

Summary of the report on trials of a visual design for SFA Std.5

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The term "visual design" refers to the graphical and typographical features that make a page attractive and easy to read. (The learning design or cognitive design deals, for example, with the choice of activities based on a view of how children learn that particular subject matter.)

A Context

1 The students

Three classes of Std.6 Preparatory. These children have completed Std.5 in DET schools. Their programme emphasises study skills, but the students showed a lack of text-handling skills. There is no reason to think that other users of this age will cope better.

2 The trial material

The chapter was **Magnets and magnetism**. This chapter was not selected for its text features but because it fitted in with the teaching programme at the trial school.

The science teacher taught the topic of magnets to the students before the class survey, so that the subject matter would be familiar, even though they had not seen the text before.

3 Limitations

- 3.1 The study had to invent techniques for assessing visual design, as there is very little to be found in the literature. Textbooks in SA do not seem to be evaluated in classroom settings. The existing studies look at very specific aspects, such as typefaces, and not at the effect of a design as a whole. It is of course difficult to separate the effect of visual cues from the meaning of the text; readers try to make sense of information in a variety of ways, which may compensate for problems they have with the visual design.
- 3.2 The study had to be planned and carried out in a limited time, to meet production schedules.
- 3.3 The publisher faced constraints in preparing the trial chapter. Not all the intended features were incorporated into the trial chapter, and the printers accidentally printed on one side of the paper only, instead of back-to-back in the normal way of a book. Because the "CRC" was intended to be photocopied, the tint was also rather coarser and darker than designed.

B How the task was defined

- 1 **The use of a metaphor** We used the metaphor of the road-maker who places road-signs which enable users to find their way to places they want to reach. The road-signs provide checklists or maps of where towns are and how far to go to reach them, early warning of changes in direction, name places of importance, indicate that the tar is about to end, indicate stopping points and refuelling points and so on. Of course, learner drivers have to learn what road-signs mean - teaching has a place. But if the signs are distracting or confusing, learner drivers may still lose their way or crash.

Road-signs in the visual design In the visual design, the "road-signs" are major headings, sub-headings, bold print, coloured print, italics, grey space and white space, references such as "look at Figure 5", etc.

The study question The question was framed as: given the "road-signs" on the trial chapter, what can we learn about how the students follow the route the author intended? Therefore this was a **survey study**, rather than a study in which one might have tested the hypothesis that Design A works better than Design B.

C Procedure

- 1 **Pilot interviews** to test a draft interview schedule.
- 2 **Individual interviews:** 8 students, about 25 minutes per interview.
- 3 **Class surveys:** Oral instructions to do certain tasks on the trial chapter. Data was used to check impressions formed during interviews.

D Analysis

The analysis is based on the work of Dr. David Michael who argues that while universal rules for book design cannot be defined (due to the variety of contexts) certain heuristics can be used. Heuristics are questions such as "What assumptions are made about the readers?" or "What are the motivating effects of this page?"

- 1 **Motivating effects** Students found the pictures attractive, they were helped by the bold print, the pink band for the unit heading was a help.
- 2 **Excluding effects** Here we included distracting effects, as explained in the full report.
 - 2.1 **Positive and negative spaces** The placing of white space next to text had a distracting effect in many cases. For example,
 - 2.1.1 p.4, first para. under red heading. Students ignored both the headings above the text and began at the first word of the para: "The magnetic force acts all " We believe that the white space to the left of the text and below the heading act like a picture-frame drawing the eye into the block of text.

- 2.2 **Grey tint**
- 2.2.1 Grey tint areas made up some of the positive/negative space areas which seem problematic. (Example, p.6 Figure 10 in white box drew the eye away from following the text. Grey tint box on p.4 denoted end of the **unit**, said some students. Grey tint seems to be a strong visual cue and needs to be used with care.
- 2.2.2 Activity 6: Despite the lack of a line at the bottom of the grey box, students saw the bottom of the box as the end of the activity. The deep area of grey at bottom contributed to this.
- 2.3 **References to figures**
- 2.3.1 Students could not follow references such as "Look at Figure 11". They see the words as text, and do not realise that "Figure 11" is simply an address for information in graphical form.
- 2.3.2 More important, they move their attention to the figures at inappropriate times, when the text is not referring to the figure.
- 2.3.3 Some students read through figure-related text into main text, instead of staying with the figure.
- 2.3.4 **Red print** Red print had no positive or negative effect. It did not make the student pay better attention to the main headings.

3 Compensatory effects

- 3.1 Students focused readily on bold text. Where the bold text was repeating information given in the heading, this compensated from the student's failure to process the information in the heading.
- 3.2 Pictures were important as an aid to understanding the text.
- 3.3 Deep white spaces sometimes acted as a correct cue that an activity or unit had ended.

E Recommendations

1 Positioning of text and pictures

If the text were placed on the left and the pictures on the right, it would lessen several of the problems mentioned as excluding effects above.

- 1.1 Headings would fall directly above the relevant text, and there would be no distracting white space to the left of the text block.
- 1.2 Figures would not conflict with the rule that one reads from the extreme left.
- 1.3 References such as "Now look at Figure 10" would come to the left of the picture, and logically before the picture.

2 In-text references to figures

These need to be made much clearer, so that if the text is scanned, it is obvious at which point one looks at the figure.

3 Markers for end of Activity and end of Unit

- 3.1 If the grey tint is kept as a cue for Activities, it needs a heavy line to mark the end.
 - 3.2 Activities should if possible not be spread across a page-turning. A way is needed to indicate when an activity continues onto the next page.
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4 Use of second colour print

Looks attractive and is not a distracter, but is not effective in marking headings. May send a message that what is in red differs in some way from what follows the red.

5 Unit beginnings and endings

While the concept of a unit as a major sub-division needs to be taught, the heading and the ending needs to be easy to find. The learning design of the book relies heavily on students previewing the chapter by finding Units and summaries.