page analysis in 2001 and again in 2003 in order to identify genre characteristics and to study design changes of the online newspaper genre. To study design change, we have used a repertoire of page elements consisting of elements from general web design, i.e. *navigation* and *search* elements and genre specific elements, i.e. the *news stream*, the *headlines* and the *archives*. *Advertisements*, finally, were included in this analysis, since they cover a lot of space in the printed edition, and to a great extent is what currently brings revenue to the online edition [20; 7].

All page elements in the repertoire can be seen as content elements, which are presented in one of several forms and sometimes require functionality and are positioned on the web page. All page elements were analysed according to this view. The focus of our web page analysis was on the front pages since it is the most complex page, containing all page elements. We used a column and section grid to position the elements on the front page (see figure 1), and we have applied this grid on paper 3 to further clarify this system (see figure 2).

The results from the first web page analysis and the audience response was reported back to the newspapers at the end of 2001. The forms and position of all page elements of the front pages from 2001 and 2003 are presented in appendix A.

Columns	1	2	3	4	5
Sections					
A	Header of front page				
B	Bt >> Top half of B-section on screen in resolution 1280 x 1024 pixels				
	Bb >> Bottom half of B-section on screen in resolution 1280 x 1024 pixels				
C	Rest of front page				
D	Footer of front page				

Figure 1 The column and section grid [21]



Figure 2 The column and section grid applied on paper 3

3.2. Interviews with the publishers

To obtain knowledge about the publishers’ design purpose, the first author of this paper conducted semi-structured interviews with management, designers and editors-in-chief at the nine newspapers. The interviews were all based on an interview guide approach [30]. The interview guide was used to ensure that the information needed was obtained in the interviews, but it did not determine the sequence or structure of the interview (see <http://www.hh.se/staff/caih/jwe.html>). The purpose was to allow new topics of interest to emerge as the interviews went on. Questions regarding design and the page elements were asked together with a wide range of themes covering prerequisites, current status and the future expectations and so on. These respondents of the newspapers were chosen because they were the most suitable to answer these kinds of questions. These interviews lasted between 60-90 minutes. The interviews were recorded and then transcribed. In order to analyse the collected data, patterns were identified in the transcribed material [13]. The patterns include issues raised repeatedly during the interviews or opinions that kept re-appearing and can be described as commonly found views. We both analysed the material of our own before making a joint effort in order to make the analysis more trustworthy. We discussed our different analyses and made joint decisions where we differed.

3.3. Interviews and usability tests with the audience

The plan was to interview 21 users at each newspaper in order to obtain knowledge about the audience recognition and use of the online newspapers. To get a good sample of respondents, we asked the newspapers to automatically present a questionnaire (as a pop-up window) when an individual visited the news site, as well as to have two advertisements in the printed edition of the paper. The pop-up window was shown from 3-7 days and we had 60-240 answers from users at each newspaper. The selection was made out of four different criteria; 1) gender, 2) age, 3) education and 4) Internet usage. There was a decline of 3-4 respondents that did not show up for the interview at each newspaper, giving us a total of 153 respondents.

The final sample consisted of 78 women and 75 men. There were 12 respondents who were born in the 1920's, 20 in the 1930's, 25 in the 1940's, 27 in the 1950's, 28 in the 1960's, 31 in the 1970's and 10 in the 1980's. 21 had compulsory school as their most advanced education, 53 had comprehensive school and 79 had a university education. 4 respondents had never used the Internet, 11 used it on a monthly basis, 25 some times a week and 113 on a daily basis.

Each interview session, performed by the first author of this paper together with two colleagues, started with a standard usability test using the think-aloud technique [34] for about 10-15 minutes in order to analyse their interaction (use) with the online newspaper. The interviews were carried out using a structured interview guide [30] in order to get answers to the same questions from all respondents. Parts of the interview guide were constructed to match the repertoire of page elements (see <http://www.hh.se/staff/caih/jwe.html>). The interviews took place in front of the computer in order for the user to show us how they performed tasks in the news site and for the users to relate to when answering our questions. We asked 53 interview questions grouped into 5 different themes; (1) Navigation and structure, (2) Reading preferences, (3) Format, (4) Trademark and trustworthiness and (5) Others. In this paper, we mainly report from the first three themes. Each interview lasted about 45-50 minutes. The interviews were recorded, transcribed and stored in a database. The analysis was done in a similar way as with the interviews from the publishers described above.

4. Empirical Results

In section 4.1 we first present the analysis of each content element from the repertoire (navigation, news stream, headlines, search/archive and advertisements), followed by the publishers and audience view on each element. We thereafter present some general reflections from both the publishers and the audience in section 4.2 and 4.3. The parentheses after the quotations indicates the numbers of the online newspapers presented in table 1. Where position is mentioned, we refer to the column and section grid (see figure 3) and the results in appendix A.

4.1 Content elements

For each content element, we present a) its form and position (see appendix A) and functionality, b) the design change since 2001, c) the publishers design purpose and d) the audience recognition and use.

The content elements of two front pages from 2001 are illustrated below, where paper 2 (figure 3) has tried to retain the newspaper form (i.e. the broadsheet metaphor) for the headlines and newspaper part labels from the printed edition, whereas the web layout of paper 6 (figure 4) most markedly differs from the printed newspaper genre.



Figure 3 Front page of paper 2, February 22nd 2001



Figure 4 Front page of paper 6, March 14th 2001

4.1.1. Navigation

We have identified five main different navigation element forms on the nine web sites; menus, bars, tabs, banners, and dropdown lists. Menus are composed of a column of headings, a variant was the small menu that merely consists of a few headings. Bars are composed of a row of headings, sometimes shown as tabs. One variant was the small bar, merely consisting of a few items. The vertical tabs, used at paper 4 in 2001, where the text was written vertically, was a technically advanced and unusual solution. The content of the tabs was shown when moving the pointer over them. When showing the content under the tabs, the news stream was hidden. Another unusual solution was a bar attached to a frame, i.e. it stayed in position when the user scrolled the screen. In this case, it was placed at the bottom of the page at paper 6. Another navigational aid was the banner, which used a form resembling that of an advertisement. Finally, there were dropdown lists, which when clicked dropped down a list of items over the contents of the page. Common elements in 2001 were the menu presented as a table of contents (TOC), preferably in the B1 position, and the tabs or bar, presented in the top A position. The TOC also provided overview of site contents, by its content headings. Banners in different positions were also frequently used (see table A, appendix A). The functionality of navigation elements was related to the built in functionality of the browser, i.e. going to another page or section.

Design change

In 2001, there were two unusual navigational solutions; the on-mouse-over expanding vertical tabs at paper 4, and the bottom navigation frame at paper 6. These unusual solutions from 2001 were not present on the sites in 2003. The use of banners as navigation elements had increased. The most common solution was still the left navigation menu at B1 and the navigation bar or tabs at A1-4.

