

THE EFFECT DESIGN HAS ON ATTENTION

AN EYE TRACKING ANALYSIS FOR CATL

BY KYRA WINSLOW

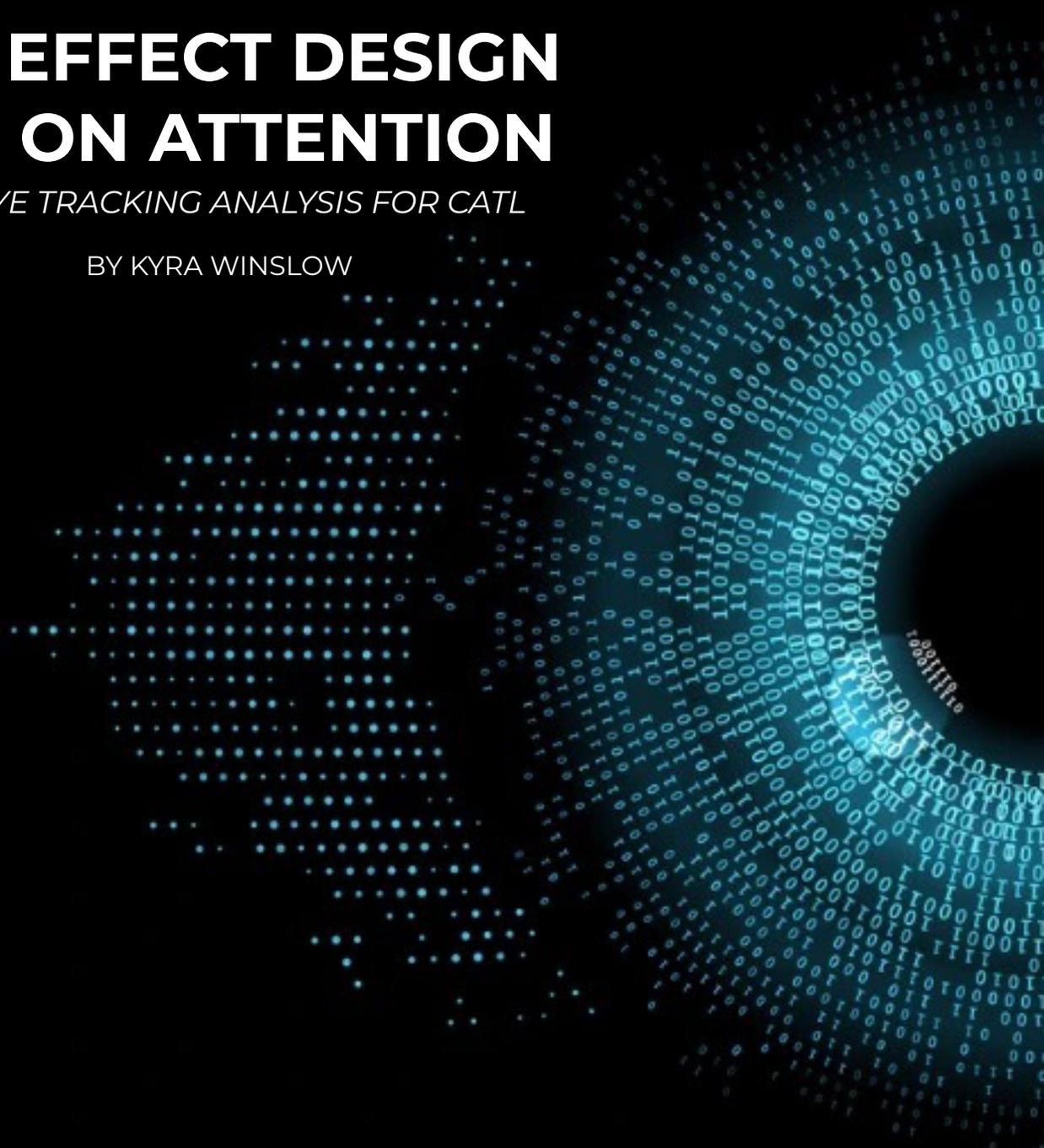
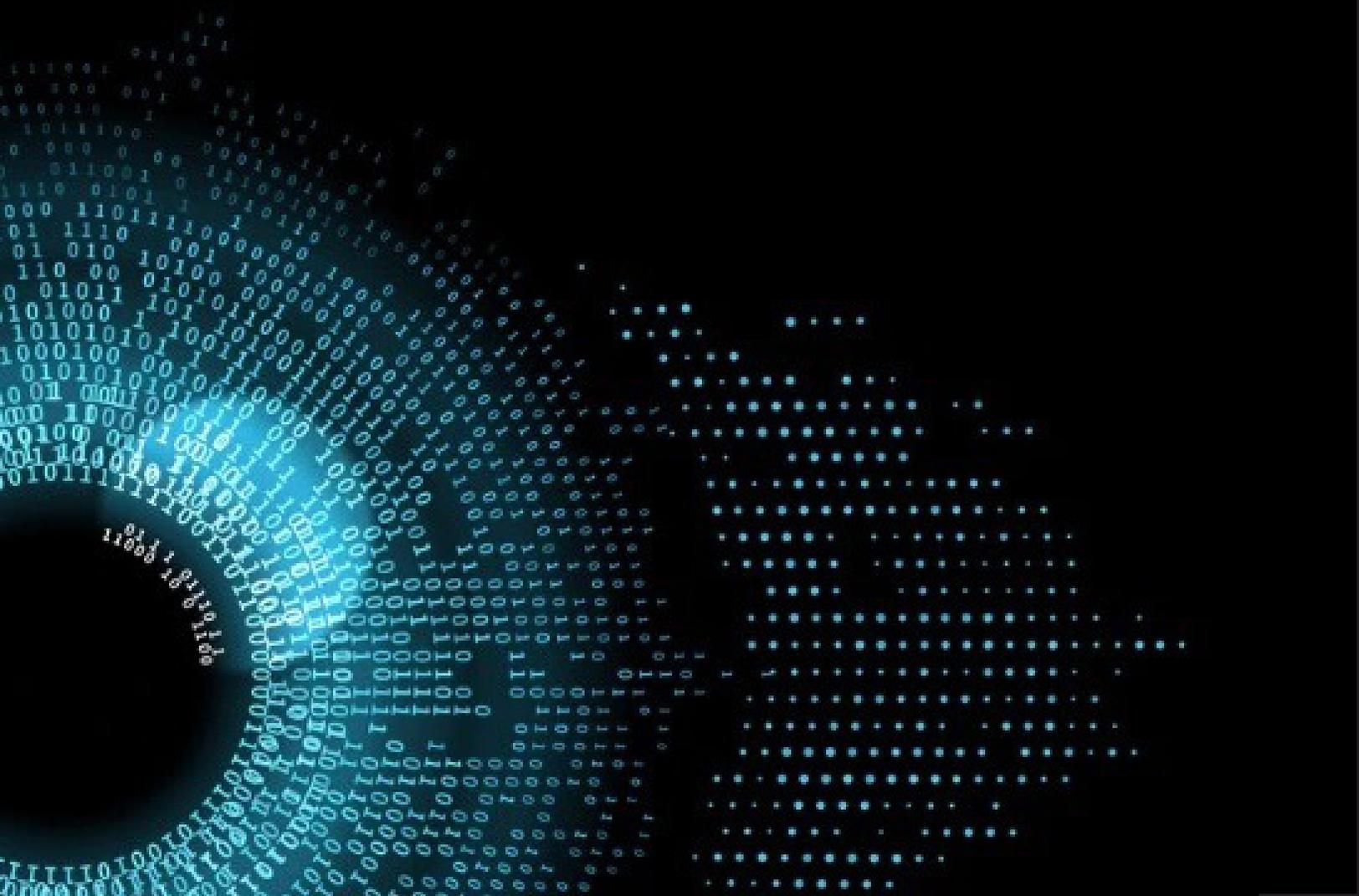


TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
INTRODUCTION	2
METHODS & PROCEDURE	3
ANALYSIS	4-5
CONCLUSIONS/RECOMMENDATIONS	6



EXECUTIVE SUMMARY

The aim of this report is to determine if design has an effect on how students use a syllabus. Eye tracking software was used to collect data on 63 students who were assigned to read through either a designed or traditional syllabus. There were not enough significant differences in the data to suggest a designed syllabus is better at gaining student attention.

INTRODUCTION

The aim of this report is to see if design has an effect on how students comprehend a syllabus. A syllabus contains important class information, but often students do not read the syllabus and will miss significant information that would help them succeed. Elon's Center for the Advancement of Teaching and Learning (CATL) wants to figure out if a designed syllabus would get students to read and pay attention to the syllabus information, over the traditional black-and-white design.

To answer this question, eye tracking data was used which was collected by Dr. Xu, Media Analytics Professor at Elon University. Sixty-three students participated in the eye tracking, where the software recorded what they were looking at in real time.

A **gaze plot** is a graph that shows the visual path of what the participant was looking at, the number of fixations, and the duration of each fixation. A **fixation** is a focus point to perceive an object.

The gaze plot that the eye tracking software recorded was in the format of a video, showing what the student was looking at and for how long in real time. The fixations in the video were represented by bubbles, and the size of the bubble represents how long the fixation was.

The software also recorded a table including the total number of fixations and total number of seconds spent on each page of the syllabi.

Eye tracking data can give us valuable information about what students are looking at when reading a syllabus. It also gives us information about where students focus the most when reading the syllabus. If design effects how students focus and pay attention to the syllabus, designed syllabi should be encouraged throughout university courses.

Because eye tracking tracks the movement and speed of the pupils, participants cannot lie about what they're looking at. The participants can read through the documents without being interrupted by external factors. This makes the data reliable.

LIMITATIONS & ASSUMPTIONS

The eye tracking data we use in this report was collected from a small sample of people. Sixty-three participants from Elon University is not an accurate representation of the university population or the general population. We are making the assumption that these 63 students will behave the same as all other students on Elon's campus when this may not be true.

There are many assumptions made when using eye tracking data. First, we are assuming that because you are looking at an object, you are paying attention to it. This is not always true. Just because someone is looking at something, does not mean they are paying

attention to what they're looking at. When we look at fixations, we are assuming that the student is paying attention to the focus point when they might not be.

We also are assuming that when a participant is focusing on something, they are understanding what they are focusing on. Even if someone is focused on a point, it does not mean they are comprehending the information that are looking at.

Because of these assumptions, the validity of the data is questionable.

METHOD

THE PROBLEM

The problem this analysis will try to solve is whether or not design matters when trying to gain students' attention to comprehend syllabus information.

The issue we are not addressing in this analysis is whether or not comprehension of the syllabus increases student success in the class. This may be something worth researching in order to determine if changing the syllabus is even worth it.

FRAMEWORK

The data collected from the eye tracking software gave us two forms of data: gaze plot videos and a table with number of fixations and seconds spent on each page.

To analyze the table, I began by separating the high and low design data to make it easier to make comparisons between the two designs. Then I calculated the average number of fixations per page and number of seconds spent on each page. This allows me to easily compare the data from the designed syllabus to the traditional syllabus. Lastly, I calculated the average number of fixations per second to see if there was a difference in how many focus points were made per second by students on each syllabus design.

When analyzing the gaze plot videos, I looked at where the fixations were on the page and the size of the fixation bubbles which represents the duration of the fixation. Screenshots were used to make direct comparisons between the two syllabi.

Traditional Syllabus

ENG255: Writing a Life
MW 1:40-3:20, Carlton 119

"All biographies like all autobiographies like all narratives tell one story in place of another."
Helen Cixous, *Rootprints*, (1997) 71

Dr. Chris Nolan
email: cnolan@elon.edu
Phone: (336) 278-7042
Office Hours: MWF 11:00-12:00, TTh 9:00-10:00
Office: Powell 228

Course Description

In this course, we will read and examine life writings by US authors written between the mid-19th Century and the present day. We'll read and discuss memoirs, essays, short stories, an illustrated autobiography, and poems as we consider how these texts blur the lines between fiction and nonfiction. Along the way, we'll consider a number of big questions, including:

- What does it mean to "write one's life"?
- What makes a story or memory "true"?
- How do we determine what a story, novel, poem "means"? And, to whom?
- How do these writers depict the intersecting aspects of identity, including gender, class, racial or ethnic identity in their writing?
- What makes life writing similar to or distinct from other types of literature?

Course Objectives

In this course, you will...

