
Recording of Visual Reading Activity

Research into Newspaper Reading Behaviour

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Newspaper reading behaviour can be recorded. The recording device is roughly as heavy as a ski mask. The reader can move about freely and can also bring the newspaper into a comfortable position for reading. The fixation pauses can be recorded and one can find out precisely which parts of the paper have been read and which not.

Problem definition

In my work as newspaper designer I keep being confronted with questions which can only be partially answered. What is particularly unclear to date is how in fact the reader actually uses the newspaper. Does he follow the paths I, as designer, would like to trace for him, or does the reader find his own unconventional way which cannot be determined in advance?

The recording of Visual Reading Activity project was carried out by me in order to attain firm established facts.

List of questions

The following questions were to be answered through registering visual activity and analyzing the results: Are there specific access points on the page for the reader, e.g. photos, headings, colours?

Can a strategy be established in the way a newspaper page is looked at, or does each reader approach the page in a different way?

Are there focal points on a page (fixations) e.g. photos, headings, brief reports or other columns that are perceived by an above-average number of readers?

Do pictures always attract more attention than texts?

Are short articles read more frequently than long ones?

Must one distinguish between the reading behaviour of practised readers and new readers not familiar with the newspaper to be read?

The team

The idea, plan and organisation were mine. I commissioned the Fachhochschule für Wirtschaft in Pforzheim to carry out the tests. Harald Gleissner, Diplom-Betriebswirt, Jeanette Welz, Diplom-Betriebswirt, and Michael Fohrer looked after the project. As test object I chose the Badische Tagblatt in Baden-Baden, a newspaper which was re-designed by me in January 1989.

Front page

The front page ist composed of fixed and variable elements: there is always a news column on the left, which also contains regional topics. On the left of the heading there is a box with a guide to the contents of the national and foreign section and on the right there is either an advertisement or a box with details of contents of the relevant local section.

All the other parts of the front page are variable. Pictures larger than the one in this edition are often used. A normal newspaper was always used for the tests. We did not work with specially produced pages because we wanted to make the reading situation as normal as possible.

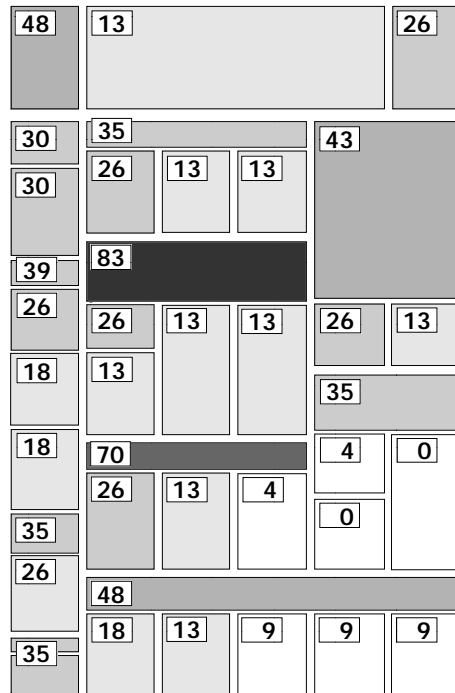


Analysis

The diagram shows the following: 83 % read the main headline, 43 % looked at the picture on the right. An above-average number of readers made use of the news column on the left.

The two main articles over the fold were read to the end by only 13 % of the readers.

The heading of the contribution on the right, «Frist für die Stromwirtschaft» (Deadline for the electricity industry), was read by 35 %, the first paragraph by 4 % with no reader reading the remainder of the article. The heading of the article «Wahl-Ergebnis zwischen SED-Lob...» (Election result between SED praise...) at the bottom of the page was read by 48 %, the first paragraph by 18 % the second paragraph by 13 % and the rest by 9 %. The readers simply stopped reading spontaneously anywhere in the middle of the article.



Note:

The page reproduced above is set out on the left diagrammatically. One can see from the half-tone areas how intensively the individual pictures, headings or texts were used.