Publisher design purpose

The publishers had discussions regarding the organization of the navigation elements. These discussions partly resulted from the online edition having contents that were not present in their printed editions as illustrated: "... *but here we have additional contents such as services, which are neither bird nor fish. There are several different perspectives that should share too few dimensions.*" (7). Another issue of discussion was to separate the editorial from the commercial material, since many papers in addition to news and web services had commercial material of the same kind as in their printed editions. This was achieved in different ways, for instance by using color markup, and additional menus. Some publishers wanted to avoid an overloaded navigation, and they achieved this by dividing their navigation into categories.

Most of the newspapers were following the categories from the printed newspaper to some extent when designing their navigation. The depth of the sites was also discussed. To find things quickly, a maximum of three levels was used by e.g. paper 5 and one respondent stated that: "*There is never more than two clicks to anything else.*" A respondent at paper 8 stated that news had to be categorized according to actuality. No-one provided a site map but some of the newspapers offered alternative navigation via drop-down menus or a table of content organized in alphabetic order showing all contents of the site. This was a time consuming effort, as illustrated by the respondent at paper 3: "*We were trying to make it easier for our readers to get an overview of all contents. Sometimes one wonders whether it is useful at all.*"

Audience recognition and use

Most users returned to the first page to start from "the beginning" to browse the newspaper contents or to search for something else. "*Either I click my way back, or I go to the start page and restart from there*" a respondent from paper 9 stated.

More than half of the respondents thought that they got an overview of the contents of the online paper. In general, respondents found that they got overview from navigation elements and news elements such as headlines and captions. Some comments from the respondents were: "*Yes, it is this list of different groups of contents, and that you can get further from these different stories*" (1), and "*I think I get a good overview on what is at the site, because of the tabs which are in an eye-catching position*" (2).

However, the form of the pages and the position of the elements at some news sites made them less effective. On paper 6, which had the navigation bar placed at the bottom of the page, only one third of the respondents felt that they got an overview. As a respondent stated: "*I never discovered this navigation at the bottom of the page. Never. I arrived in Uppsala in september-98 and each time I have had to think about on how I did the last time*" On paper 4, many of the respondents stated that they did not get a proper overview. The navigation element at paper 4 was vertical tabs, which did not show content before moving the pointer over them. Some respondents on paper 4 did not recognize the

vertical navigation tabs at all and were surprised when they encountered them by accident. At the papers 2, 7 and 8 most people felt that the paper gave a satisfying overview.

A respondent of paper 2 and several others, stated that it might take some experience with the paper to get the overview: *"I think that if one uses the web site often, one surely gets a good overview. If one learn what is under the tabs"* (2). It was not always the case that having read the printed edition helped when trying to get an overview of the online edition as another respondent from paper two stated: *"It is like when it comes to reading the newspaper, one has read the printed edition during most of ones life, and this is a new way of reading"* and *"... I recognize the paper, but I am not so used to the web"* (9) whereas another respondent of paper 9 thought that the resemblance between the printed and online edition was helpful: *"... I think so because you recognize it from the printed edition"*.

Many respondents found it more difficult to find items when navigating in the online edition, than in the printed edition, as one respondent from paper 9 expressed *"It is more difficult. Since I recognise the newspaper but I am not so used to the web"*. As a respondent from paper 2 said, it could be due to different ways of thinking *"... because here one must consider under what tab something could be. In a printed paper one searches pages. It is easier to find on the web because here I can go directly to the specific question."* Many respondents also found it rather easy to find things on the online edition, and some found it even easier.

During navigation of the site, only one third of the respondents could tell their position on the web site but as many as about one fourth of the respondents found it important to know their position. Most respondents that knew their position in the web sites were from papers 2, 3, 6, 7 and 8 and most that did not know were from paper 4. The most common elements used for this purpose were the URL in the address field of the browser or headings. One of the respondents stated, *"I look at the captions to see where I am"* (3). Also, dedicated landmarks in the navigation, for instance, a red dot in the B1 menu at paper 9, or marks in the tabs in the A1-4 position of paper 2 were used, e.g. *"I look at the tabs, one can see on the marking what thing one has done last"* (2).

Over 50% of the respondents considered it easy to find previously visited pages and very few found it difficult as illustrated by a respondent from paper 3: *"It is easy to go back, I just use the back button"*. Almost all of the respondents used the back button of the browser for this purpose. Very few of the respondents could see which way they have taken through the structure of the web site when moving from one page to another. Most of them looked in the URL trying to get this information. Also captions and different colours etc were used. Many respondents on paper 2 recognized the path taken by using a breadcrumb navigation element present at each page. The use of colour was also mentioned. Some comments from the respondents of paper 2 were *"The colour marks show me what path I have taken"* and *"I look at the breadcrumb navigation aid"*. Moreover, some respondents were looking in the browser history menu.

4.1.2. News stream

All of the newspapers had a special news stream element for the most recent news. It had the form of a list of article headings, each marked with a timestamp. All papers updated their news stream during the day. Some variations to the form of the news stream were found. Firstly, the position on the front page varied but not much. Most papers placed their news stream in one column in the Bt position in 2001 (see table B in appendix A), but the papers differed regarding what column it was placed in. The exception was paper 9, with a news stream in the C2 position. They also differed in length, from containing a few news items to stretching down into the C area. Secondly, some e.g. papers 5, 6 and 9

had divided their news stream according to different categories, e.g. domestic, international, sports, economics etc. Thirdly, there were also streams containing headlines, but without time stamps, these also existed with headlines dedicating them to particular categories, such as sports. We denote these just as streams, since they were not as time sensitive as the news streams regarding the absolute latest news.

The functionality of the news stream is based on continuous updates during the day, where some of the news is automatically presented by the Swedish Telegram Bureau. Moreover, when the news stream was categorised into a table of contents, it sometimes got additional functionality. If there was a corresponding newspaper part containing all the articles of the category, then the news stream also was a navigational element. That was the case when the user could use any element in the news stream, or the contents heading, to navigate to different parts of the site.

Design change

The three papers with a division into categories in 2001 had changed to a non-categorized news stream in 2003. Only paper 7 instead changed to a divided news stream. In all papers, the news stream, with timestamps, was in a top position in 2003. There were also non-time stamped streams in the 2003 sample. In paper 7, there was a stream divided into several categories. In addition, in seven of the papers, there were streams for just one category in different positions, not just the top position, on the front page. A particular category found in 2003, but not in 2001, was “the most-read stream”, which did not categorize items according to content, but according to how many times they have been read. Moreover, in 2003, there were several cases where a news stream or stream was presented together with a headlines element presenting articles in the same category.

