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YouTube Commercial: Exploring Human's Perspective of Commercials

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Abstract

An experiment was designed to explore the audience's perspective on online commercials and analyze the relationship between the audience's cognitive behavior and their eye movements. A group of twenty participants were chosen to participate in the experiment. The participants were divided into two groups and were asked to watch a YouTube video. The first group watched a video with a countdown function only and the other group watched the same video with a countdown function and a skip button. All subject's eye movements were recorded by using an eye tracking that measures eye fixations durations counts. Afterwards, participants were asked to complete a questionnaire regarding a commercial that was shown before the video. Quantitative analysis was performed to determine the effect of skip function used in an online commercial. The visual scanning behavior of the individual participants was also analyzed by comparing their scan path sequences with their questionnaire responses. The quantitative analysis did not provide any substantial evidence by showing that there is no significant difference between the means of the eye fixation durations and eye fixation counts between the two scenarios with skip function and without skip function whereas the qualitative analysis showed some interesting results which showed that there is a difference between the cognitive behavior of the two groups.

Keywords: YouTube, Online Commercial, Eye tracking, Cognitive Behavior, Survey

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Introduction

With the steady and rapid decline of printed media, advertising companies have had to adapt to the rise of Internet as the new source for information, entertainment, and social networking. In the United States alone, over 245 million users (about 80% of the population) had access and got on the web in 2012 (Pikas & Sorrentino, 2014). Many of these users have accounts on Facebook, Twitter, and YouTube that they log into every day.
YouTube may be popular due to the following reasons 1. It can play videos at various qualities based on the bandwidth of the user. 2.it has many features like 3d videos, 360 Degree video format. 3.It can be logged using the google mail account. 4.it has many sharable links to various social networking websites. As a result, it has the potential to reach many people. So, it is widely used for online advertising.

Recent studies and publications show that many businesses and companies already have an online presence, however, the majority of them have not been effective at communicating with consumers. Respondents from a particular study stated that they are exposed to many different advertisements and 81% of them strongly agree that they are annoyed by online advertisements (Pikas & Sorrentino, 2012). Advertisers need to be aware that ads can directly affect the attitudes of consumers towards the service or product being promoted and even to the host website. If a commercial is perceived negatively by the audience, it might do the exact opposite of what advertisers intended to do which is selling something to the user (Galleta, Goodrich & Schiller, 2015). After watching many YouTube commercials, the audiences may be aware of the location of the location of certain functions in the commercial and the average time of the commercial which makes them to act subconsciously. Sometimes the audience might be aware of the commercials and exhibit a phenomenon called Banner Blindness (Tangmanee, 2016) where they do not focus on certain sections of the screen. So, it has become a challenge to understand the human behavior and catch the audience's attention without creating any negative effects towards the brand.

In order to analyze the effect of commercials, various methods, such as surveys and interviews, have been used previously. However, with the increase of population and competitors, the companies are trying to adapt new methods. Various physiological measures are used to analyze the audience behavior. Experiments have shown that a measurement such as subjects' eye blinking frequency is related to the effectiveness of the commercial. The audience have high blinking frequency for uninteresting commercials and low eye blinking frequency for more interesting commercials (Jin, Zeng & Wang, 2010). Some companies also employ neuro marketing techniques (Sunita,2015). The model suggested was by Paul McLean, a neurologist who said that the brain was composed of three imbricate structures: the first structure is the primitive brain that is responsible for quick decision-making, the second structure is the emotional brain that is influenced by emotions, and the third structure is the rational brain which is directed by our analytical thinking. In order to be effective, the advertisers should affect the person emotionally and then affect the primitive brain, which is assumed to affect the rational brain.

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There are three factors that are believed to affect the consumer directly, which are: the length of the commercial, the content of the commercial, and the intrusiveness of the commercial (Galleta & Schiller, 2015). Another study studied how different genders perceive information differently suggested that men prefer straightforward information, while women are more receptive to complex information (Richard, Yang & Putrevu, 2010). The study was specifically regarding commercials. It was suggested that women are more receptive to complex information in commercials since they usually tend to spend more time shopping.

The experiment conducted in this study was to better understand what users look at when watching online commercials with the goal to develop more effective marketing strategies. Participants were asked to watch a YouTube video that was preceded by a short commercial ad. While the participants watched the commercial, an eye-tracking device was tracking their eye fixations and movements. Two groups watched two different variations of the same commercial; one included a "Skip" feature, and the other did not. It was hypothesized that those who watched the commercial without the "Skip" feature would be able to recall important details of the commercial due to not getting distracted by the "Skip" feature. The information obtained from this analysis will be utilized to understand what humans observe when watching online commercials, what are the visual scanning behaviors and if humans' feelings, experiences and memory were associated with visual scanning behaviors.

Methods

Participants and Scenarios

In this study, twenty college students from the University of Oklahoma with an average age of 21 years old were recruited based on a between-subject design. The sample had 13 females and 7 males. The experiment followed a between-subject design which divided the participants into two groups. Ten subjects, 5 males and 5 females, participated in the first scenario, where they watched the commercial ad with only the "countdown" feature. The other ten subjects, 8 females and 2 males, participated in the second scenario, where they watched the same video with the "skip and countdown" features.

Apparatus

The equipment utilized included a Tobii pro TX300 screen-based eye tracker that captured the data at 300 Hz with a visualization angle of 0.4. The pertinent data collected was the eye fixations and its duration on the areas of interest (AOI) of the commercial ad. The data was then analyzed using Microsoft Excel and SAS to check for normality and then the appropriate tests were applied to test the data.

Task and Procedure

The subjects watched a commercial from Home Away followed by a Disney movie preview titled "Big Hero 6." However, they were only told to watch a video without knowing that the experiment targets the commercial that is shown before the video and not the video

itself. Participants then were asked to complete a questionnaire about the Home Away commercial following the experiment since only the commercial was used for analysis. The survey was conducted with the aim of understanding how the audience felt about the commercial and to determine if the participants could recall important details of the commercial. The survey consisted of a total of 32 questions. The first section consisted of 19 questions that pertained to the following statement, "the online commercial I saw." Participants had to choose from a 7-point Likert scale from "strongly disagree" to "strongly agree" to statements such as "Irritating," "Informative," "Entertaining," etc. The second section was aimed to understand if the audience paid attention to the ad or not. Participants were also asked to recall the name of the brand of the commercial and there were two demographics questions at the end.

Variables

For the experiment, there is only one independent variable, which is the function used in the commercial. It has two treatment levels {countdown only, skip and countdown}. The dependent variable is subjects' eye movement measurements, which includes the eye fixations durations and counts. For the questionnaire, the independent variables are subjects' feelings, experiences, and memory. The dependent variables are subjects' responses.

Data Analysis

Once the data was collected using the Tobii pro TX300 eye tracker, it was compiled into a Microsoft Excel spreadsheet. There are five areas of interest in the commercial shown in figure 1 and figure 2 below. These areas are:

- Slogan
- Title bottom
- Title-center
- Video screen
- Countdown

The raw obtained from the Tobii software consisted of the following columns
- Recording timestamp - Time with respect to the software
- Local Time Stamp - time with respect to the computer
- Fixation index - index starting from 1
- Fixation duration - Time of duration
- AOI-Slogan - (0: Eye fixation did not occur on the AOI, -1: AOI was not available,1: Eye fixation occurred on the AOI)
- AOI-Countdown - (0: Eye fixation did not occur on the AOI, -1: AOI was not available,1: Eye fixation occurred on the AOI)
- AOI-Title Bottom - (0: Eye fixation did not occur on the AOI, -1: AOI was not available,1: Eye fixation occurred on the AOI)
- AOI-Title Center - (0: Eye fixation did not occur on the AOI, -1: AOI was not available,1: Eye fixation occurred on the AOI)
- AOI-Video Screen - (0: Eye fixation did not occur on the AOI, -1: AOI was not available,1: Eye fixation occurred on the AOI)

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- ● AOI-Skip - (0: Eye fixation did not occur on the AOI, -1: AOI was not available,1: Eye fixation occurred on the AOI)

The number of fixations and the fixation durations are compiled and populated for each AOI in the tables as shown as (Table A1) for skip scenario and (Table A2) for No-Skip scenario in the appendix A. Both quantitative and qualitative analyses were performed in this study.

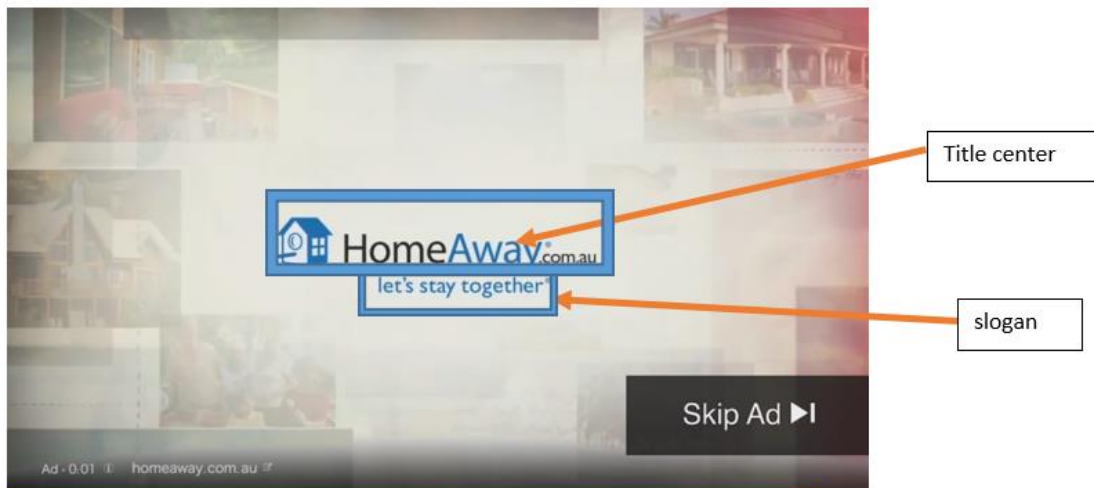Figure 1: Area of interest skip, Title bottom, Video center

Figure 2: Area of interest Title center, slogan

Quantitative analysis

Objective 1: Analyzing the effect of function used on what subjects observe.