The darker the half-tone area, the more that part of the page was looked at or read. The figures indicate the use as a percentage. 23 readers correspond to 100 %. Figures over 100 % arise when readers look at a particular part of the page more than once. This is often the case with pictures.

Testing method

I had known for a long time that there is a method of recording eye movements. When, for example, one reaches for a product in a supermarket then the route from the entrance to the shelf, the size and design of the packaging and the shelf placing - top, middle or bottom - all have been planned following, among other things, the results of visual fixation tests.

Another major area where such tests are important is in advertising, for one wants to know whether magazine readers actually perceive the advertisements and whether the presentation could perhaps be improved.

For recording readers' behaviour an instrument is used which records the visual fixations of both eyes. The device itself is

about as heavy as a ski mask. It contains a lens in the top part which records the field of vision of the test subject. The fixation pauses - that is, the moments of focussed vision - are registered with the cornea reflex method: an infrared ray is fixed on the eyes and reflected by them. These reflexes are recorded and combined with the visual field recording. Later a video tape can be analyzed showing all the fixations exactly.

What are recorded, therefore, are not the eye movements, because these are interruptions during which nothing can be read. Clear seeing is only possible with fixation. The NAC Eye Mark Recorder V was used for the tests. The advantage of this instrument is that the test subject can move very freely. One ist not restricted to a fixed position and one can also hold the newspaper freely in one's hand.

Realistic reading behaviour

Research results are met with mistrust in many cases because the tests were carried out in scientific laboratories with a corresponding atmosphere.

The fixation-recording glasses, which in no way disturb the reader, together with the relaxed setting for the testing on the newspaper premises meant a normal reading situation was achieved. Added to this is the fact that the eye movements and the taking in of information are not consciously controlled by the reader. They are automatic, the eye - brain connection being very direct. Our view of the world is always complete even though we can only always see about 2 cm² of our environment sharply. The brain complements the field of vision and constantly

Pages two and three

Page two is used for background reports and each day it contains only two to three articles and two commentaries which are always ruled off on the left in a box.

Page three is given over to politics. The right-hand column is mostly used for brief reports. The analysis showed that the readers always grasp the double page as a unit. Equal notice, for example, is taken of pictures and headings on both pages, or the reader jumps from one page to the other. This result is probably not transferable to the larger format newspapers. It is, for example, almost impossible to have a clear grasp of a whole double page in Nordic format.



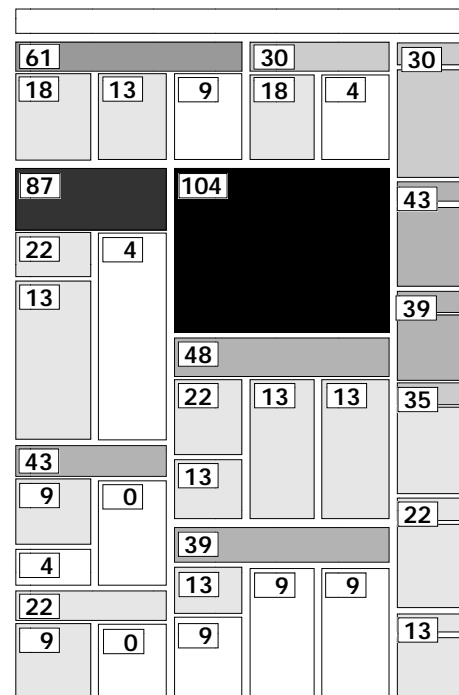
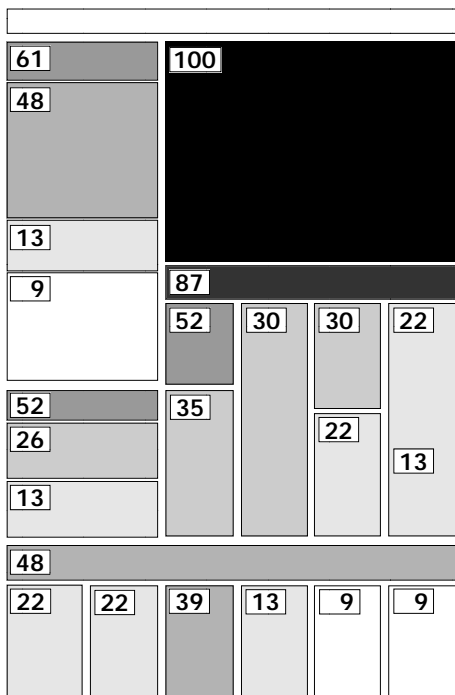
Analysis

The two large pictures were looked at by all readers. The right-hand picture was looked at several times by some readers, and this accounts for the figure of 104 %.