Publisher design purpose

All newspapers updated their news stream continuously during working hours using news from the Swedish telegram bureau (TT). In 2001, some of the newspapers had started to update their news stream 24/7 and most of them had started to feed the news stream with in-house produced local news, which was provided by all newspapers in 2003. In paper 5 there had been a discussion whether or not to provide time stamps, and a respondent said. *"We are going towards not time stamping, since it's really unimportant information. 03.00 really tell you nothing. It's mostly for our own use. We have removed it from the in-pages."* A few of the papers had chosen to divide the news stream into different categories and this had also been discussed by others, e.g. at paper 8: *"We are discussing whether we should divide it into local, domestic, foreign, but for now we keep it like this. We think it is advantageous to have it all together. We do news valuation and insert it in order."*

Audience recognition and use

Most respondents (approximately 80 %) recognized the news stream. They used the label ‘latest news’, used by some papers, and the timestamp for this, as illustrated by a respondent at paper 2: *"It is the latest that has been published, there are no timestamps on the ordinary articles"* (2) They also recognized new articles due to form, when they were positioned in a top position; at the top of the page, at the top of a news stream or at the top of the headlines, e.g. *"It has something to do with the latest being on the top of the page. The most important things are on the top"* (9) and *"The latest news is very brief, the most important and very compressed"* (6).

When timestamps were used, some readers used those to differentiate new articles from older articles. Paper 3 presented an “L” below the timestamp in their news stream to indicate that it was local news from the newspaper. The readers of paper 8, which had a sizeable time stamped news

stream in the B3 position, all found it easy to recognise the latest news, e.g. *"I know what items are the latest news. There are timestamps on the headlines."* and *"I can see it in the field on the right. It catches the eye."* However, not all respondents could see what items were the latest, as one respondent of paper 4, with a small time stamped news stream at position Bb2-3, stated *"It's not that easy to see. Of course, one knows that the main news always is placed on the front page"*.

4.1.3. Headlines

The main form of the headlines element was one or more puff element, which consisted of a headline and a lead paragraph and sometimes had an image. It could also have other contents such as a linked discussion. Sometimes the headlines were categorized, containing headlines from a particular section. On paper 9, there were also time stamped headlines making them a hybrid element taking the characteristic of the news stream of showing the time of publishing. In 2001, all of the newspapers published headlines in the top B position and several papers also in the C position.

Some papers positioned news articles due to importance (e.g. paper 2, 4 and 8), whereas other papers used the size of headlines, amount of text or pictures to indicate importance (e.g. paper 3 and 6). Paper 9 added content during the day to the headlines section in temporal order, rather than ordering by importance. Sometimes, the category headings also functioned as navigation items.

The functionality connected to the headlines was also related to the browser functions, such as going to a new page with the full article text. When the article was categorised, if there was a corresponding newspaper part containing all the articles of the category, the headline also functioned as a link to that part.

Design change

Most papers in 2003 had a time stamped headlines section, although some papers as before had more than one headlines section. Only paper 9 went against the trend, removing the time stamps altogether from the section. Moreover, in 2003, paper 4 presented headlines together with a stream presenting articles in the same category.

Publisher design purpose

All newspapers were in 2001 to some degree positioning the news that was considered as the highest valued at the moment in a top position. Many of them were using pictures as well, and sometimes the news article for the top position was even selected due to there being a good picture to go with it, as illustrated in the comment from the respondent from paper 1: *"Firstly, one tries to find a good image that fits the page. And we'd rather have a broad image, since that looks best. Therefore sometimes the top headline won't be the same as in the printed edition. To make the page look nicer."*

In the morning, the top story from the printed edition was usually placed in the top position but most of the papers were changing their top story during the day. *"... preferably about three times a day. When something happens, you change. An accident or something else."* was a comment from a respondent to paper 3. Sometimes time was considered to be more important than news value for the top position news as illustrated by a respondent to paper 8: *"Sometimes an important news item is placed in the bottom position, since we freshness is also considered when we prioritize. A smaller news item that is less important but more fresh can end up in the top anyway."* Paper 9 had technical problems which made it hard to administrate the site. They were waiting for a new publishing system that they have been working with for four years. They found it problematic that all articles on the font

page had the same heading size regardless the news value. *"We can not prioritize at the moment, the latest one is placed at the top"*.

Audience recognition and use

Many respondents mentioned the size of headlines and the amount of text as the main tool for the newspapers to indicate the importance of the article together with the position on the page. The general opinion was that the layout was different online than in the printed edition, as illustrated by this comment from one respondent at paper 2: *"On the net, I feel that there are few big news items, and many small"*.

The absence of pictures contributed to the general feeling that all articles had the same value. When a picture was present, the article was considered to be more important. Some respondents considered that the article placed on top of the page was the most important one, even if it had a timestamp. Thus, the news valuation was not seen as evident, as illustrated by the following citations: *"All news here has the same size, regardless if there is a kitten in a tree or a severe accident has occurred"* (7) and *"One has to decide for oneself, what's is important"* (1).

However, there were different opinions regarding whether this was good or bad, e.g. *"One doesn't have to get irritated when unimportant stuff cover half the first page as they sometimes do in the printed edition"* (2), and *"They select at the paper what they think one is interested in and publish it prominently. It can happen that the little article says more than the big one"* (5), but most users missed the news valuation from the printed newspaper.

4.1.4. Search/Archives

The search/ archives were presented on the first page by a link to a search page (1, 2, 4, 9), as a search function consisting of at least a text entry field (8), or both (3, 5, 6). Only paper 7 lacked a search/archive function completely. The links were presented as items in a menu, bar or tab, in the A or B positions. The search function had different positions in the papers (see table D, appendix A). The amount of time that the news articles were available for search by the users varied from one to three months. The functionality of the search fields made it possible to conduct a search leading to a new page showing the results, mostly 20 at the time. The difference in functionality between the search function and the archive was that the search function only searched the current site, whereas the archive searched previous editions, sometimes including the current site, sometimes not.

Design change

All papers had at least a link to the search/archives in 2003. Some papers (2, 4, 7, 9) had added search fields to their front page, whereas papers 5 and 8 removed their search fields, which result in a total of six papers with search fields on the front pages in 2003. The search/ archive functions in 2003 were always in the top position, either A or B, whereas in 2001 there were search functions also in the C position.