Descriptive statistics were calculated by using Excel for all the common areas of interest as well as the "Skip" button. The results are shown in figures A1-A10. The data then was

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checked for normality using SAS. If the data was normal, then a T-test was performed to test the hypotheses. If the data was not normal, then the Mann-Whitney-Wilcoxon test was performed to test the hypotheses. The hypothesis tested to determine if there was a significant difference between the mean of the eye fixations across all five areas of interest is as follows:

$$H_0: \mu_1 = \mu_2$$
$$H_1: \mu_1 \neq \mu_2$$

Where μ_1 is the mean of eye fixation counts for watching the commercial without the "Skip" feature and μ_2 is the mean of eye fixation counts for watching the commercial with the "Skip" feature. The eye fixation duration means were also tested across all five areas of interest to determine if there was a significant difference between the two. The hypothesis used is:

$$H_0: \mu_1 = \mu_2$$
$$H_1: \mu_1 \neq \mu_2$$

Where μ_1 is the mean of eye fixation durations for watching the commercial without the "Skip" feature and μ_2 is the mean of eye fixation durations for watching the commercial with the "Skip" feature.

Qualitative Analysis

Objective 2: Analyzing visual scanning behavior when watching an online commercial.

An area chart was employed to display the "recording time-stamp" on the x-axis and eye fixation counts for all the AOIs on the y-axis for all of the twenty subjects as shown in figure 3. Each AOI was assigned a letter and the area chart was translated into a scan path sequence with each AOI in the sequence taken into account in the order of their first appearance. The scan path sequences, which are similar, are grouped together.
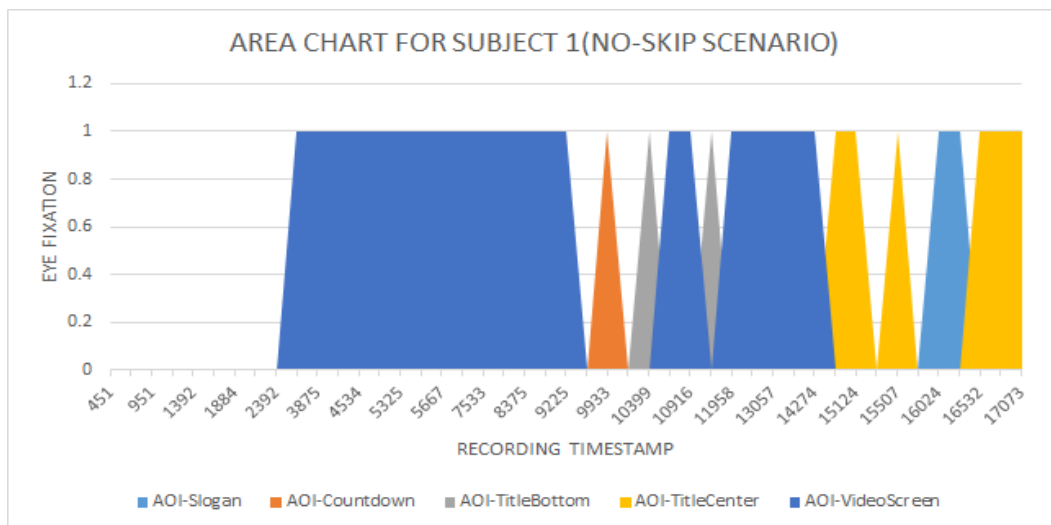

Figure 3: Area Chart for subject-1 in no skip scenario

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A stacked line graph was employed with the survey questions on the x-axis and the corresponding responses of the participants on the y-axis for every subject and each scenario separately. The responses that followed a similar trend were grouped together in a graph. Another stacked line graph was utilized with the survey questions on the x-axis and the mean of survey's responses of each control group on the y-axis for both scenarios. The average of responses for each question for both scenarios was calculated for further analysis and also each of the subject's eye fixation path and points were analyzed.

Results

Objective 1 Results:

The data collected was used for the first objective of this study, which is to analyze the effect of function used in an online commercial on what humans observe while watching it. The descriptive statistics (mean, standard deviation and standard error) for the eye fixation durations for the no skip scenario are shown in Table 1 below:

AOI	Mean	S.D.	Error
Slogan	0.57	0.51	0.16
Title-Bottom	0.55	0.35	0.11
Title-Center	1.29	0.64	0.20
Video Screen	10.39	1.14	0.36
Countdown	0.56	0.75	0.24

Table 1: Mean, standard deviation and standard error for Eye fixation duration (no-skip scenario)

The descriptive statistics (mean, standard deviation and standard error) for the eye fixation durations are shown in Table 2 below:

AOI	Mean	S.D.	Error
Slogan	1.05	1.46	0.46
Title-Bottom	0.93	1.40	0.44
Title-Center	1.10	0.86	0.27
Video Screen	9.00	3.50	1.11
Countdown	0.59	1.18	0.37
Skip	0.45	0.47	0.15

Table 2: Mean, standard deviation and standard error for Eye fixation duration (skip scenario)

The descriptive statistics (mean, standard deviation and standard error) for the eye

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fixation counts for the no- skip scenario and are shown in Table 3 below:

AOI	Mean	S.D.	Error
Slogan	1.50	1.18	0.37
Title-Bottom	2.10	1.29	0.41
Title-Center	4.20	1.55	0.49
Video Screen	32.50	5.42	1.71
Countdown	2.50	3.66	1.16

Table 3: Mean, standard deviation and standard error for Eye fixation counts (no-skip scenario)

The descriptive statistics (mean, standard deviation and standard error) for the eye fixation counts for the skip scenario are shown in Table 4 below:

AOI	Mean	S.D.	Error
Slogan	3.00	4.16	1.32
Title-Bottom	2.50	3.27	1.04
Title-Center	3.70	2.63	0.83
Video Screen	26.90	12.29	3.89
Countdown	2.10	4.09	1.29
Skip	1.70	1.70	0.54

Table A4: Mean, standard deviation and standard error for Eye fixation counts (skip scenario)

P-values and results are shown in Table A3 in appendix A. Since the p-values were all greater than 0.05 across all the areas of interest, we fail to reject the null and conclude that there is no significant difference between the means of counts and durations for watching the YouTube commercial with and without the "Skip" feature.

Area of Interest: Slogan

Eye Fixation Durations:

- The Shapiro-Wilk test showed that the data for Task 1 (Skip) is not normally distributed (p= 0.0035, W = 0.7495).
- The Shapiro-Wilk test showed that the data for Task 2 (No skip) is normally distributed (p= 0.4024, W = 0.9252).
- The means of duration of eye fixations between "No Skip" and "Skip" are not significantly different (p = 0.8490, W = 108.0000).

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Eye Fixation Numbers:

- The Shapiro-Wilk test showed that the data for Task 1(Skip) is not normally distributed (p = 0.0007, W = 0.6921).
- The Shapiro-Wilk test showed that the data for Task 2 (No skip) is normally distributed (p= 0.0580, W = 0.8499).
- The means of duration of eye fixations between "No Skip" and "Skip" are not significantly different (p = 0.5882, W = 112.5000).

Area of Interest: Countdown

Eye Fixation Durations

- The Shapiro-Wilk test showed that the data for Task 1(Skip) is not normally distributed (p = 0.0001, W = 0.3753).
- The Shapiro-Wilk test showed that the data for Task 2 (No skip) is normally distributed (p= 0.0024, W = 0.7352).
- The means of duration of eye fixations between "No Skip" and "Skip" are not significantly different (p = 0.5579, W = 97.0000).

Eye Fixation Numbers

- The Shapiro-Wilk test showed that the data for Task 1(Skip) is not normally distributed (p = 0.0001, W = 0.6012).
- The Shapiro-Wilk test showed that the data for Task 2 (No skip) is not normally distributed (p= 0.0003, W = 0.6659).
- The means of duration of eye fixations between "No Skip" and "Skip" are not significantly different (p = 0.2008, W = 88.5000).

Area of Interest: Title-Bottom

Eye Fixation Durations

- The Shapiro-Wilk test showed that the data for Task 1 (Skip) is not normally distributed (p = 0.0002, W = 0.6452).
- The Shapiro-Wilk test showed that the data for Task 2 (No skip) is normally distributed (p= 0.1130, W = 0.8745).
- The mean duration of eye fixations between "No Skip" and "Skip" are not significantly different (p = 0.9696, W = 106.00).

Eye Fixation Numbers

- The Shapiro-Wilk test showed that the data for Task 1(Skip) is not normally distributed (p = 0.0020, W = 0.7299).
- The Shapiro-Wilk test showed that the data for Task 2 (No skip) is not normally distributed (p= 0.0013, W = 0.7131).

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- The means of duration of eye fixations between "No Skip" and "Skip" are not significantly different (p = 0.6113, W = 98.0000).

Area of Interest: Title-Center

Eye Fixation Durations

- The Shapiro-Wilk test showed that the data for Task 1 (Skip) is normally distributed (p = 0.2629, W = 0.9073).
- The Shapiro-Wilk test showed that the data for Task 2 (No skip) is normally distributed (p= 0.5820, W = 0.9425).
- The mean duration of eye fixations between "No Skip" and "Skip" are not significantly different (p = 0.5891, T = -0.55).

Eye Fixation Numbers

- The Shapiro-Wilk test showed that the data for Task 1(Skip) is normally distributed (p = 0.1650, W = 0.8890).
- The Shapiro-Wilk test showed that the data for Task 2 (No skip) is not normally distributed (p= 0.0400, W = 0.8365).
- The means of duration of eye fixations between "No Skip" and "Skip" are not significantly different (p = 0.6163, W = 98.0000).