The smaller picture at the bottom of page two, on the other hand, was only seen by 39% of the readers. An above-average number of readers paid attention to the contribution at the top of page two «Warum Eltern zu Tätern werden» (Why parents become culprits). The large picture, the breakdown achieved through subheadings and the topic no doubt all had their contribution to make here. 30 % of the readers read more than half of this article.

The commentary at the top left was similarly half read. Good results were also attained with the lower left part of page two.

The column with the reports in brief on the right-hand page attracted above-average attention.



steers the eye to important, interesting things. The things that are interesting to newspaper readers was what we wanted to establish.

The testing procedure

In order to find out whether readers and non-readers vary in their behaviour, 30 students - 15 male and 15 female - were selected and tested on the college premises. The average age of the students was 26. In comparison, 30 readers and subscribers were asked to come to the Badische Tagblatt's offices in Baden-Baden. This group was selected according to the readership structure. The ages ranged from 18 to 73. The average was 40 years. Here too there were 15 men and 15 women participants. Their occupa-

tions had a certain significance. There were white-collar workers, self-employed, skilled workers, civil servants, house-wives and members of the catering trade. The project, however, also included retired people and school pupils. The group was intended to be as representative as possible for the newspaper, since the publishers in Baden-Baden also wanted to draw their own conclusions from the results.

One edition of the current day's newspaper was chosen for each test. No special edition was produced, for otherwise the characteristic feature of the daily newspaper - its topicality - would have been lost. The test subjects were to read realistically, hence the decision in favour of a normal edition. 23 persons in the group of readers could be tested in one day. The results from this large

group have been used for the above analysis. There are still a large number of analysed results from newspapers which were read by smaller test groups but these could not be reproduced here.

After the test was finished the participants took part in an additional interview. The aim was to find out whether the readers could remember specific pictures or texts. This interview served as a further back-up for the results of the test. The readers were also asked for criticism and suggestions for improvements.

Pages four and five

Page four is given over to the section «Baden-Württemberg» and page five to «Baden». There are no fixed rubrics on these pages. Brief reports, however, are usually ruled off to form boxes. There are two such boxes to be seen on page five.

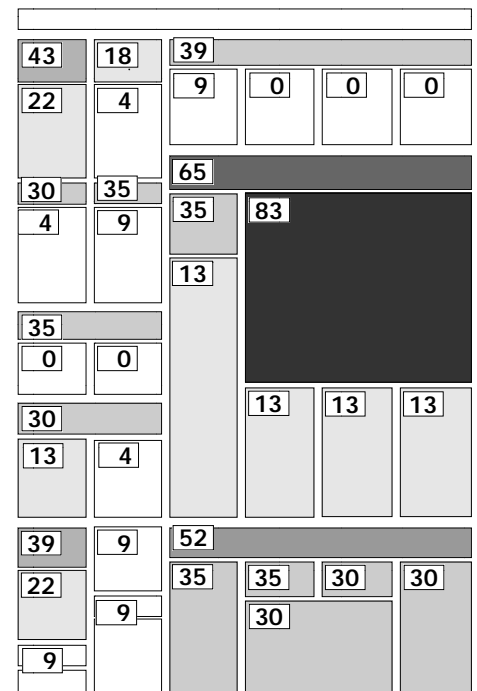
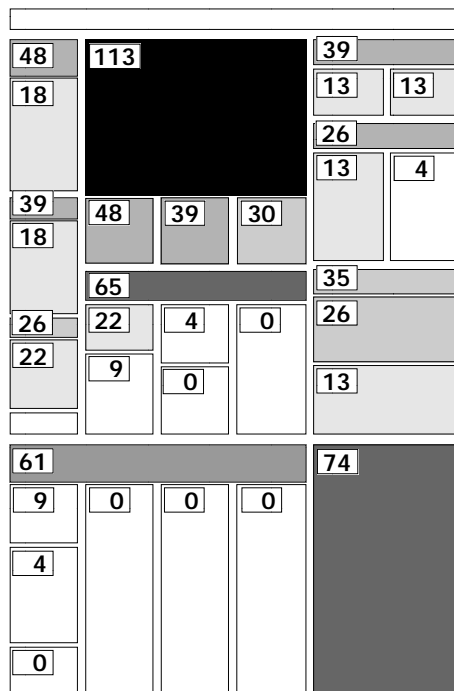