Publisher design purpose

In 2001, seven of the newspapers had archives with different limits for searching, e.g. available data from one week (1), four weeks (6), and three months (9), while one (paper 3) has an archive with material from several years. They were concerned that their users did not find and used their archive. Some of the papers allowed searching directly after publishing, e.g. paper 5: *"Here it is possible to search immediately. If it is in the database, then it is searchable. If it is published, then it is*

searchable. They can even search for more than they are allowed to view. ... Then they get an error message." while others didn't allow it until the day after. In some papers, there were different search functions for the news archive, and for the current online pages. All but two papers (6, 8) had in-house made search engines. There was a discussion going on at the newspapers whether or not to let users have access to the newspaper archives of text and pictures. They all thought that these archives could generate revenues if they were accessible online. They are waiting until it will be possible to charge the users as illustrated by the respondent at paper 8: *"We do have a text and picture archive at the editorial office. We do not put it online. It is a goldmine for us newspapers. Perhaps on the day when it becomes possible to charge for small transactions."*

Audience recognition and use

More than half of the respondents stated that it was easy to find what they search for on the web sites. Some users expressed that they liked to use the search function, e.g. one respondent from paper 2 said that *"I use the search function as much as possible"*. One respondent from paper 4 said that *"It is much more difficult to find things on the web. I think that they have complicated things with advanced technology."* Most respondents who found it difficult were from papers 3 and 6 and most that found it easy were from papers 2, 7 and 8. Almost one fifth found it easier to search on the web where twice as many found it easier in the printed edition since many users navigated when searching. *"If one has read the paper for years, then one finds, it's not like that on the net" (6).*

4.1.5. Advertisements

There were two variations of advertisements; banners, and links in menus. A banner normally was an illustration, which could have both text and images. They could also be animated and have sound, although in our sample, there were no sound banners. We differentiated one particular kind of advertisements in the menus, which had the form of text links leading to the classifieds. The functionality of an advertisement was to sometimes provide a link to a site, often outside the online newspaper as decided by the owner of the advertisement.

Design change

In 2001, there was often at least one top banner in the A position, and usually to the right, in column 4, 5, 6 or a combination (see Appendix A, table E). The classifieds were only presented as links in a menu. At most papers, there was still a top banner and banners to the right in 2003. In addition, at two papers (3, 4), mid-page banners were added. With the exception of paper 9, there were generally more banners at the sites in 2003 than in 2001. Moreover, advertisement supplements appeared at paper 1 in 2003 as links.

Publisher design purpose

Since all nine newspapers were belonging to the same association, Citygate, they had developed a concept for advertisements together. They had special personnel who were selling banners on a national basis, while it was the newspapers own responsibility to sell local banners. The banners were positioned in the same top and right position at all online newspapers. Most papers stated that they made some revenue from advertisements but they agreed that was hard work, e.g. as a respondent on paper 3 said: *"It is difficult to sell banners. We haven't succeeded so well with that."* The national banners were made by Citygate while most of the local banners were made in-house at the newspapers.

They were mostly restrictive regarding sound, but animations were common. However, as a respondent at paper 5 said: *"I believe we are quite happy for the advertisements we get."* In paper 7

they had an incident with a banner including sound: *"You should have heard the racket when our advertisement editor sold a sound banner. First and foremost it was a very long sound clip for on-load. As soon as we loaded the page, the computer started screaming 'Here is cheap Nisse's!!' And it was impossible to shut the sound off too. There was a damn racket."*

Audience recognition and use

Most respondents thought that they could clearly differentiate between advertisement and editorial material, e.g. *"It is very clear what are advertisements, but at the same time one is a bit cowardly about clicking on these things"* (8). Some respondents noticed that there were fewer advertisements in the online paper.

However, many respondents expressed a clear lack of interest in the advertisements as illustrated in the following quotations; *"One doesn't notice the advertisements, they are there but one doesn't look at them"* (9) and *"One has almost learned not to notice the advertisements"* (2). One respondent in paper 9 had discovered that some ad-like banners were not advertisements: *"I have been clicking on these here at the edge, and they have turned out to be something else than ads"*. Another respondent expressed the view that the form was a distinguishing factor to recognise advertisements: *"On the ads, there are clickable images, and it is not like that in the editorial part. There it is text."*

4.2 General reflections from the publishers

All but one of the papers had made the design in-house, and two of them had tested their sites with users. Some of the papers were also providing web design services for companies in the region. This was sometimes considered problematic since they had to prioritize the customers before the in-house development of their online newspaper. A respondent from paper 4 said: *"We have been working under heavy time pressure. When we work as a web bureau and editorial office we have double responsibilities. It is an internal question that shouldn't affect our readers, but which regrettably affect them anyway."* The publishers also look at other sources when designing their web sites. For example, some of the newspapers mentioned that they scanned other news sites both in Sweden and abroad for inspiration for design.

Most of the newspapers considered themselves as media instead of newspaper organizations. Seven of them owned their own radio stations and two has video production companies in their organization as well. They all envisage a future of multimedia, using print, audio and video over different media terminals in a broadband context. Some comments were: *"It is a total media"* (4) and *"It will be about presenting editorial and commercial information in different ways for the readers own choice"* (7). The rapid media was also discussed at paper 3: *"It is a new culture that provides the rapidity. Now we can be faster than the local radio, and shortly we have moving images as well."*

The functionality provided by new technology presented several issues. Firstly, designing for new versions of browsers was discussed, with most respondents wanting to keep the sites accessible to audience members with older browsers. However, they also wanted to have sound and moving images, which demands newer technology. Secondly, the respondents of paper 9 discussed the problems with the front page not being rapid enough. They were experimenting with different browsers with different modems and broadband connections. *"The problem is that at the same time one wants the broadband to be quick as lightning one also wants very good design. It is not possible to have the both things at the same time."* Thirdly, several of the newspapers had encountered technical problems and were about to change publishing systems which allowed more flexibility and functionality.

4.3. General reflections from the audience

Half of the respondents perceived the sites as newspapers while the other half did not. The result was evenly spread among the newspapers. To a large extent, the differences were experienced as emerging from the physical characteristics of the printed newspaper, e.g. *"I would not like to take the computer into bed with me"* (2), *"It does not smell newspaper"* (2) and *"The paper is too big, it is even difficult to read at the breakfast table. If I had had the computer at the table, I am sure I would have read it there"* (8).

The structure of the newspaper was perceived as mirroring the printed newspaper's structure by almost half of the respondents. One third did not think so whereas the rest did not answer the question or expressed no opinion. Most respondents of paper 2 and 5 agreed that the structure was similar although most of the respondents of paper 3 and 4 were of the opposite opinion.

The respondents had one or more reasons for reading the online edition. One third of the respondents stated that the reason for reading the online newspaper was to be updated, one fifth used it as a replacement for the printed edition whereas one sixth saw it as a complement. Other reasons for reading the online edition were searching (10%) and leisure (10%), as illustrated in the following quotations: *"I am not interested in a subscription of the printed edition. It's of convenience I read the online edition. It's less expensive and there are news updates"* (4) and *"When I read the online edition, it because it is convenient. It's too cumbersome to go several hundred meters to fetch the paper"* (5).

5. Discussion

Addressing the perceived need for knowledge about the design of online newspapers, we propose eight design recommendations for online newspapers. Using common web guidelines for this purpose would not have been enough. For example, guidelines would have little to say about genre specific elements, e.g. news stream and timestamps, or the problems with news valuation. We have therefore instead taken a genre perspective on design by using genre theory to: a) identify genre characteristics and study design change through web page analysis, using the genre elements content, form, functionality and positioning, and b) derive genre rules by analyzing publishers design purpose, and audience recognition and use, through qualitative interviews and usability tests.