Area of Interest: Video Screen

Eye Fixation Durations

- The Shapiro-Wilk test showed that the data for Task 1 (Skip) is not normally distributed (p = 0.0012, W = 0.7123).
- The Shapiro-Wilk test showed that the data for Task 2 (No skip) is not normally distributed (p= 0.0014, W = 0.7176).
- The mean duration of eye fixations between "No Skip" and "Skip" are not significantly different (p = 0.8501, W = 108.0000).

Eye Fixation Numbers

- The Shapiro-Wilk test showed that the data for Task 1(Skip) is normally distributed (p = 0.3753, W = 0.9221).
- The Shapiro-Wilk test showed that the data for Task 2 (No skip) is normally distributed (p= 0.5870, W = 0.9430).
- The means of duration of eye fixations between "No Skip" and "Skip" are not significantly different (p = 0.2039, T =- 1.3200).

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Objective 2 Results:

The second objective is to analyze the visual scanning behaviors when watching online commercials. The subjects whose scan path sequences are similar have very similar trends on the graphs that were used to analyze the questionnaire responses. The figure for the graph was shown in appendix A as Figure A32 for skip scenario subjects and Figure A33 for No-skip scenario subjects. The scan paths on order of appearance for the skip scenario are shown in Table 5 and the scan path for the no-skip scenario are shown in Table 6.

SCANPATH ON ORDER OF APPEARANCE(SKIP SCENARIO)	
SUBJECT	SCAN SEQUENCE
1	ACBDEF
6	ABDEF
8	ABDEF
4	ADEBF
7	ADEF
9	ACDF
2	ABEC
3	AEF
10	AEG

A = Video Screen B = Skip C = Countdown
D = Title-Bottom E = Title-Center F = Slogan

Table 5: Scan path for skip scenario subjects

SCANPATH ON ORDER OF APPEARANCE(NO-SKIP SCENARIO)	
SUBJECT	SCAN SEQUENCE
1	ABCDE
2	ABCDE
7	ABCDB
9	ABCDE
8	ABCDE
6	ABCD
3	ABDE
4	ADE
5	ACDEB
10	ACD

A = Video screen B = Countdown C = Title-Bottom
D = Title-Center E = Slogan

Table 6: Scan path for N0-skip scenario subjects

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A stacked line graph (Figure 4) with the survey questions on the x-axis and the average of the survey responses of each group on the y-axis for both scenarios showed that the participants with the skip feature have a higher average for their responses until question 9 and a lower average for the rest of the survey questions for the first section (questions 1-19) of the questionnaire. For the second section of the questionnaire (second page, questions 1-10), it had a higher average until question 9 and then a lower average for the next three questions. The graph followed a regular pattern for questions that inquire about the "positive" and "negative" attitudes towards the commercial and the skip button.
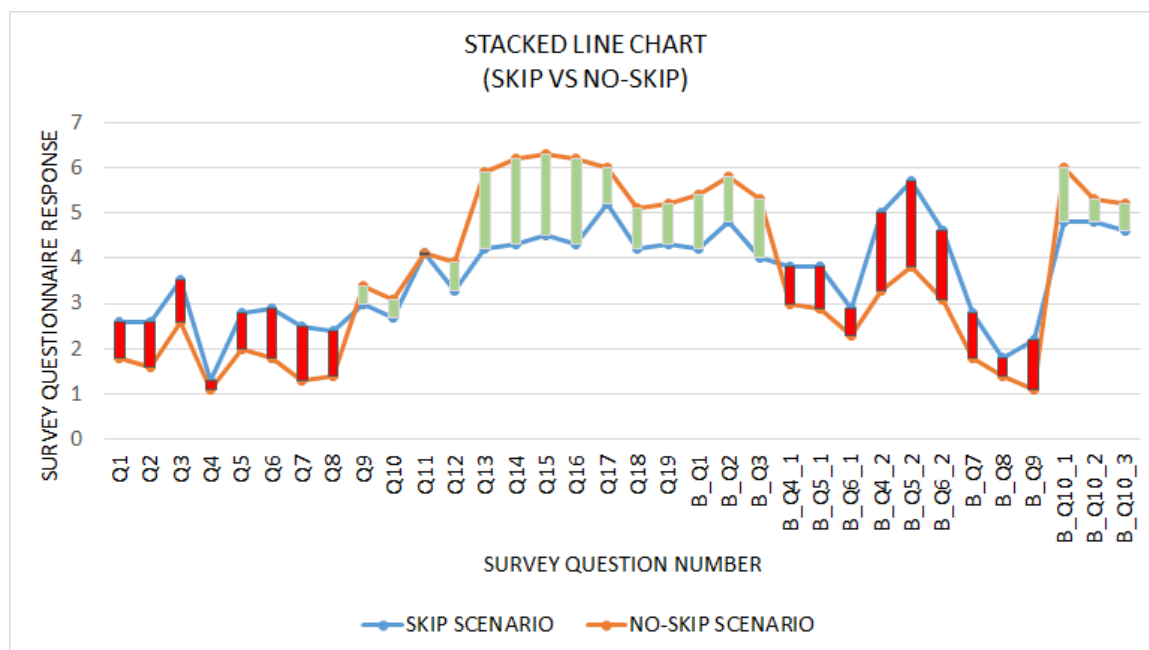
Figure 4: Stacked line graph for Skip vs No-Skip questionnaire responses

Objective 3 Results:

The third objective is to determine if scanning behaviors can be affected by human experiences, feelings, and memory. The subjects' questionnaire responses were used for this objective. It can be observed directly from the questionnaire that the three participants that answered the brand name of the online commercial watched were all females.

Question A10 in the questionnaire was "The online commercial I saw was important." Participants were asked to scale the importance from 1 to 7, 1 representing "completely disagree" and 7 representing "completely agree." The average of the response for the scenario with skip button gave a value of 2.7 while the scenario without the skip button gave a mean value of 3.1.

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Discussion

The descriptive statistics showed that there is high standard error for both eye fixation duration and eye fixation counts across all AOIs in the skip scenario and this means that the sample mean is far from population mean for the skip scenario. The hypothesis tests result show that there is no significant difference between the means of the eye fixation counts and the eye fixation durations between both scenarios. These results may have been obtained due to the high standard error for the skip scenario.

The scan path sequences also have similar trends displayed in the graph that displays questions (x-axis) vs. responses (y-axis). This clearly shows that there is a relationship between the eye movements and the cognitive behavior of the participants. IT can also be seen from the scan paths that the eye movements are not random. A person does not look randomly all over the screen. The eye follows a saccade that focuses on the nearest point of interest and then to the next nearest point. This results also shows that the eye fixation duration increased for the title bottom for the skip scenario which may be due to the reason that as the subject watches the skip function and then the next probable thing he might be watching is the title bottom which is the next closest thing to the skip function.

Another important concept that can be observed is Simultaneous masking. A person's eye can only perceive so many things simultaneous after which it cannot notice. When the skip button and the title bottom appear there are other areas on the screen where animations are being played with people moving. As a result, the person might have trouble identifying the brand name even though he might have seen it.

The survey questionnaire was organized in such a way that the first eight questions inquire about negative feelings towards the commercial. The following four questions ask about the importance and usefulness of the commercial. Then, the following seven questions ask about positive feelings towards the commercial. The next six questions' purpose is to figure out if the participants paid any attention whatsoever towards the content of the commercial and the running time of the ad. The next three questions inquire about more negative feelings towards the ad. Finally, the last three questions ask about positive feelings towards the commercial again. The results from the graph show that the participants with the "skip" function agreed more than the participants with the "no skip" scenario that the commercial had a negative impact on them. This was observed based on their responses to questions associated to negative words, such as "irritating, phony, distracting, disturbing, forced, interfering, intrusive, and invasive."

The response for the question 10 in the survey questionnaire suggests that the audience felt the commercial was not important. As a result, they might not have showed any interest in the brand, which strengthens our assumption that audience's feeling affect the brand recalling.

The questionnaire responses show that some of the subjects answered the questionnaire randomly. For example, some subjects that watched the video without the skip button answered that they have noticed the skip button; even though the skip function did not exist in the video they watched. Also, some participant's responses were neutral for all of the survey questions, which make it hard to analyze their behavior.

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The result of the collected data shows that 3 out of 20 participants were able to recall the brand name and all of them are females. This could be because there are more females in the sample size than males. It also supports the study discussed earlier (Richard, Yang & Putrevu, 2010) regarding how males and females process information differently. Since the commercial was short and there were 5 areas of interest, female participants may have used their exploratory behavior in order to figure out what that commercial was about.

Limitations and Future Research

Even though the eye-tracking device measured the participants' eye fixations and its durations during the data collection phase, one cannot determine if the subjects were consciously watching something during the commercial or not. In other words, subjects could be looking at different functions and AOIs with their peripheral vision without the eye-tracking device measuring it.

As mentioned earlier, five males and five females participated in the first scenario, while two males and eight females participated in the second scenario. This random sampling may have had an effect on the results of the experiment. For future research, a stratified sampling can be used in order to eliminate the effect of gender differences on the results. Also, since all 20 subjects in this experiment are college students, recruiting participants with different ages can help give a result without the age bias and we could eliminate the effect of age.

Another experiment can be conducted by using more than one commercial. This will help in analyzing the effect of the content of a commercial on participants' cognitive behavior. Finally, the tracking and evaluation of other physiological parameters, such as the pupil diameter and eye blinking frequency could be considered to better analyze human behavior while watching commercials.