- Develop the analytical and interpretive skills necessary for critical reading and literary scholarship, including:
 - Careful and critical reading of a text
 - Asking and answering sophisticated questions for discussion
 - Analyzing narrative structure, themes, and critical theories appropriate to life writing
 - Developing and defend your own interpretations of literary texts
- Practice literary analysis in classroom discussion and in your writing
- Apply different critical theories to a text to understand how they help us interpret literature, and how they relate to each other
- Develop your writing skills, with an emphasis on persuasive verbal and written arguments that rely on appropriate evidence from a variety of sources.
- Create an intellectual community through class discussions and other collaborative interactions.

Designed Syllabus

WRITING A LIFE
ENG 255
MW 1:40-3:20 Carlton 119

"All biographies like all autobiographies like all narratives tell one story in place of another."
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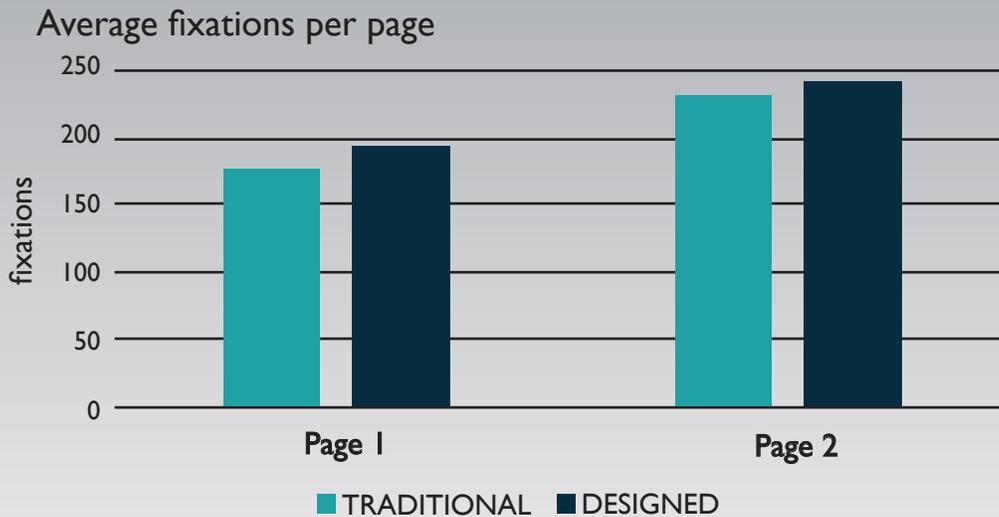
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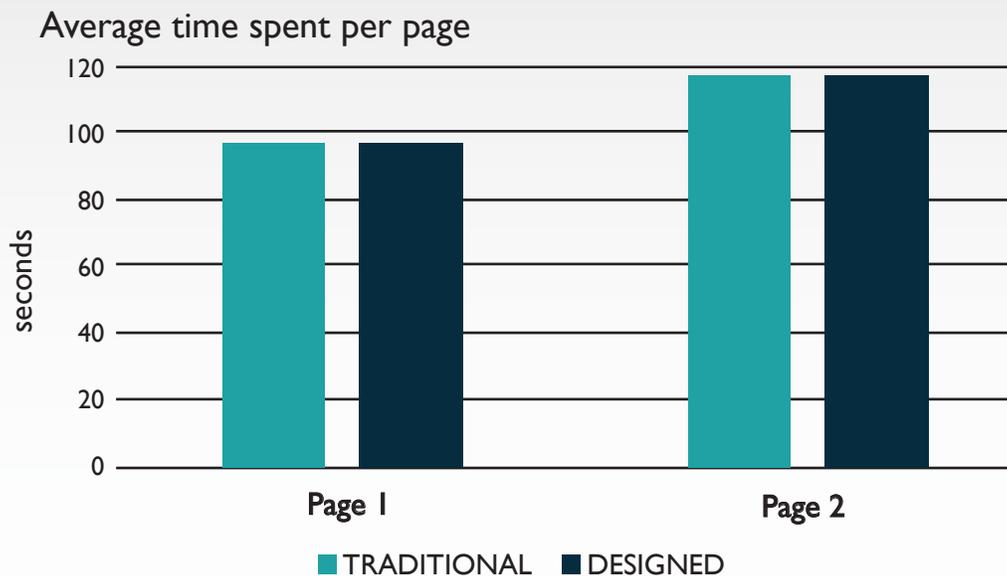
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2. Practice literary analysis in classroom discussion and in your writing
3. Apply different critical theories to a text to understand how they help us interpret literature, and how they relate to each other
4. Develop your writing skills, with an emphasis on persuasive verbal and written arguments that rely on appropriate evidence from a variety of sources
5. Create an intellectual community through class discussions and other collaborative interactions

ANALYSIS



The designed syllabus more average fixations per page with about 193 fixations on the first page and 240 on the second. The traditional syllabus had 177 average fixations on page one and 230 average fixations on page two. Although the designed syllabus had more average fixations, the average fixations per page are about the same for both syllabi.