The eight design recommendations are thus based on identified features that mediate a specific purpose and use between publisher and audience, which we describe as genre rules in terms of purpose, form, and positioning. They are also based on the genre change regarding design, i.e. which solutions that have gained importance or which solutions that have been rejected and the heritage from print regarding form and shared content elements.

(1) Use the length of the front page to give an overview of the whole site. Several things in the study indicate the importance of the front page of the news sites, e.g. most respondents returned to the front page to 'start over', when looking for something else, instead of using the navigation elements of the site. The publishers have also made the front pages longer containing much more content than before, e.g. navigation banners, most-read stream, more headlines. Furthermore, the time stamped news streams and headlines on the front pages provide an overview of the latest news, which corresponds to the most important reason for reading the online newspaper, which was to stay updated.

The use and importance of the front pages suggests that an overview of the entire site should be provided, since scrolling the front page could be compared to browsing the printed newspaper. To provide an overview, a prerequisite is to understand the page structure. Many respondents were relying

on their understanding of printed papers for this purpose and the publishers also considered the use of categories from print. This also corresponds to using the "broadsheet metaphor" for layout. Since the pages need to be long to give an overview of the entire site, the most important functionality is to scroll the page. We did not discover any difficulties regarding the use of that function.

(2) *Use the broadsheet metaphor for layout.* From the audience view, the online newspapers to some extent resembled the printed papers by the categorization and divisions from the printed paper, which helped them in recognizing the genre. This is in line with the results of Watters, et al. [49], which showed that the newspaper metaphor was preferred by the users. One third of the respondents in our study did not perceive the sites as mirroring the printed papers structure. The general opinion was that the layout was different online than in the printed edition.

The producers expressed uncertainty about how to present new services and separating them from editorial material, which is not supported by the metaphor. Most of the audience, however, seemed to have no problems differentiating editorial material from other kinds of materials on the sites. We suggest basing the layout on the broadsheet metaphor in order to give a familiar frame of reference.

(3) *Provide navigation support in different ways.* Both the audience and publishers experienced difficulties with the navigation. The increased focus on the front pages has made it necessary to provide navigation support in many different ways besides the ordinary navigation support through menus and bars. It was evident that dedicated navigation items were used in combination with other elements, such as the news stream, headlines, captions and headings to navigate the site.

Content elements can be designed to support navigation, for instance by dividing the news stream into a table of contents. Presenting news from all categories of the site on the front page can also serve as navigation support to different sections. Providing navigation in the suggested ways also corresponds to using the length of the front page for overview and using the broad sheet metaphor for layout.

(4) *Consider the use of navigation banners in combination with banner ads.* The publishers have made an effort to differentiate the editorial and advertisement material and there seems to be no problem for the respondents to differentiate between them. From the audience's point of view, the advertisements were relatively uninteresting, and as some respondents mentioned, they even avoid them. The banner form has also been adopted for within-site navigation to advertise important site contents. The positioning of regular advertisements has traditionally been around the page, with a focus on the top and right edges. In 2003, the use of within-site banner-like navigation puffs has increased. These navigation items are often placed together with the ads, but also at other page positions.

We believe that the use of navigational elements such as banners, mixed with the advertisements, might be questionable, if the users avoid clicking on, or even looking at the advertisements. If users do not look at the banners, this is clearly a poor solution from a navigational point of view. However, given that it causes users to look for navigational items amongst the banners, it is a good solution from a business point of view. The increased use of navigation puffs partly solves the problems of too long menus but there is a need to study if the users have begun to use these puffs or is still looking at them as advertisements and therefore avoids them.

(5) *Place the news stream at a top position* and (6) *Use timestamps to indicate latest news.* As noted in the first point, to stay updated was the major reason for visiting the online newspapers. Latest

news was recognizable by the audience from timestamps, labels and top position. In 2003, the latest news has clearly been given even more focus, with news streams at top positions at all papers.

Emphasizing both the publisher and audience view, that news updates are both important reasons for providing an online edition, and for reading it, there should be a news stream on the site. The news stream should be placed in top, as it is at all papers in 2003. To emphasize that updates are made, timestamps should be used for the news stream since many audience members relied on the existence of timestamps to identify recent news. In 2001, there was a discussion at the newspapers about timestamps also for other news items, and in 2003, some of the papers in this study have started to timestamp headlines as well, which is also discussed in the following point.

(7) *Provide news valuation through positioning and markers.* The valuation of news on the front pages was not as clear as of the printed front pages in 2001 according to the audience. All newspapers to some degree position the highest valued news in a top position, but sometimes immediacy was considered before news value for the top position, i.e. the use of timestamped headlines in temporal order. The use of layout to mark the importance of news differed between the papers in the study, ranging from almost no markers, to the use of headline size, images, and amount of text. However, sometimes publishers used images to decorate the page, rather than to indicate news value. There were different opinions regarding news valuation among the audience, e.g. when disagreeing with the news valuation of the printed paper, they liked the lack of markers online, but most users missed the news valuation from the printed newspaper.

The broadsheet metaphor includes the use of newspaper-like columns, headlines, etc. but also indicates news value by the use of position and markers, which are essential for the audience recognizing the genre. During 2003, it has become more common to timestamp the headlines, indicating the immediacy rather than making a news valuation for the readers. We recommend providing news valuation through position and markers since it are demanded from the audience and since it supports the broadsheet metaphor.

(8) *Provide one joint search facility for both the archive and today's news.* Many users navigated the online edition without using the search function when looking for something special, but many users also tried to use the search engines with varying results. Even though more than half of the users found it easy to find what they searching for, some found it problematic. From the interviews, with the publishers we found possible explanations why the use of search engines could be found problematic,

- a) the search facilities were mainly designed for searching the news archives and at some news sites the articles did not end up in the archives until the day after they have been published
- b) there sometimes exist different search functions for the news archive and for the current online pages.

Searching the sites through the dedicated search facility was something requested and used by the respondents. Emphasizing the importance of that function, it should be placed in a top position or in a menu. We recommend to combine the archive and current edition in one search facility since much confusion arouse from the newspapers that were not placing their current edition in their archive.

In table 2, the design recommendations are summarized and the content elements concerned and the underlying genre rules are presented.