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Appendices

Appendix: A

Figure A1: Plot of mean and standard deviations for Eye fixation duration(Slogan)

Figure 1. Plot of means and standard errors.
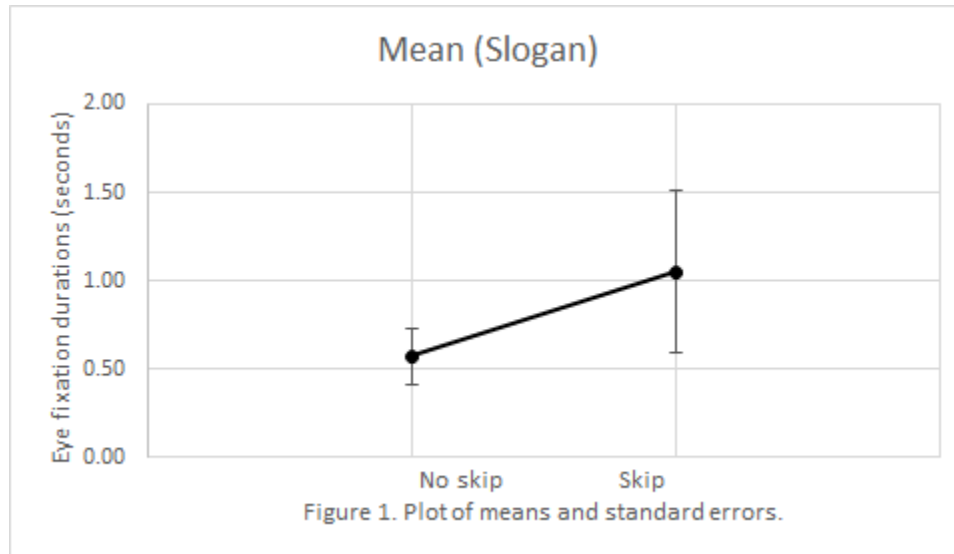
Figure A2: Plot of mean and standard deviations for Eye fixation counts(Slogan)

Figure 2. Plot of means and standard errors.
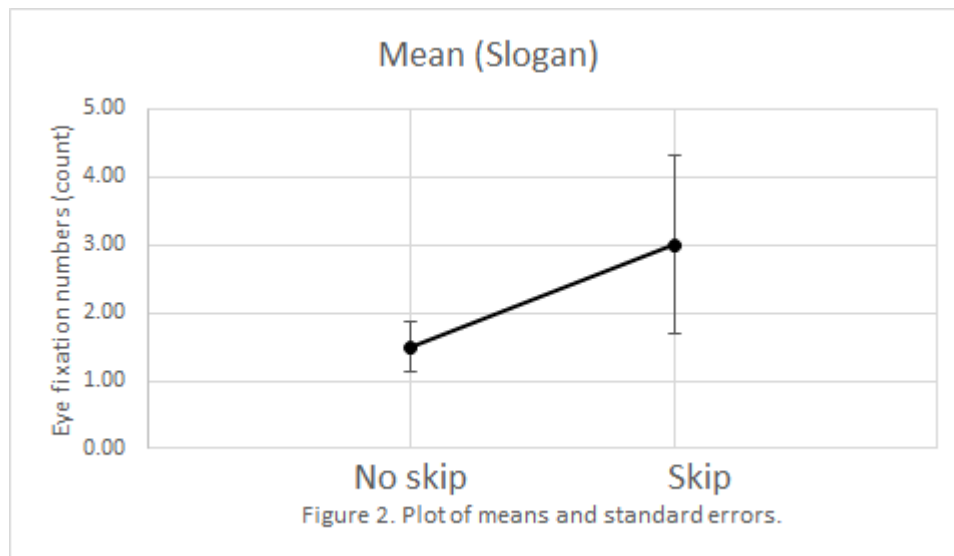
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Figure A3: Plot of mean and standard deviations for Eye fixation duration(Countdown)

Figure 3. Plot of means and standard errors.
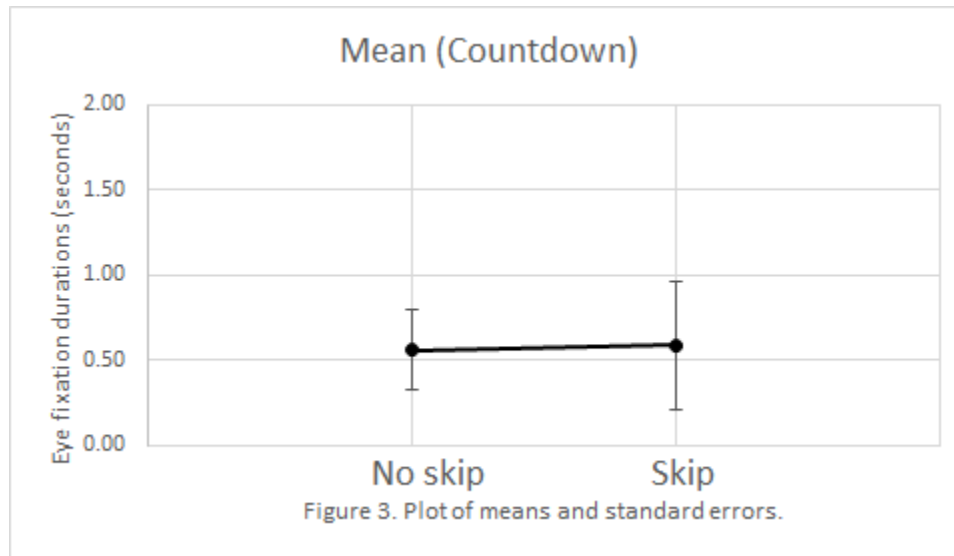
Figure A4: Plot of mean and standard deviations for Eye fixation counts(Countdown)

Figure 4. Plot of means and standard errors.
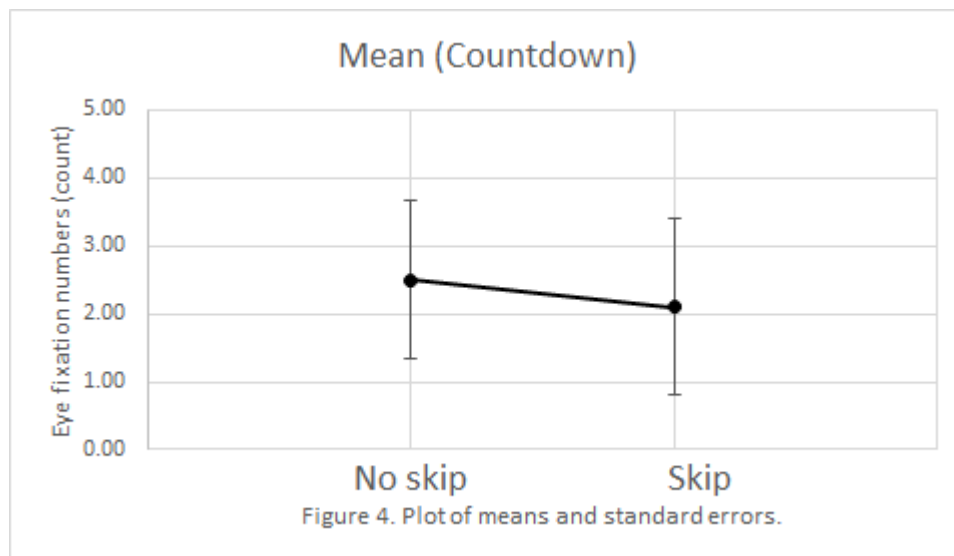
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Figure A5: Plot of mean and standard deviations for Eye fixation duration (Title Bottom)

Figure 5. Plot of means and standard errors.
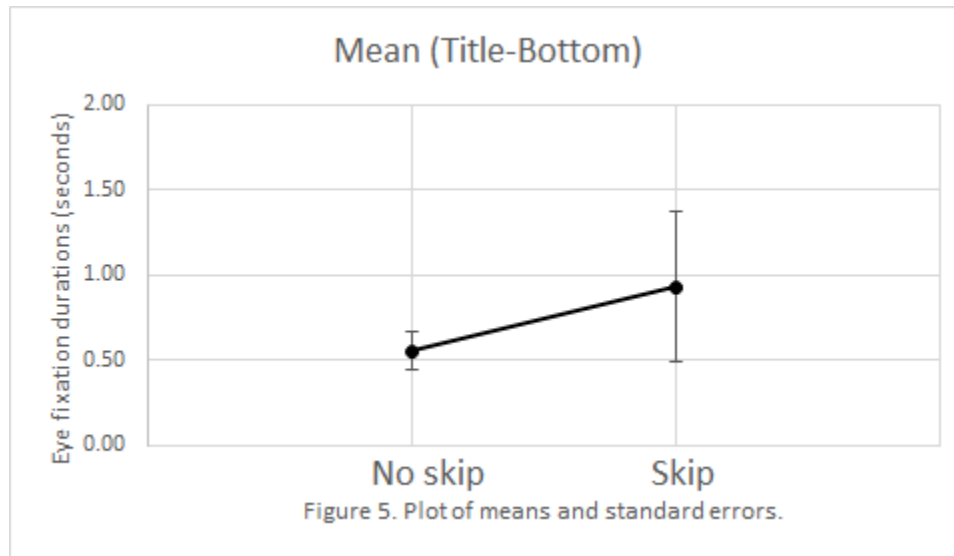
Figure A6: Plot of mean and standard deviations for Eye fixation counts (Title Bottom)