Analysis

Pictures are given above-average attention. In the case of the top left-hand picture with 113 % attention from the test subjects, the first paragraph of the text belonging to it was read by 48 % and 30 % read the whole article.

Page four: The contribution «Steinstele berei-tete den Archäologen Sternstunde» (Stone stele - climax for archaeologists) at the bottom left was left practically unread. The title was read by 61 %, the article's picture on the right was looked at by 74 %. Possible reasons: the article is too long; there are no subheadings in the main body of the text; the placing is disadvantageous.

Page five: it is conspicuous that the arti-cle in the top right corner was also practically unnoted, except for the heading, whereas the contribution in the bottom right was read to the end by 30 %. In the latter the article length, picture proportion and contents are evidently in harmony.



Are there any specific access points on the page for the reader?

In most cases the reader begins to take in information with a large picture or a heading. Each page ought to have a focus offering the reader such an access point. That can be a picture or a heading, which ought to be at least 36 points high. This access point ought to be in the top half of the page. It does not have to be directly under the head.

Do pictures attract more attention than texts?

Pictures attract substantially more attention than texts. With words, the abstract order of the letters first has to be deciphered by the brain. Pictures can be perceived, understood and retained decidedly more quickly. Pic-

tures - with only a few exceptions - were looked at by more than 80 % of the readers.

Are there specific points - columns, headings, pictures - that are perceived by an unexpectedly large number of readers?

In addition to the pictures most of the headings were read. Short contributions contained within one column or under one heading are read substantially more frequently than other contributions. Articles with pictures are read more frequently than articles without pictures.

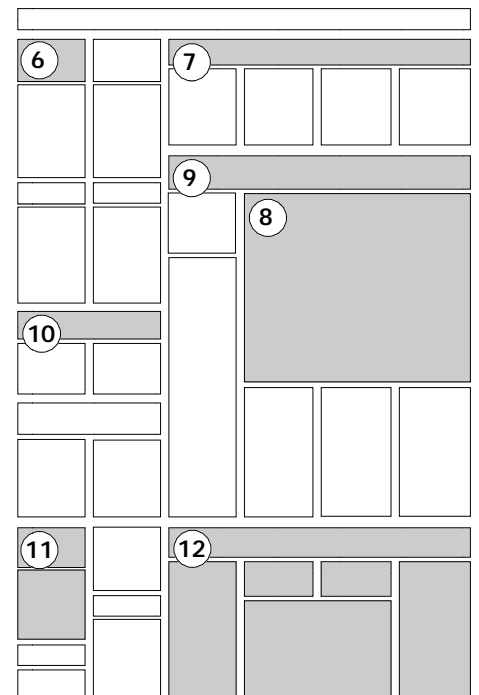
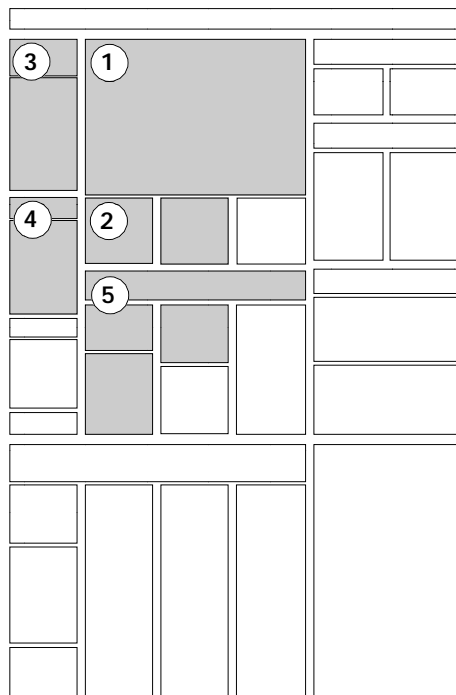
Are contributions placed at the bottom of the page read less frequently than others?