Table 2 Design recommendations versus content elements and genre rules

Design recommendations	Content elements	Genre rules
1. Use the length of the front page to give an overview of the whole site.	Navigation, news stream, headlines, advertisements, search/archives	<i>Purpose/use:</i> give/get overview of the entire site (since scrolling the front page could be compared to browsing the printed newspaper) <i>Form:</i> broadsheet metaphor (see point 2) <i>Positioning:</i> most important content elements in top position
2. Use the broadsheet metaphor for layout.	Navigation, news stream, headlines, advertisements, search/archives	<i>Purpose/use:</i> give/get a frame of reference, making understanding easier through recognition <i>Form:</i> newspaper like headlines and puffs (broadsheet metaphor) <i>Positioning:</i> division into columns, headlines in top position
3. Provide navigation support in different ways.	Navigation, news stream, headlines	<i>Purpose/use:</i> enable navigation support <i>Form:</i> headlines, headings and captions <i>Positioning:</i> depending on the content element
4. Consider the use of navigation banners in combination with banner ads.	Navigation, advertisements	<i>Purpose/use:</i> make/perceive particular newspaper sections or services evident <i>Form:</i> banner <i>Positioning:</i> in combination with banner ads, mainly to the right
5. Place the news stream at a top position.	News stream	<i>Purpose/use:</i> provide and get news updates <i>Form:</i> timestamps, headings, optionally divided in a table of contents
6. Use timestamps to indicate latest news.	News stream	<i>Positioning:</i> top of the page
7. Provide news valuation through positioning and markers.	Headlines	<i>Purpose/use:</i> indicate/recognize the value of news <i>Form:</i> headline size, images, and amount of text <i>Positioning:</i> top position for highest valued news
8. Provide one joint search facility for both the archive and today's news.	Search/ archive	<i>Purpose:</i> enable search in archives and today's news <i>Form:</i> search field <i>Positioning:</i> top position or in menu

6. Conclusions and Future Work

By taking a genre perspective on design we have derived a set of design recommendations for online newspapers. This genre perspective on design revealed the users' expectations of the genre as found essential by [12; 1] and also facilitates for designers to copying and refining genre characteristics. The results can also be regarded as a step in the process of designing the online newspapers to become as recognizable and familiar as the printed counterparts as requested by [6; 18].

The interviews and usability tests revealed which features of the sites that were used and intended for certain purposes, such as the headlines and navigation elements to get or give overview. From the

publishers, it was also revealed why some features were problematic, such as the search function sometimes not having access to the news of the current day. The genre rules thus are derived from utterances and actions revealing how publishers and audience rely on the same features of the pages to fulfill a shared purpose, e.g. to give and get a familiar frame of reference. The web site analysis revealed how the features were used in the different newspaper designs in 2001. This was also used to interpret the statements of the respondents, which was perhaps most beneficial when the sites differed regarding some features. For instance, the audience respondents could easily differentiate news value at the sites using newspaper like headings and puffs, whereas at other sites they found that the pages seemed to contain many items of similar value. The 2003 analysis showed what features had then gained dominance two years later, e.g. positioning has become even more important due to news valuation, news streams, headlines, advertisements etc. The longer the front pages become, the more important the position gets.

Genre awareness, i.e. to be aware of the genre characteristics, the producer's design purpose and the audience recognition and response, are useful in the design process of digital documents. There are three reasons for why this is useful:

- a) existing design guidelines are too general to be applicable when designing for a specific genre
- b) identifying and classifying genre specific elements and characteristics facilitates for designers to create a familiar frame of reference of the genre in use
- c) it is important for designers to have an understanding of the audience to meet their expectations of the digital genre in the design

Since genres are produced, reproduced and changed over time it is essential to identify genre characteristics to study genre change and to derive genre rules in order to increase genre awareness among designers.

Further research could elaborate the proposed design recommendations further by creating genre specific design patterns in collaboration with designers and audience at the newspapers. A follow up study with publishers and audience would also further elucidate the evolution of the genre. Moreover, with the genre perspective as the base, other design methods could be developed.

Acknowledgement

Special thanks to the nine Citygate newspapers that participated in and contributed to this study and to Christer Rehnström and Jesper Hakeröd at Halmstad University who made the data collection possible to manage.

References

1. Agre, P. E. Designing Genres for New Media: Social, Economic and Political Contexts. In Jones, S.G. (ed.). *CyberSociety 2.0: revisiting computer-mediated communication and community*. Thousand Oaks, Calif, Sage Publications, 1998, 69-99.
2. Aikat, D. News on the Web - Usage Trends of an On-line newspaper, *Convergence*, Winter, 1998, Vol. 4, No. 4, 94-110.
3. Badre, A. N. *Shaping Web Usability - Interaction Design in Context*, Pearson Education, Inc., 2002.
4. Bell, A. *The Language of News Media*, Malden, MA., Blackwell, 1991.
5. Berkenkotter, C. and Huckin, T. N. *Genre Knowledge in Disciplinary Communication*, Lawrence Erlbaum Associates, 1995.

6. Boczkowski, P. J. The Development and Use of Online Newspapers: What Research Tells Us and What We Might Want to Know, in L. Lievrouw and S. Livingstone (eds.), *The Handbook of New Media*, Sage Publications, London, 2002, 270-286.
7. Borrell & Associates Inc. *What Newspaper Web Sites Earn*, 2003.
8. Breure, L. Development of the Genre Concept, 2001, available at: <http://www.cs.uu.nl/people/leen/GenreDev/GenreDevelopment.htm>
9. Brown, J. S and Duguid, P. Keeping it Simple, in T. Winograd (ed.) *Bringing Design to Software*, ACM Press, New York, 1996, 129-145.
10. Carlson, D. The Online Timeline, available at <http://iml.jou.ufl.edu/carlson/1990s.shtml#1994>
11. Chyi, H. I. and Lasorsa, D. Access, use and preferences for online newspapers, *Newspaper Research Journal*, 1999, Vol. 20, No. 4, 2-13.
12. Crowston, K., and Williams, M. Reproduced and emergent genres of communication on the World-Wide Web, in *Proceedings of the Thirtieth Annual Hawaii International Conference on System Sciences*, Hawaii, 1997, IEEE Computer Society Press.
13. Easterby-Smith, M., Lowe, A. and Thorpe, R. *Management Research - an introduction*, London, Sage Publications, 1991.
14. Encyclopaedia Britannica. Available at <http://www.britannica.com/>
15. Eriksen, L. B. and Ihlström, C. Evolution of the Web News Genre - The Slow Move Beyond the Print Metaphor, in *Proceedings of Thirty-third Hawaii International Conference on System Science*, Hawaii, 2000, IEEE Computer Society Press.
16. Erickson, T. Social Interaction on the Net: Virtual Community as Participatory Genre, in *Proceedings of the Thirtieth Annual Hawaii International Conference on System Sciences*, Hawaii, 1997, Vol. VI, 1997, 13-21.
17. Greer, J. and Mensing, D. The Evolution of Online Newspapers: A longitudinal content analysis, 1997-2003, *AEJMC 2003 Convention*, 2003.
18. Gunnarsson, J. 110 svenska dagstidningars webbtjänster, TDM-rapport nr 10-2002, *Teknik och Digitala Medier, Tidningsutgivarna*, 2002.
19. Ihlström, C. and Lundberg, J. The Audience of Swedish Online Local Newspapers – a Longitudinal Study, in *Proceedings of ELPUB2002*, Chemnitz, 2002, 92-102.
20. Ihlström, C., Lundberg, J., Vimarlund, V. and Rehnström, C. Online Newspapers in Search for Profitable Services, in *Proceedings of eBusiness and eWork 2002*, Prague, 2002, 1455-1462.
21. Ihlström, C. and Åkesson, M. Genre Characteristics - a Front Page Analysis of 85 Swedish Online Newspapers. Accepted to the 37th Hawaii International Conference on System Sciences, Hawaii, 5-8 January, 2004.
22. Kenny, K, Gorelik, A., and Mwangi, S. Interactive Features of Online Newspapers, the January 2000 issue of *First Monday*, available at: http://www.firstmonday.dk/issues/issue5_1/kenney/
23. Lacey, N. *Narrative and Genre: Key concepts in media studies*, New York, St. Martin's Press, 2000.
24. Miller, C.M. Genre as Social Action, in *Quarterly Journal of Speech* 70, 1984, 151-167.
25. Mings, S. M. Uses and gratifications of online newspapers: A preliminary study, *The Electronic Journal of Communication*, 1997, Vol. 7, No. 3.
26. Nielsen, J. Finding Usability Problems through Heuristic Evaluation, in *proceedings of CHI'92*, 1992, 373-380.
27. Nielsen, J., and Molich, R. Heuristic Evaluation of User Interfaces, in *proceedings of CHI'90*, 1990, 249-256.
28. Orlikowski, W. J. and Yates, J. Genre Repertoire: The Structuring of Communicative Practices in Organizations, in *Administrative Science Quarterly*, 1994, Issue 39, 541-574.
29. Paltridge, B. *Genre, Frames and Writing in Research Setting*, John Benjamins, Amsterdam, 1997.
30. Patton, M. Q. *Qualitative Evaluation and Research Methods*, second edition, Sage Publications, Newbury Park, CA, 1990.