Figure 6. Plot of means and standard errors.
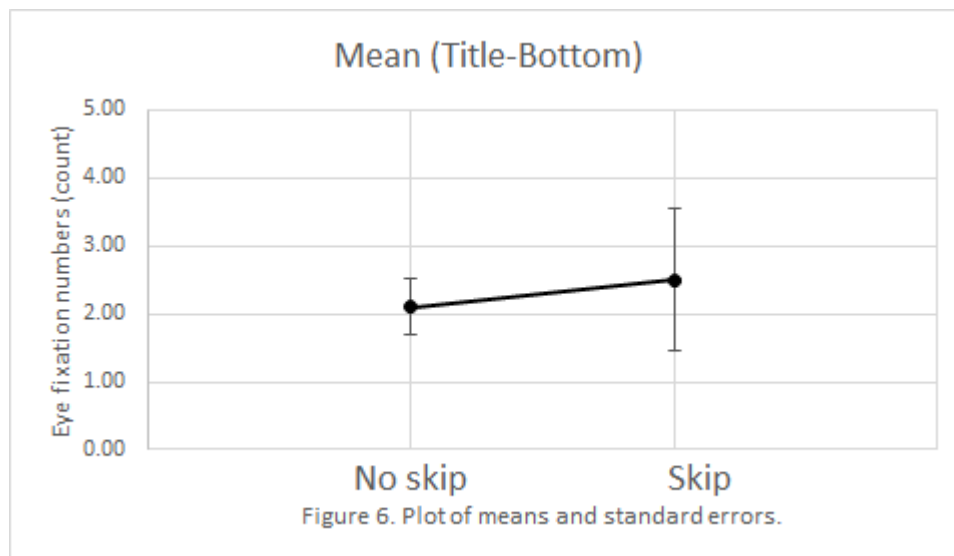
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Figure A7: Plot of mean and standard deviations for Eye fixation duration (Title center)

Figure 7. Plot of means and standard errors.
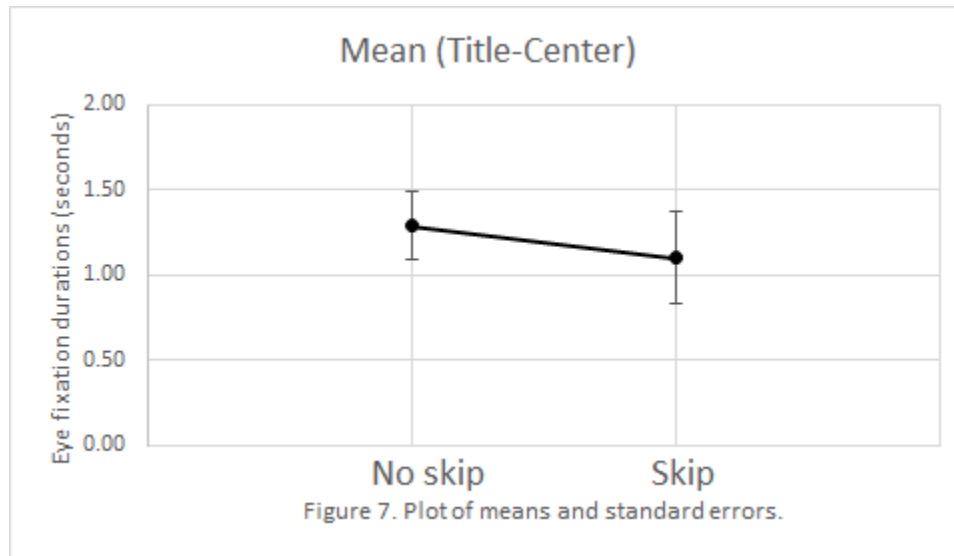
Figure A8: Plot of mean and standard deviations for Eye fixation counts (Title center)

Figure 8. Plot of means and standard errors.
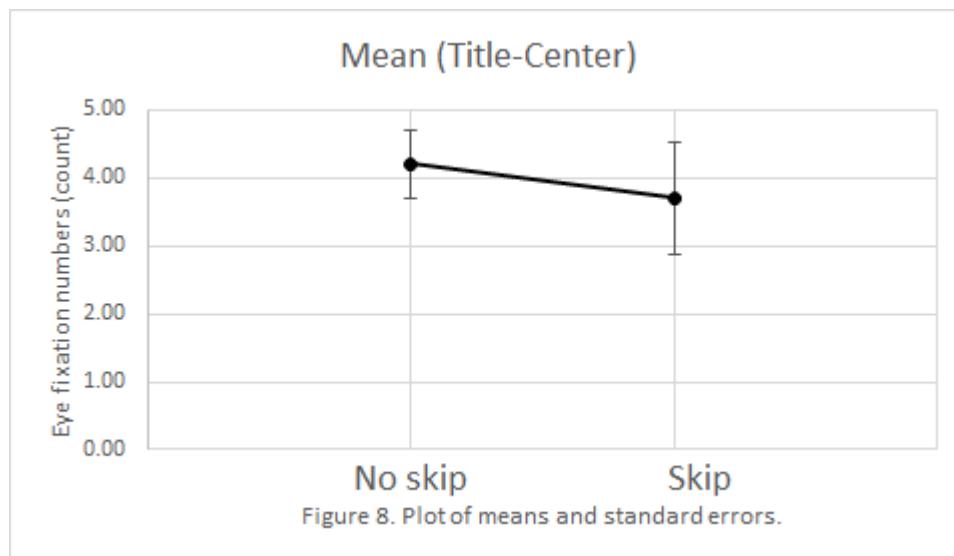
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Figure A9: Plot of mean and standard deviations for Eye fixation duration (Video screen)

Figure 9. Plot of means and standard errors.
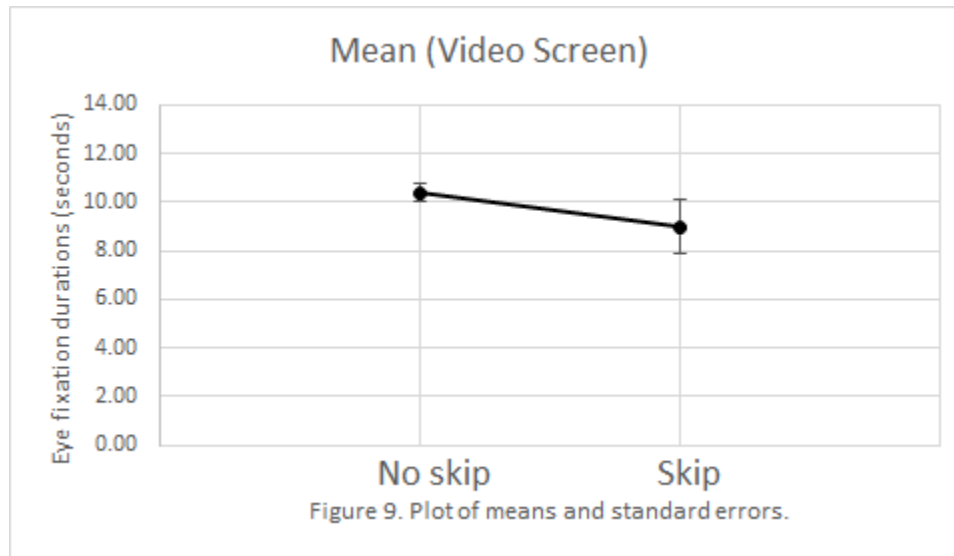
Figure A10: Plot of mean and standard deviations for Eye fixation counts (Video screen)