The selection of articles by the reader is affected by several factors which always combine in their influence on the selection. Disadvantageous placing alone cannot prevent the absorption of information. Several mistakes have to be made simultaneously.

Example: Take for example the bottom of page four. The contribution «Steinstele berei-tete den Archäologen Sternstunde» (Stone stele - climax for archaeologists):
 - placing at the foot of the page
 - long article
 - no subheadings

Example of one reader's reading process

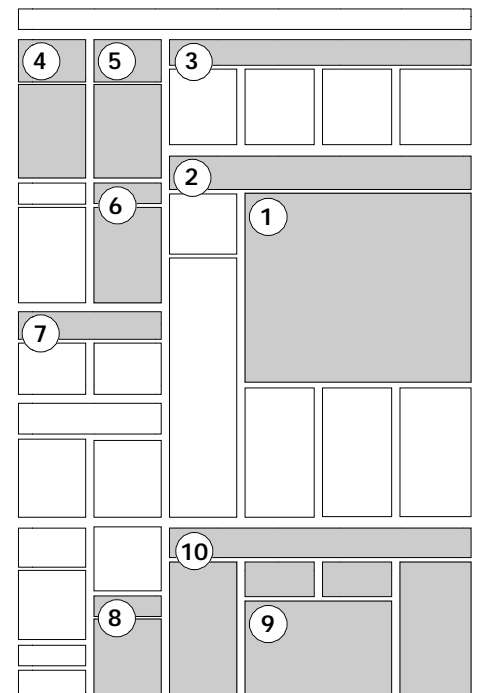
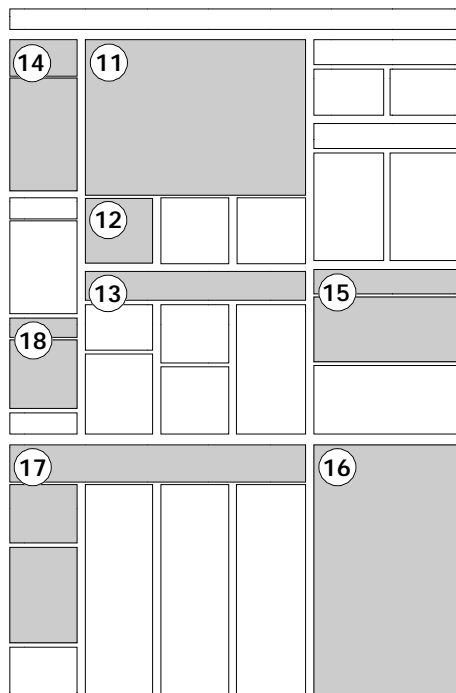
The newspaper was read from front to back. The depiction on the right shows the order in which information was absorbed in the case of one reader. The pages concerned are also pages four and five. The reader begins with the picture at the top left (marked with 1). Next he reads two columns of the picture text and then moves to the brief reports in the upper left corner. After that he still reads half the article «Schon gespenstische Züge» (Already ghostly) marked with 5. Then he switches to the right-hand page. Here the heading of a brief report is read first, then the top heading and after that the picture is looked at. In conclusion the contribution at the foot of the page is read right through.



Example of one reader's reading process

The newspaper was read from back to front. The intake of information begins with the picture on the right-hand page. After that the headings and brief reports at the top left hand of page five are read followed by the contribution at the foot of the page. Then the reader moves over to page four. Here, too, the picture serves as access point to the page.

The readers who read from front to back mostly looked at the left page first. The readers who read the newspaper from back to front looked at the right-hand page first.