31. Roberts, G. F. The Home Page as Genre: A narrative Approach, in proceedings of the 31st Hawaii International Conference on System Sciences, CD-ROM issued by IEEE Computer Society Press, 1998.
32. Schmid-Isler, S. The Language of Digital Genres a Semiotic Investigation of Style and Iconology on the World Wide Web, in Proceedings of the 33rd Hawaii International Conference on System Science, CD-ROM issued by IEEE Computer Society Press, 2000.
33. Shneiderman, B. Designing information-abundant websites: Issues and recommendations, *International Journal of Human-Computer Studies*, 1997, Vol. 47, No. 1, 5–30.
34. Shneiderman, B. *Designing the User Interface: Strategies for Effective Human-Computer Interaction*, Addison-Wesley, USA, 1998.
35. Shepherd, M. and Watters, C. The Evolution of Cybergenres, in proceedings of the 31st Hawaii International Conference on System Sciences, IEEE Computer Society Press, 1998.
36. Shepherd, M. and Watters, C. The Functionality Attribute of Cybergenres, in proceedings of the 32nd Hawaii International Conference on System Sciences. IEEE Computer Society Press, 1999.
37. Shepherd, M., Duffy, J. F., Watters, C., and Gugle, N. The Role of User Profiles in News Filtering, *Journal of the American society for information science and technology*, 2001, Vol. 52, No. 2, 149-160.
38. Smith, A. *The Newspaper: an International History*, Thames and Hudson, London, 1979.
39. Smith, S. L. and Mosier, J. N. *Designing guidelines for user-system interface software (report ESD-TR-84-190)*, Bedford, M.A., The Mitre Corp, 1984.
40. Swales, J. *Genre Analysis*. Cambridge, Cambridge University Press, 1990.
41. Tewksbury, D. and Althaus, S. Differences in knowledge acquisition among readers of the paper and online versions of a national newspaper, presented at the Annual Meeting of the International Communication Association, San Francisco, California, 1998.
42. Thompson, D. R. and Wassmuth, B. L. Few Newspapers Use Online Classified Interactive Features, *Newspaper Research Journal*, 2001, Vol. 22, No. 4, 16-27.
43. Toms, E.G., and Campbell, D.G. Genre as interface metaphor: Exploiting form and function in digital environments, in proceedings of the 32nd Hawaii International Conference on System Sciences. IEEE Press, CD-ROM, 1999.
44. van Oostendorp, H. and van Nimwegen, C. Locating Information in an Online Newspaper, *JCMC*, 1998, Vol. 4, No. 1, available at <http://www.ascusc.org/jcmc/vol4/issue1/oostendorp.html>
45. Vaughan, M. *Identifying regularities in users' conceptions of information spaces: Designing for structural genre conventions and mental representations of structure for web-based newspapers*, Doctoral Thesis, 1999, School of Library and Information Science, Indiana University.
46. WAN – World Press Trends 2003, Available at: <http://www.wan-press.info/pages/index.php3>
47. Watters, C. R. and Shepherd, M. A. The Digital Broadsheet: An Evolving Genre, in proceedings of the 32nd Hawaii International Conference on System Sciences, 1997, IEEE Press.
48. Watters, C. R. and Shepherd, M. A. The Role of Genre in the Evolution of Interfaces for the Internet, in proceedings of NET'97, 1997, available at: <http://net97.dal.ca>.
49. Watters, C. R., Shepherd, M. A., and Burkowski, F. J. Electronic News Delivery Project, *Journal of the American society for information science*, 1998, Vol. 49, No. 2, 134-150.
50. Yates, J. and Orlikowski, W. J. Genres of Organizational Communication: A structural approach to studying communication and media, in *Academy of Management Review*, 1992, Vol. 17, No. 2, 299-326.
51. Yates, J., Orlikowski, W. J., and Rennecker, J. Collaborative Genres for Collaboration: Genre Systems in Digital Media, in Proceedings of the Thirtieth Hawaii International Conference on System Sciences. IEEE Computer Society Press, 1997.
52. Yates, S. J. and Sumner, T. R. Digital Genres and the New Burden of Fixity, in proceedings of the 29th Hawaii International Conference on System Sciences., CD-ROM issued by IEEE Computer Society Press, 1996.
53. World Internet Institute, *Svenskarna och Internet 2002*, available at: www.worldinternetinstitute.org