Figure 10. Plot of means and standard errors.
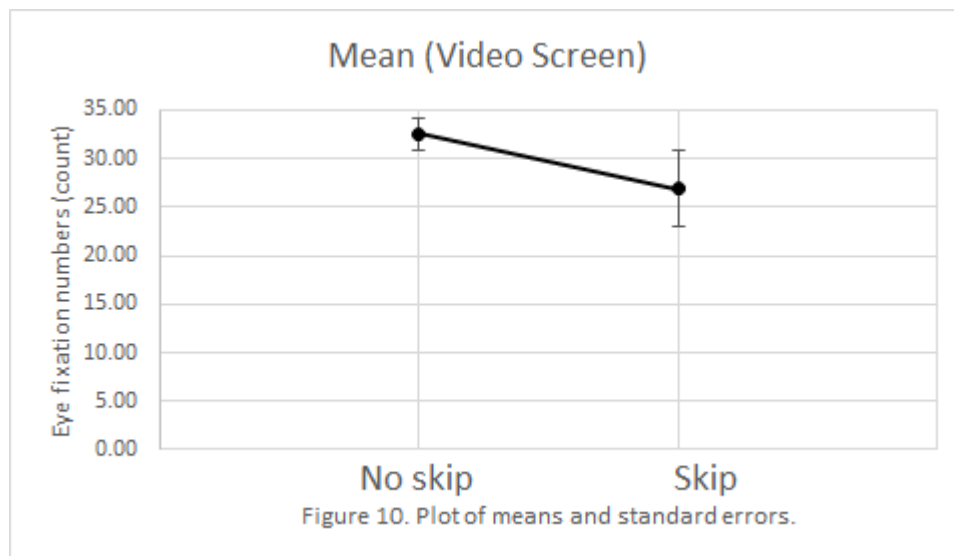
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Figure A11: Area chart for subject 1 (No-skip scenario)
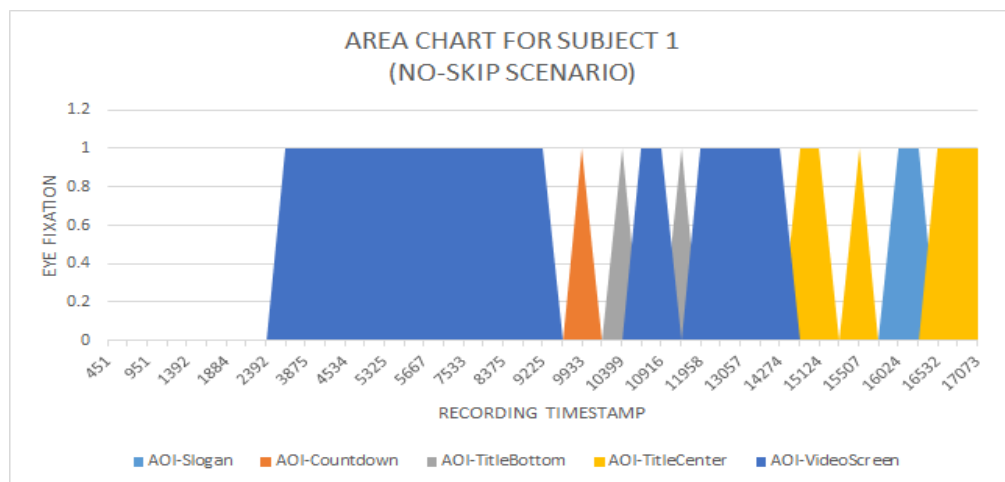
Figure A12: Area chart for subject 2 (No-skip scenario)
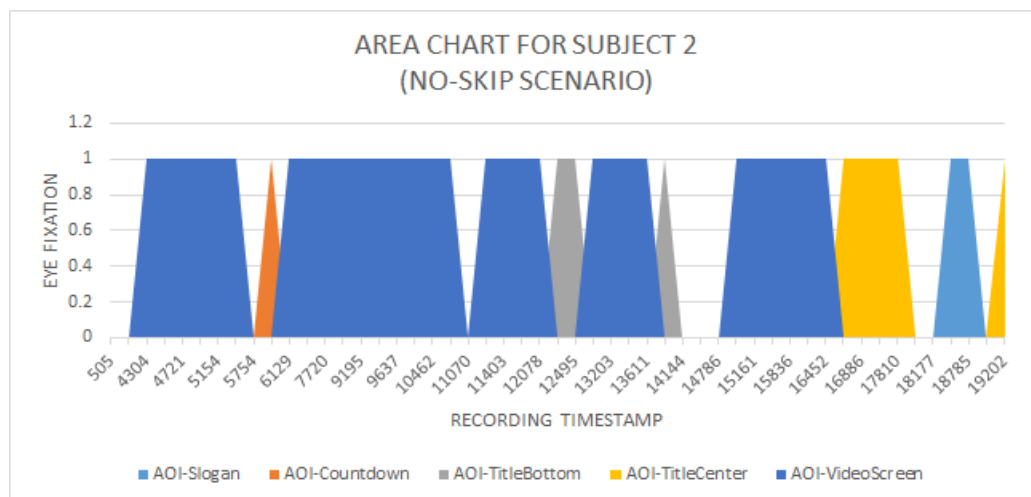
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Figure A13: Area chart for subject 3 (No-skip scenario)
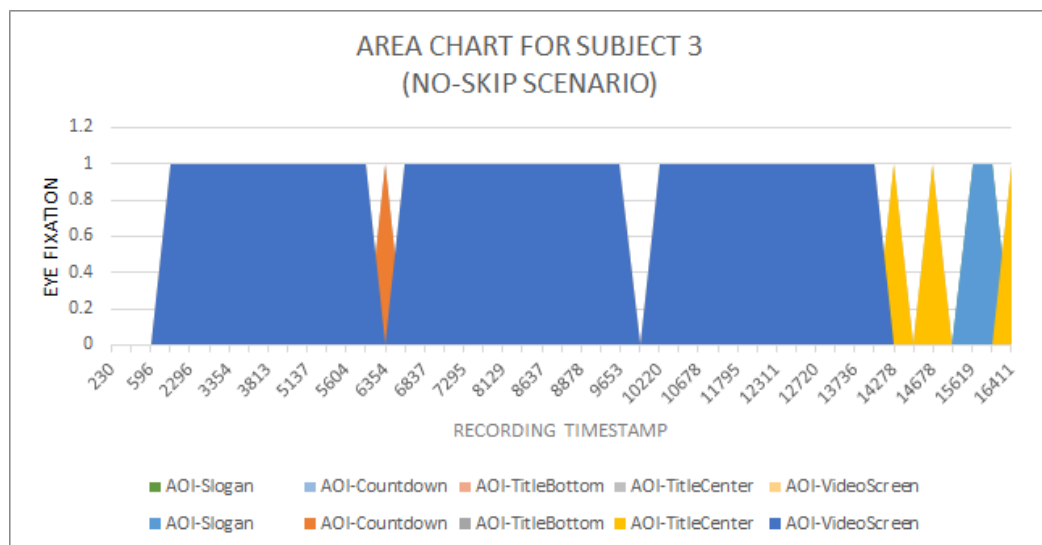
Figure A14: Area chart for subject 4 (No-skip scenario)

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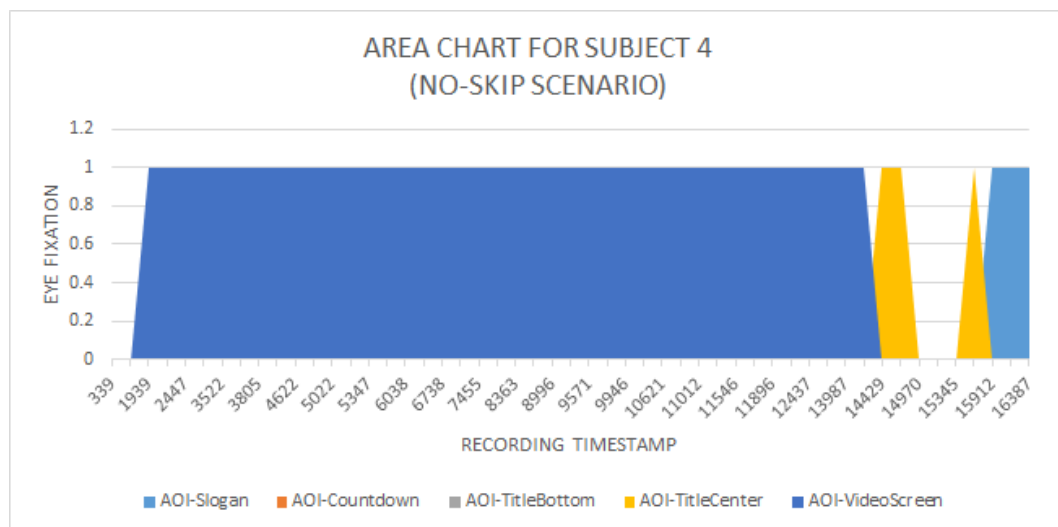
Figure A15: Area chart for subject 5 (No-skip scenario)
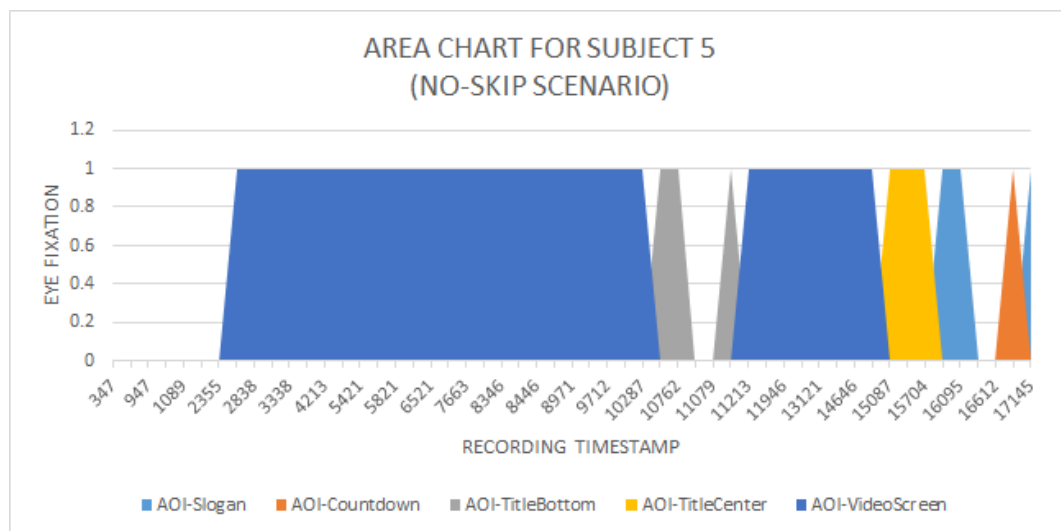
Figure A16: Area chart for subject 6 (No-skip scenario)

