

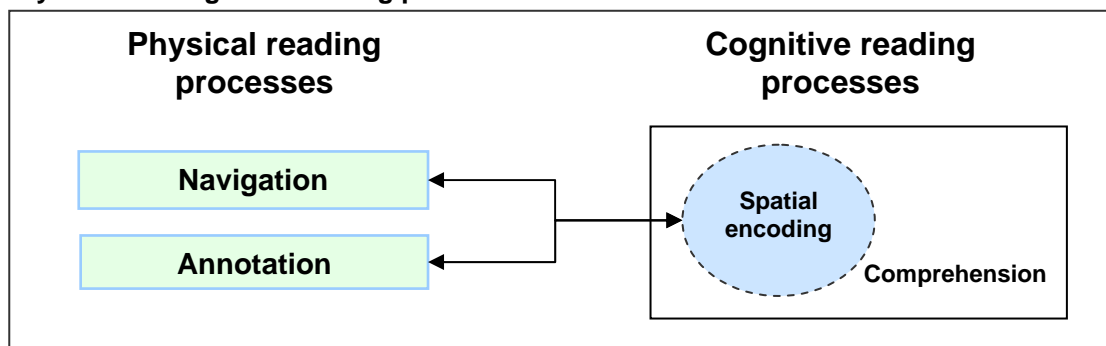
# Essay Marking on Screen

## Marking behaviours differ on screen

Researchers at Cambridge Assessment investigated whether marking behaviours differed on screen and on paper. This investigation was part of a wider project looking at the reliability of marking accuracy across marking modes. It was found that examiners employed different behaviours in terms of navigating through essays, annotating essays and remembering where information was found in essays. However, the difference in marking behaviours did not influence the overall reliability of examiner marking accuracy across modes.

Literature suggests that increased cognitive workload can impair reader comprehension levels and that a reader's ability to recall the physical location of features in a text (spatial encoding) reinforces their comprehension of that text during reading activity. These issues have clear implications for examiners who mark essays. Research suggests that a number of physical and cognitive factors can influence overall cognitive workload as readers access longer texts. Figure 1 presents a model of how these physical and cognitive processes might relate to each other. In the model, annotation and navigation behaviours support cognitive processing during reading activity.

**Figure 1: Physical and cognitive reading processes**



### Is annotation influenced by mode?

The frequency and types of annotations used by examiners when marking in both modes were coded and analysed. There was a more limited choice of annotations available to examiners when marking on screen. When comparing only those annotations that were available in both marking modes it was clear that examiners' annotating behaviours differed across modes but that this difference did not affect their marking accuracy levels. We also found that:

- Examiners annotated less on screen than on paper. This was due to a combination of factors; the choice of annotations on screen was limited to a pre-determined palette and not pertinent for the examiners on some of the occasions that they wanted to apply them, and the physical and mental effort of annotating on screen was greater than on paper.
 

*“What I couldn't write in the margin, because the system didn't let me, I wanted to store up for the final comment. It seems to me that because you can't annotate, the final comment is more important on screen than it is on paper.”*
- This variation in annotating behaviour appeared to make examiners less confident about their marking consistency, although there was no significant evidence of any actual relationship between these factors.
- In both modes examiners wrote summative comments at the end of each essay. The persistence of this behaviour across modes suggested that it was a very important part of the marking process for this group of examiners and may be a significant contributor to the high levels of marking consistency found in this study.

### **Is navigation influenced by mode?**

It was found that examiners' navigation behaviours differed across modes but, as with annotation, this difference did not affect their marking accuracy levels.

- Examiner navigation was influenced by mode, with navigation on screen being more challenging and requiring greater effort than paper navigation.
- Examiners' navigation on screen tended to be linear. Paper navigation tended to be more iterative, using both linear and non-linear reading approaches. Examiners suggested that having an overview of an essay, supported by iterative navigation, made them feel more consistent in the quality of their marking:

*"I always usually go through a script backwards and forwards when it's in front of me in the paper version. I would find that much easier in terms of getting a full appreciation of the script."*

- Examiners reported being less likely to look at other essays when marking an essay on screen compared with paper marking. This might have made it more difficult for examiners to make direct comparisons between the qualities of different essays.

### **Is spatial encoding influenced by mode?**

The process of remembering where information is found in essays is theorised as being an important aspect of comprehension building. It was found that examiners' spatial encoding ability differed across modes but that this difference did not affect their marking accuracy levels.

- Examiners were less accurate in recalling the location of details in screen-read texts:

*"I would think it's much easier to remember what's where on paper because you get a holistic view of the thing. A view of the whole paper is not as easy to achieve on screen and I guess never will be, and therefore remembering where something might have been I think would be easier on paper."*

- This suggests that examiners' spatial encoding was better on paper and led to them having stronger mental representations of essays.

*"I do tend to have that sort of memory where I sort of know it's at the top, middle or bottom of the page that I saw something. That sort of short term stays there, but with the zooming and scrolling it isn't quite as easy."*

### **Context of research**

A number of recent studies have considered whether the mode in which essays are marked influences the reliability or accuracy of the marking of those responses. These screen marking studies represent an important step forward in helping to develop greater understanding of how mode might affect examiners' marking practices.

In this project 180 GCSE English Literature essay scripts were selected and divided into two samples of 90, broadly matched by mark distribution. The essays were blind marked by the principal and assistant principal examiners to establish a reference mark for each essay. Twelve examiners with no prior experience of marking on screen then marked one sample of essays on paper and the other on screen. Quantitative and qualitative methods were used to gather and analyse the research data.

The findings of this study have been published and presented widely and have provided a valuable contribution to knowledge in the field of on screen marking. Further research is ongoing to investigate whether the findings of this study also apply to extended essays at Advanced GCE level.

### **Further information**

Full details of the essay marking on screen work by Cambridge Assessment are available at:

[www.cambridgeassessment.org.uk](http://www.cambridgeassessment.org.uk)

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