

Impact of High-Contrast Color Schemes on Reading Comprehension and Eye Movement: An Eye-Tracking Study

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(a) Some teaser.
(b) Some teaser.

Figure 1: Examples of teaser fig (a) with visible teaser, (b) with invisible teaser.

ABSTRACT

This study investigates the impact of high-contrast color schemes on reading comprehension and eye movement behavior in adults using eye-tracking technology. The experiment contrasts a non-standard color scheme (yellow text on a green background) with the traditional black-on-white text to assess its effects on visual engagement and cognitive load. Key eye-tracking metrics such as fixation duration, saccade amplitude, and regressions were analyzed to evaluate how participants' visual processing differed across conditions.

CCS CONCEPTS

• Computer systems organization → Embedded systems.

KEYWORDS

eye tracking, visual attention, cognitive load

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1 INTRODUCTION

In today's digital world, reading on screens has become a ubiquitous activity, with diverse color schemes often employed to improve readability and visual comfort. While the conventional black-on-white text remains a standard, high-contrast color schemes, such as yellow text on a green background, are occasionally proposed as alternatives, particularly for users with visual impairments or under specific lighting conditions. However, the impact of such

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non-standard color combinations on reading comprehension and eye movement behavior remains insufficiently understood.

Eye-tracking technology offers a powerful tool to investigate how visual information is processed, providing insight into cognitive load and engagement through metrics such as fixation duration, saccade amplitude, and regressions. These metrics, in combination with reading comprehension assessments, can reveal how different visual presentations of text influence not only the ease of reading but also the depth of understanding.

This study aims to explore the effects of a high-contrast yellow-on-green color scheme compared to the traditional black-on-white text. By using eye-tracking data, we will assess whether the unconventional color scheme enhances or hinders reading comprehension and eye movement behavior. Additionally, subjective feedback from participants will provide insight into visual comfort and strain. Understanding these dynamics has implications for optimizing digital interfaces, particularly for diverse user populations with varying visual needs.

2 BACKGROUND

Who's done anything in eye tracking and cognitive load..
? describe LHIPA bla bla lba

3 EMPIRICAL VALIDATION

We conducted experiments to evaluate the effectiveness . . .

clean up above text; done

3.1 Experimental Design

3.2 Participants

3.3 Procedure

3.4 Apparatus

4 DISCUSSION

Discussion

5 LIMITATIONS & FUTURE WORK

6 CONCLUSION

Conclusion

ACKNOWLEDGMENTS

REFERENCES