Using eye-tracker to investigate how readers allocate their visual attention when

reading the scientific text contained an interpretative picture

Abstract

This study using eye tracker to answer two questions, the first was to investigate how

readers allocate their visual attention when reading the scientific text contained an

interpretative picture, and the second was to examine what visual-patterns differences

between reading text and picture information. Participants need to read the scientific

text which contained an interpretative picture, and their eye movements were recorded.

The result showed that readers had much saccade behavior between the text and the

picture to integrate information. We also found that readers tend to allocate their

attention much on the text than on the picture, the ratio of fixation durations of the

text compared to of the picture was 79% to 21%. In addition, it was interesting to find

that the average fixation duration was longer on the picture ($M = 250$ ms) than on the

text ($M = 239$ ms), the average saccade length within the text ($M = 101$ pixel) was

larger than within the picture ($M = 78$ pixel). Above findings indicated that how

readers allocate visual attention to different parts in the scientific text and the picture;

these two different properties of reading materials would result in different visual

patterns.