- possibly not too exciting as topic
 - disadvantageous placing of the picture.
 Result: the contribution was practically not read at all.

Example: Take for example the bottom of page five. The contribution «Das Grauen vor der Haustür dokumentiert» (Horror on the doorstep documented):
 - placing at the bottom of the page
 - relatively short article
 - the photograph was well integrated into the text block
 - interestingly texted heading.

Result: the contribution was read to the end by 30 % of the participants. This figure is higher than that attained by the main front-page story!

Example: Page five at the top. The article «Weit mehr Krebstote als im Landesdurchschnitt» (Far more cancer deaths than national average):
 - placing in the top right corner
 - relatively short article
 - no picture
 - unpleasant topic.
 The article at the top right was read just as little as the article at the bottom left. The reader apparently obtains a general idea of the page through looking at pictures and reading headings and then decides completely independently whether to read an article or not.

Is the right-hand page read more carefully than the left?

With the Berlin format the readers grasped the pages as double pages. They also jumped from one point to another on the pages. Readers who started at the front of the paper mostly looked at the left page first, readers who started from the end of the paper and read forwards mostly looked first at the page on the right. The diagrams reproduced here show such examples. So the right-hand page, which is preferred by advertising customers, attracts no more reader attention than does the left-hand page. Nor is there any evidence in scientific publications that more attention is paid to the page on the right.

Front page local section

This page is dominated by the pictures at the top right. Under the fold there is also a picture on the right that goes with the article «Bauarbeiten an der Oosüberdeckung» (Building work on the Oos covering). The make-up here is not quite correct.

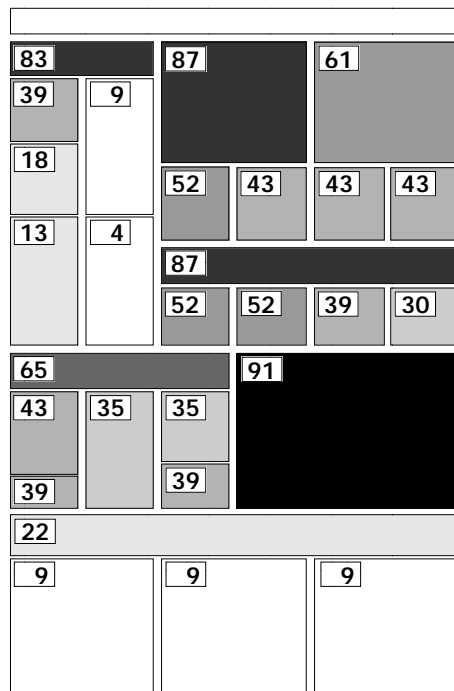


Analysis

The local section is used more intensively than the national and foreign pages. Most of the contributions on the front page of the local section were read to the end by 30 % of the test subjects. 27 % of the subscribers tested began their reading on this page. Even an article placed on the lower left received high attention figures.

Given the high degree to which the local pages are used, it is understandable that advertising customers prefer to use this section.

The advertisement was looked at by 22 % of the test subjects. 9 % read the individual special offers.



In what order is information taken in?

It is known that some readers start at the back of the newspaper and read forwards and others begin with the local pages. Here the reading behaviour varied between students and subscribers, as the following tables show:

Students	
from front to back	73 %
first the local section	7 %
from back to front	20 %

Subscribers	
from front to back	53 %
first the local section	27 %
from back to front	20 %

A quarter of the subscribers began with the local section, a fifth began with the last page. This reverse order was mostly maintained through the whole newspaper. 73 % of the group of students used the newspaper from front to back. These results agree with those from reader surveys of other newspapers.

Is the local section used more than the national and foreign pages?

Since a quarter of the subscribers turned first to the local pages, it does emerge that this section is used much more. The analysis of the first page of the local section shows that this page is far more intensively used than, e.g. the front page of the newspaper itself. It is not only the headings that are read but the basic text too.

When is the paper read?

When asked «When do you read the newspaper?» in the interview after the test, the subscribers answered as follows:

morning	83 %
afternoon	10 %
evening	7 %

Are articles read to the end or are many only read in part?