Appendix A: The page elements

Table A Navigation element

Paper	Form		Position	
	2001	2003	2001	2003
Nr 1	Menu_toc Dropdown	Menu_toc Small menu	Bt-Bb 1 A 4	Bt-Bb 1 Bt 3
Nr 2	Small menu Menu Tabs Banner	Bar Menu-toc Tabs Banner	A 4 Bt-Bb 1 A 1-4 C 4	C 3 Bt-Bb 1 A 1-4 Bt-C 4
Nr 3	Banner Small bar Bar Menu_toc Dropdown Banner Small menu	Banner Bar Menu_toc Dropdown	A 4, Bb 3, Bt-C 4 Bt 4 A 1-4, D 1-4 Bt-Bb 1 C 2-3 Bb 1 Bb 3	A 4, Bt-Bb 4, Bt-C 2, C 3 A 1-3, D1-4 Bt-Bb 1 Bt 4
Nr 4	Bar Vertical tabs Menu	Bar Banner Menu	A 2-3 Bt-Bb 1 C 3	A 1-4 C 1 Bb 4
Nr 5	Menu_toc Banner	Menu_toc Banner	Bt-Bb 1 C 1	Bt-C 1 C1, Bb-C4
Nr 6	Menu Bar (frame) Banner	Tabs Dropdown Menu Banner Banner	Bt-C 4 D 1-2 Bt 1, Bt 4	A 1-4 A 4 A4, Bt 4, Bb 3, C4 C3, C4 C3, Bt-Bb 4
Nr 7	Menu_toc Menu Banner	Tabs Banner	Bt-Bb 1 Bb 2-3, C 2 A 1, Bt 3, C 2	A 1-4 Bt-C 4, C 1-2
Nr 8	Menu_toc Banner	Menu-toc Banner Bar	Bt-Bb 1 C 2, C 3	Bt-Bb 1 Bt-C 4, C 3 A 1-4
Nr 9	Bar Menu_toc Banner Banner	Menu_toc Banner Banner	A 1-4 Bt-Bb 1 Bt-Bb 3, BB-C 1 C 2	Bt-Bb 1, Bt-Bb 4 Bb-C 1 Bb 1

Table B News steam element

Paper	Form		Position	
	2001	2003	2001	2003
Nr 1	Divided into toc Categorized stream	Normal Categorized stream Categorized stream	Bt 3 Bb 3	Bt 3 Bb 3 C 2, Bb-C 3
Nr 2	Normal Stream	Normal Normal	Bt-C 4 Bb 2-3	Bt 4 Bb 3
Nr 3	Normal	Normal Most-read stream	Bt-Bb 2	Bt 2 C 2
Nr 4	Divided into toc Normal Categorized stream Categorized stream	Normal Most-read stream Categorized stream Stream + headline Divided into toc	Bt 1 Bt 2-3 B-C 1, B-C 2 Bb-C 3	Bt2, Bt 3 Bb 1 C 1 Bb-C 2-3 C 1
Nr 5	Divided into toc	Normal Datestamped stream	Bt-Bb 4	Bt-Bb 4 Bb 2-3
Nr 6	Divided into toc	Normal Most-read stream Stream	Bt-C 1	Bt 3 Bb-C 2 C1, C 1-2
Nr 7	Normal Categorized stream Stream	Divided into toc Categorized stream	Bt 2 Bt 3 Bb-C 2	Bb-C 3 Bb-C 1-2
Nr 8	Normal	Normal	Bt-C 3	Bt-C 3
Nr 9	Divided into toc	Normal	C 2	Bt-Bb 2

Table C Headline element

Paper	Form		Position	
	2001	2003	2001	2003
Nr 1	Normal	Timestamped Normal	Bt-Bb 2	Bt 2 Bt-C 2
Nr 2	Normal	Timestamped Timestamped_categorized	Bt 2-3, C2-3	Bt 2-3, Bt-C 2 Bt 3
Nr 3	Normal Normal	Normal	Bt 2-3 Bb-C 2-3	Bt 2-3, Bt 3
Nr 4	Normal	Timestamped Normal +stream	Bt-Bb 2-3	Bt 2-3 Bb-C 2-3
Nr 5	Normal	Timestamped Categorized	Bt-Bb 2-3, C 2-3	Bt-Bb 2 C 2-3
Nr 6	Normal	Normal	Bt-C 2-3	Bt-Bb 1-2, C 1-2
Nr 7	Normal	Timestamped Normal Normal	Bb-C 2	Bt 1-2 Bt 3, C 3 Bb 1-2
Nr 8	Normal	Normal	B-C 2, C 3	B-C 2
Nr 9	Timestamped	Normal	B-C 2	B-C 3

Table D Search/archives element

Paper	Form		Position	
	2001	2003	2001	2003
Nr 1	Archive (in menu)	Archive (in menu)	A 4	Bb 1
Nr 2	Archive (in menu)	Archive field, Archive (in menu)	A 2	Bb 1 A 2
Nr 3	Archive field Search field	Search field Search /archive (in menu)	Bt 1 Bt 1	Bt 4 Bt 4
Nr 4	Search/archive (in menu)	Search/ archive field	A 2	Bt 1
Nr 5	Archive (in menu) Search field	Search/ archive (in menu)	Bb 1 Bb 1	Bb 1
Nr 6	Search/ archive field Search (in menu) Archive (in menu)	Search/archive field Search (in menu)	A 4 Bb 3 Bb 3	Bt 4 Bt 4
Nr 7	No search	Search/ archive field	-	A 2
Nr 8	Search/archive field	Archive (in menu)	C 1	Bt 1
Nr 9	Archive (in menu)	Search/ archive field	A 1	Bt 4

Table E Advertisement element

Paper	Form		Position	
	2001	2003	2001	2003
Nr 1	Banner Classifieds (in menu)	Banner Classifieds (in menu) Advertisement supplement	C 2-3, B 4 Bb 1	A2-3, A-D4 5, C3 Bb1 C2
Nr 2	Banner Classifieds (in menu)	Banner Classifieds (in menu)	A-D 5, C 2-3 Bt 1	A 1-4, A-B 5, C 2-3 Bt 1
Nr 3	Banner	Banner Classifieds (in menu)	A 1-4, A-Bb 5	A 1-4, A-D 5, Bb3 C3
Nr 4	Banner Classifieds (in menu)	Banner Classifieds (in menu)	A 1-4, Bt 4 C 3	B 2, Bt 4, A-C 5 C 2-3
Nr 5	Banner Classifieds (in menu) Links Links (in menu)	Banner Classifieds (in menu) Links (in menu)	A 2-3 Bt 1 C 2-3 Bb 1	A 2-3, A 5 Bt 1 Bb 1
Nr 6	Banner Classifieds (in menu)	Banner Classifieds (in menu) Classifieds Links	Bt 2-4, C 4 C 3	Bt 3-4, Bb 3, C 1-2, C 4 A4 C3 C3
Nr 7	Banner Classifieds (in menu)	Banner Classifieds (in menu) Link	A 1-3, A-C 4 Bt 1	A 2-4, A-D 5-6 Bt 1 Bt 4
Nr 8	Banner Classifieds (in menu)	Banner Classifieds (in menu)	A 1-3, Bt 1, C 1-3 Bt 1	A 1-4, A 5, BB-C 1, Bt 4, C 2 Bb1
Nr 9	Banner Classifieds (in menu) Link	Banner Classifieds (in menu)	A 2-4, B 4-5 Bt 1, C1 C 2	A 1-4, A-C 5 Bt 1, C1, Bt 4