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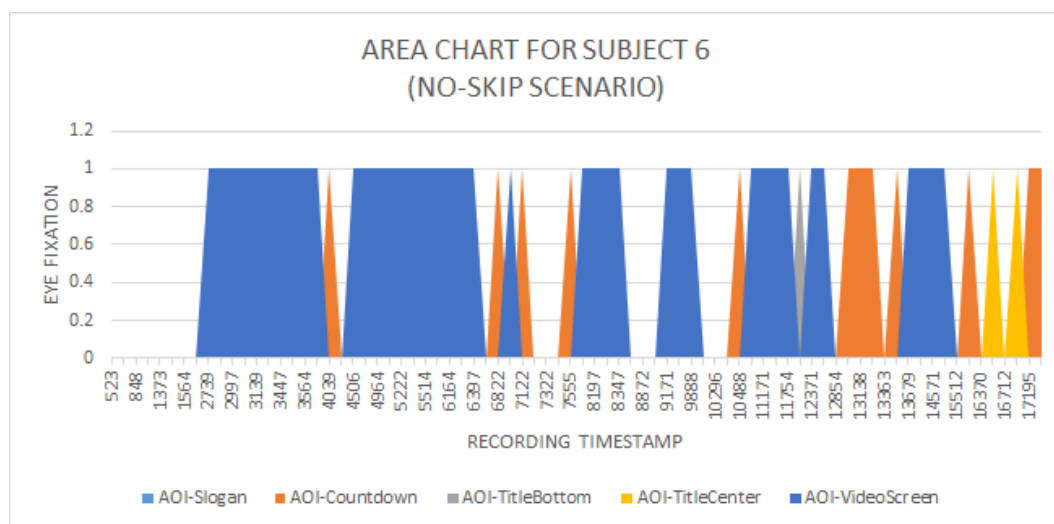
Figure A17: Area chart for subject 7 (No-skip scenario)
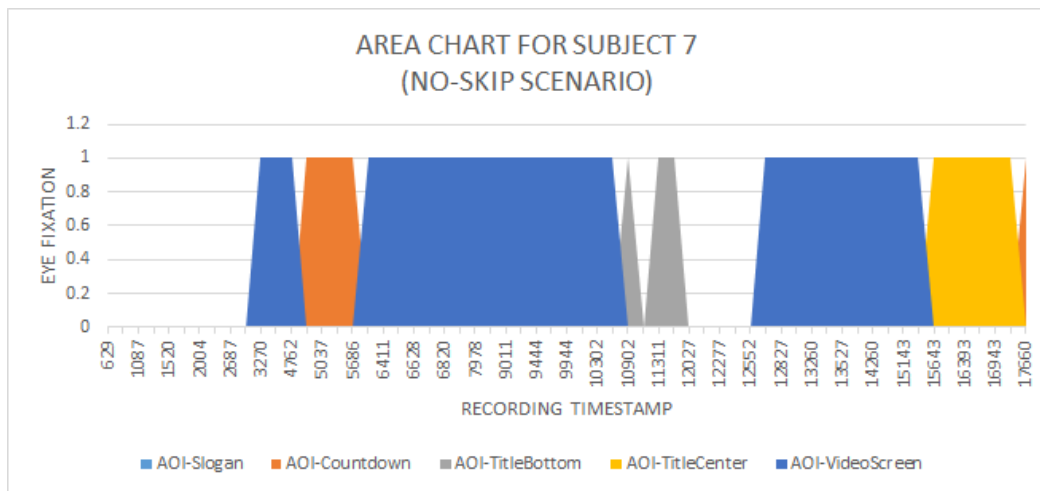
Figure A18: Area chart for subject 8 (No-skip scenario)
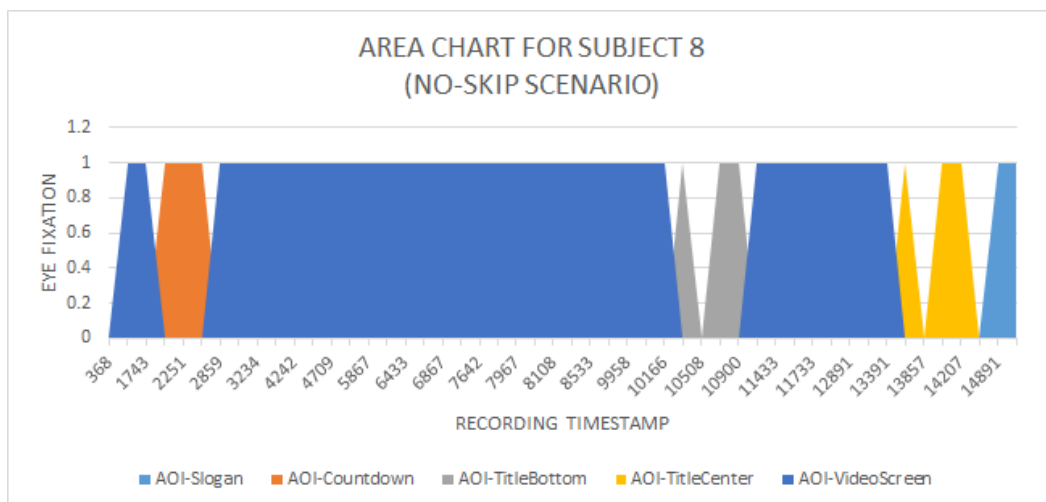
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Figure A19: Area chart for subject 9 (No-skip scenario)
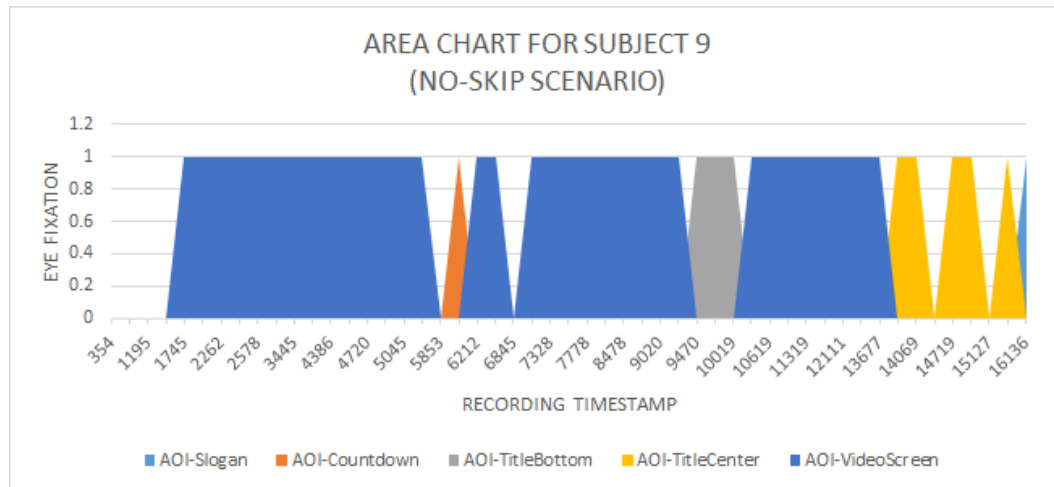
Figure A20: Area chart for subject 10 (No-skip scenario)

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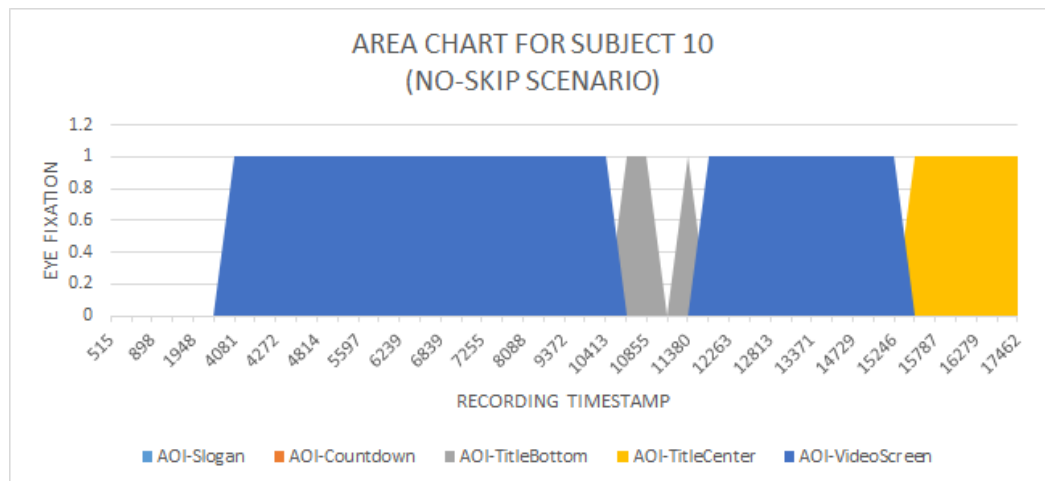
Figure A21: Area chart for subject 1 (Skip scenario)
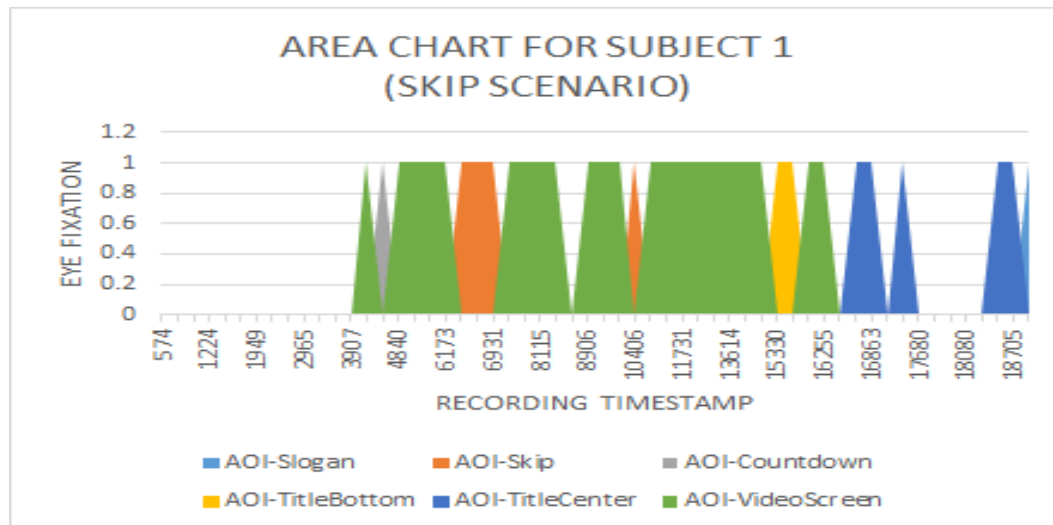
Figure A22: Area chart for subject 2 (Skip scenario)
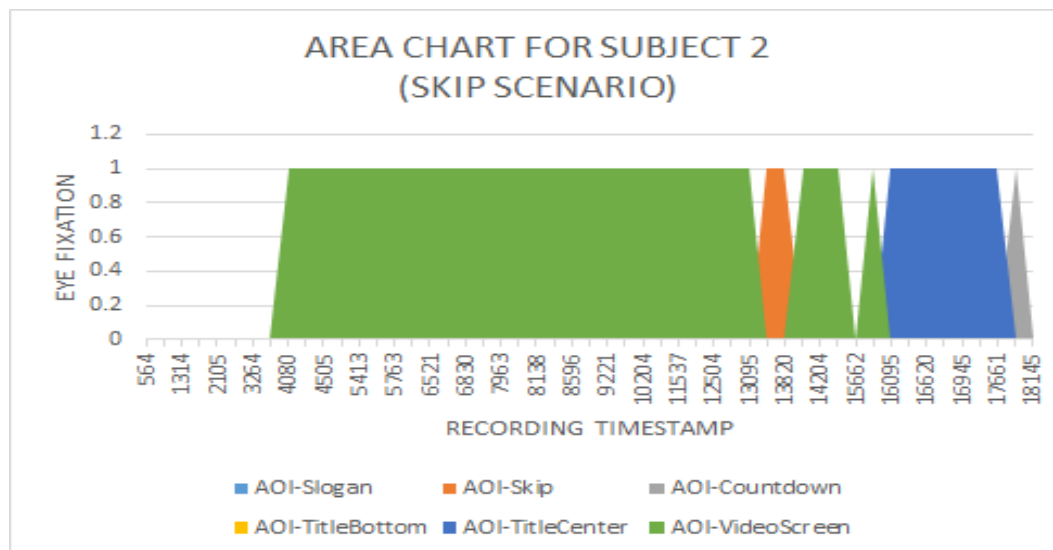
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Figure A23: Area chart for subject 3 (Skip scenario)
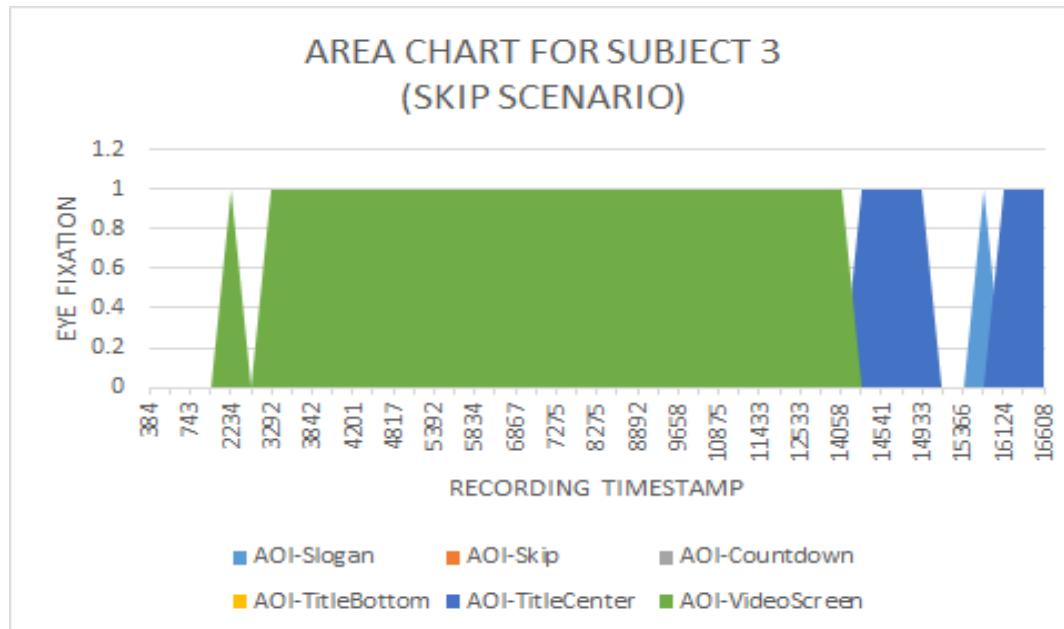
Figure A24: Area chart for subject 4 (Skip scenario)