One must assume that it is perfectly normal for the reader to break off reading anywhere in the course of the article. That is why the old journalists' rule still applies that the importance of a contribution declines towards the end. Whether a reader reads a contribution to the end or not depends on several different factors.

Pages two and three of the local section

The left page is given over to the local arts section, the right page to the local news. On the left it is striking that five articles of almost the same size have been arranged as blocks. On the right-hand page the column with the brief reports is again characteristic.



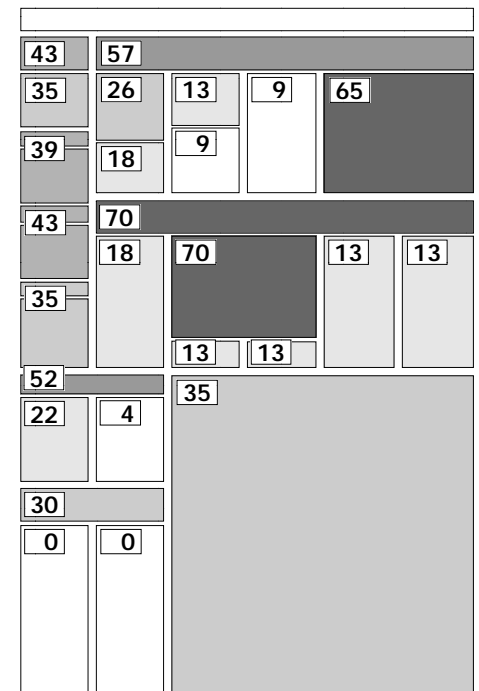
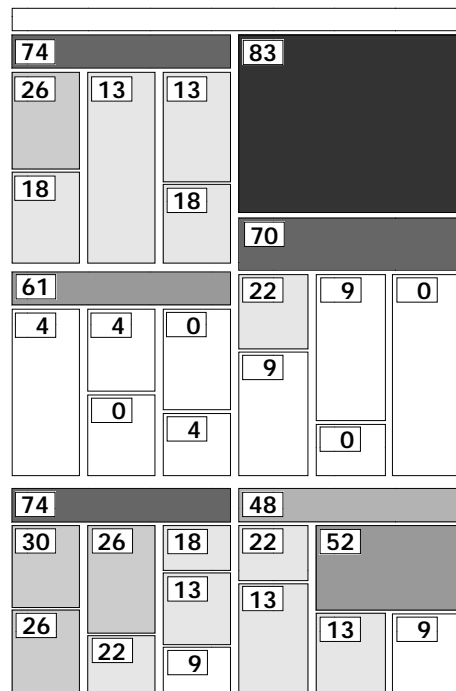
Analysis

On this double page, too, the pictures attract more attention than the texts.

What is striking on the left page is that the articles at the foot of the page attain relatively high usage figures whereas the two contributions in the middle were only very seldom read.

In the article «Mit Bravour Erfolge erreicht» (Successes achieved with courage) a slight increase from 0 to 4 % can be noted towards the end. One reader read the title and then the last paragraph.

The right-hand page is used significantly more. The brief reports are used very well with 43 to 35 %. The advertisement in the bottom right corner was noticed by 35 % of the readers.



Positive influences:

- eye catcher (picture or heading)
- short article
- subheadings
- text blocks broken up by pictures or diagrams
- interesting topic
- well texted heading

Negative influences:

- no eye catcher (no picture, heading too small)
- long article
- no subheadings
- no breaking up of text blocks through pictures or diagrams
- relatively uninteresting topic
- badly or unclearly texted heading.

Was the reading process similar with all the test subjects?

The reader moves from large to smaller elements. In most cases the large pictures were looked at first and then the headings. The first three to four fixations were the same with most readers. After this general view the reader decides individually which contributions he wants to read. Attention ought to be paid that the heading really does say something about the contents of the article following. Extremely short headings are mostly not very appropriate here. One ought not to pack the essential aspects of a contribution into the kicker or subheadlines but into the main headline wherever possible. Headings can therefore often cover two lines in order to meet this demand.