The average time spent on each page was about the same syllabi. The average time spent on page one was 96 seconds on the traditional syllabus and 97 seconds on the designed syllabus. Page two followed the same pattern. Because the average fixations and time spent on each page were similar, this suggests that design has no impact on number of fixations or seconds spent while reading through the syllabus.

Average fixations per second per page

	Page 1	Page 2
TRADITIONAL	1.87	1.97
DESIGNED	1.98	2.08

The average fixations per second are also very similar between both syllabus designs. On average, students had the same amount of focus points when reading through both syllabi. This suggests that there is not a big enough difference to warrant changing the syllabus.

ANALYSIS

Course Objectives

In this course, you will...

- Develop the analytical and interpretive skills necessary for critical reading and literary scholarship, including:
 - Careful critical reading of a text
 - Asking and answering sophisticated questions for discussion
 - Analyzing narrative structure, themes, and critical theories appropriate to life writing
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2. Practice literary analysis in classroom discussion and in your writing
3. Apply different critical theories to a text to understand how they help

The fixations on both syllabi were similar, following the same patterns as seen in the graphs above. I noticed that the fixation bubbles were a little larger overall when students read through the designed syllabus, meaning students focused on points for longer on the designed syllabus. This could be due to the fact that there is more to look at on the designed document with different colors and fonts. Therefore, this does not mean that students paid more attention to the information on the designed syllabus.

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- What does it mean to "write one's life"?
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- How do these writers depict the intersecting aspects of identity, including gender, class, racial or ethnic identity in their writing?
- What makes life writing similar to or distinct from other types of literature?

Instructor

Course Objectives

It is also important to note that when participants viewed the designed syllabus, there were fixations on areas of the syllabus with no relevant information. Here, the student is looking at the course description text box, but not focusing on any text in the syllabus.

MW 1:40-3:20, Carlton 119

"All biographies like all autobiographies like all narratives tell one story in place of another."

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WRITING A LIFE

ENG 255
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Helen Cixous, *Rootprints*, (1997) 71

Course Description

- What does it mean to "write one's life"?
- What makes a story or memory "true"?

In this course, we will read and examine

One finding was that in both designs, the text below the main title, centered on the page, had large fixation bubbles. This means that participants focused on this point for a longer period of time. Important information should be placed in this spot on the page because students pay attention to this area.

CONCLUSIONS

Conclusions	Recommendations
There were no significant differences in the data collected for both syllabi.	There is not enough evidence to suggest that a designed syllabus is better at gaining student attention. A designed syllabus is not needed.
The centered text below the main title gained attention in both designs.	Place important information in this area. Students will pay attention to this spot on the page, regardless of if it's designed.
The designed syllabus had fixation points that were not focused on relevant information.	The design could be a distraction for students, resulting in students focusing their attention on information that is irrelevant and unhelpful to their comprehension of the text. If you are going to design a syllabus, avoid a design that has too many colors and fonts to reduce distraction.

CONCLUSIONS

Conclusions	Recommendations
The designed syllabus had more average fixations per second.	We recommend implementing a syllabus with design across university courses. Students that read through the designed syllabus were able to focus on more points per second than in the traditional syllabus.
Fixations were longer on the designed syllabus.	Students were able to focus longer on points in the text when reading through the designed syllabus. Implementing a designed syllabus in university courses would result in students' pay attention to specific points for longer periods of time.
The centered text below the main title gained attention in both designs.	Place important information in this area. Students will pay attention to this spot on the page, regardless of if it's designed.
The designed syllabus had fixation points that were not focused on relevant information.	Although the designed syllabus may lead to increased amount and duration of focus points, the design could also be a distraction. This results in students focusing their attention on information that is irrelevant and unhelpful to their comprehension of the text. Avoid a design that has too many colors and fonts to reduce this effect.