The access to the contribution ought to be clearly structured. One ought not to build too many elements into the heading apparatus: not kicker and subheadline but only one of these elements. Not an extremely long introduction but a short text that draws the reader further into the story. Then the actual contribution as such ought to begin. The most important aspects belong at the beginning because many readers simply break off reading towards the end.

Rules:**Principles**

Reading means work. The reader's work must be made easier through the design of the newspaper.

The page ought not to be too crammed, for then it lacks clarity.

The reader ought to receive a clearly structured, easily grasped product every day.

The reader gathers information initially from pictures and headings. Allocating and separating clearly is very important here.

Each page ought to have a definite focal point. It could be either a picture or a heading.

The clear setting of a focal point provides the reader with an access to the page.

Pictures

A page without pictures is to be rejected because it offers the reader no access point.

Pictures should never serve as fillers because the reader takes his bearings from pictures to a very large extent and usually looks at them first.

Decorative pictures not belonging to a contribution should be ruled off in a frame so they cannot be wrongly allocated.

Pictures that belong to an article ought to form a block with the text: block make-up.

Pictures should not be concentrated in a corner. They ought rather to be distributed over the whole page.

Pictures may overlap the fold in so far as this does not cause printing problems.

Short articles

Short articles or reports are used very intensively by the readers. They must be brought together into columns or ruled off in a box.

Short articles should never be tagged on to the end of a long contribution because of the risk that the contents be wrongly assigned.

Headings

The heading should be formulated clearly and unambiguously. The reader must know which topic is to be dealt with in the contribution concerned.

The heading apparatus should not be overstretched. It is not wise to use both kicker and subheadline.

Basic text

The introduction should not be too long. In content it ought to raise the topics in more detail than the head without necessarily summarising.

The longer a contribution, the less likely it is to be read right to the end.

It is quite normal for a reader to break off reading in the middle of a contribution.

The article's most important themes ought to be placed at the start. The probability of their being read sinks with the length of the contribution.

Long articles

Long articles must be broken up by subheadings.

Long articles should be introduced by a large picture so as to rouse the reader's interest.

Long articles will be read where certain factors coincide:

- pictures as approach
- well texted heading
- basic text broken up by subheadings
- interesting topic.

Long articles will not be read where the following factors coincide:

- no picture
- unclearly formulated heading
- basic text without subheadings
- uninteresting topic.

Long articles can be split up into several short ones, each being given a heading.

Placing

The positioning of an article on the page is not decisive. The reader finds the topics that interest him on his own.

Readers who read the newspaper from front to back usually look at the left-hand page first.

Readers who read the newspaper from the back forwards usually look at the right-hand page first.

Contributions with no picture at the top of the page may well not be read despite the good placing.

Contributions with pictures at the foot of the page can achieve high readership frequencies.

Was the kicker read?

The intake of information began almost invariably with the heading. The kicker was either read afterwards or not read at all. In the interview the readers said:

I read the kicker first and then go to the bold print heading, then to the text

9.3 %

I read the heading first, then the kicker

41.9 %

Does one have to distinguish between the reading behaviour of practised readers and that of new readers who are not yet familiar with the newspaper?

One assumes that younger people read the newspaper more quickly and make less intensive use of it. In the present test no difference could be established between the behaviour of the students and that of the subscribers. Nor did the behaviour of young readers differ from that of older readers.

Conclusions

The reader follows the paths which the designer would like to lay down for him, but he does it in a completely individual manner

that does not permit of generalization. It is amazing to observe how each reader finds his own way through the daily newspaper.

Whoever has seen a video tape with the eye movements of newspaper readers knows one thing for certain: reading is hard work. My task as newspaper designer is to facilitate the work of absorbing information for the reader. Too many newspapers still lack clarity in their design. The pages are stuffed full without any further thought. Many newspaper pages are made up in a hectic and unplanned way. Those who carry out their work in a disciplined manner will also achieve a clear and well arranged result. Only through creative clarity and simplicity can the goal be achieved: to make reading an easier task for the reader.