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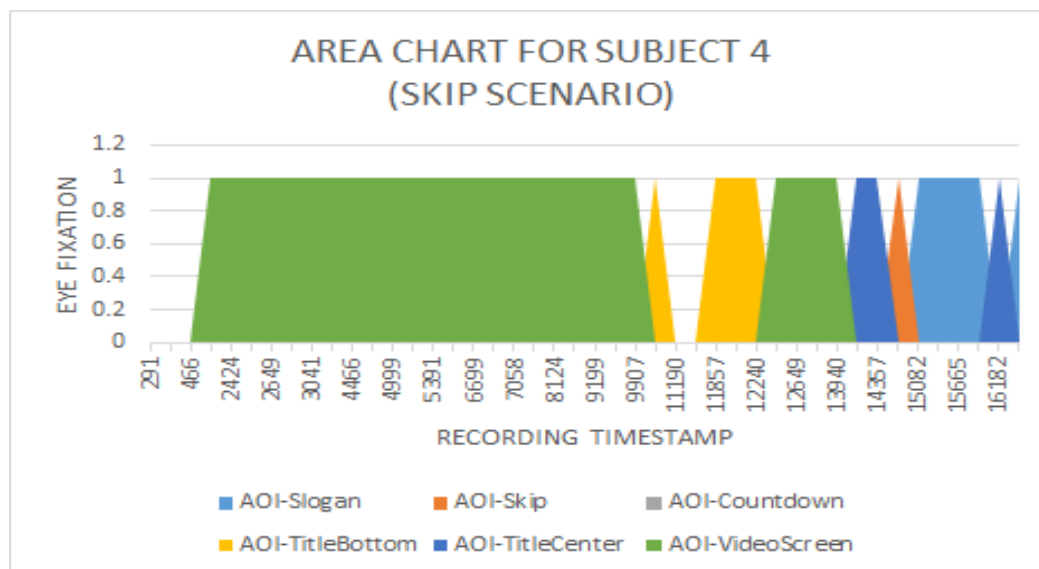
Figure A25: Area chart for subject 5 (Skip scenario)
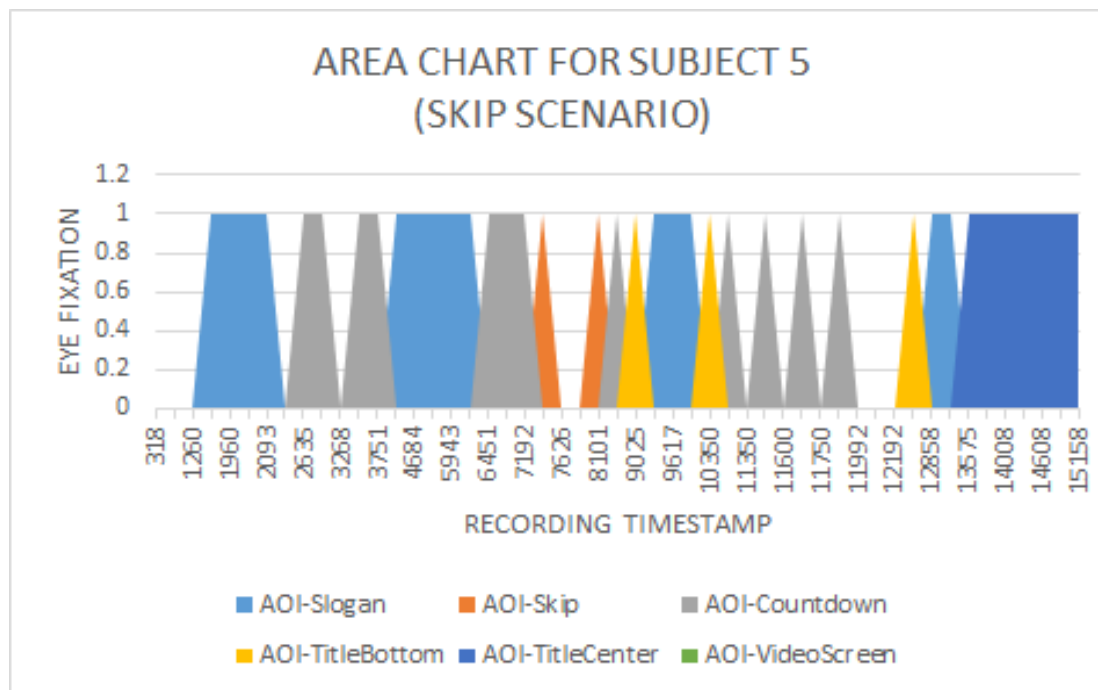
Figure A26: Area chart for subject 6 (Skip scenario)
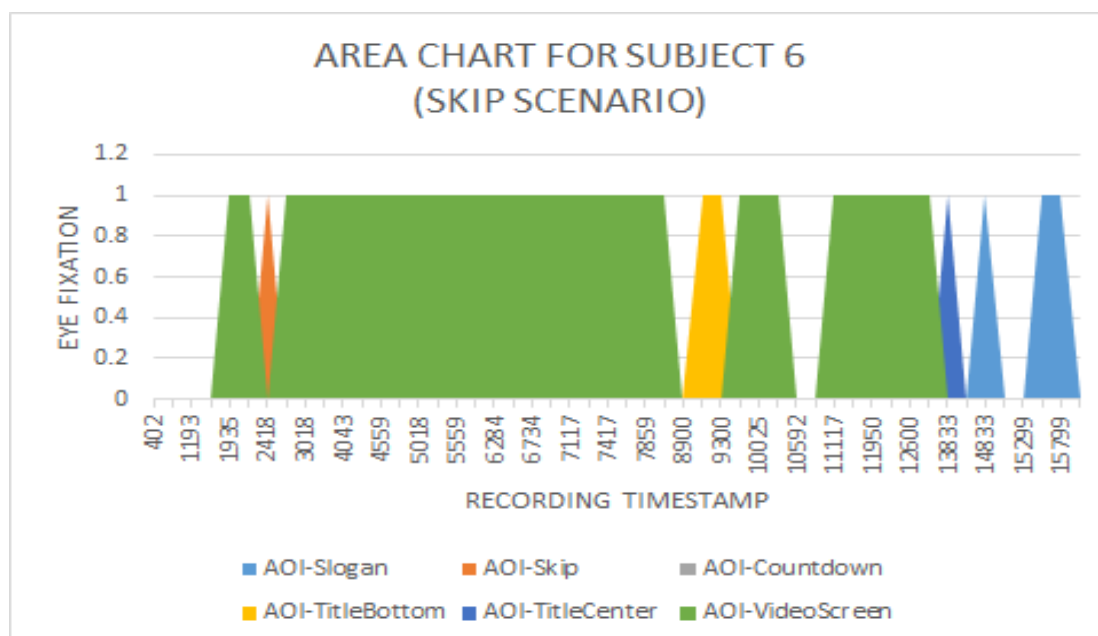
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Figure A27: Area chart for subject 7 (Skip scenario)
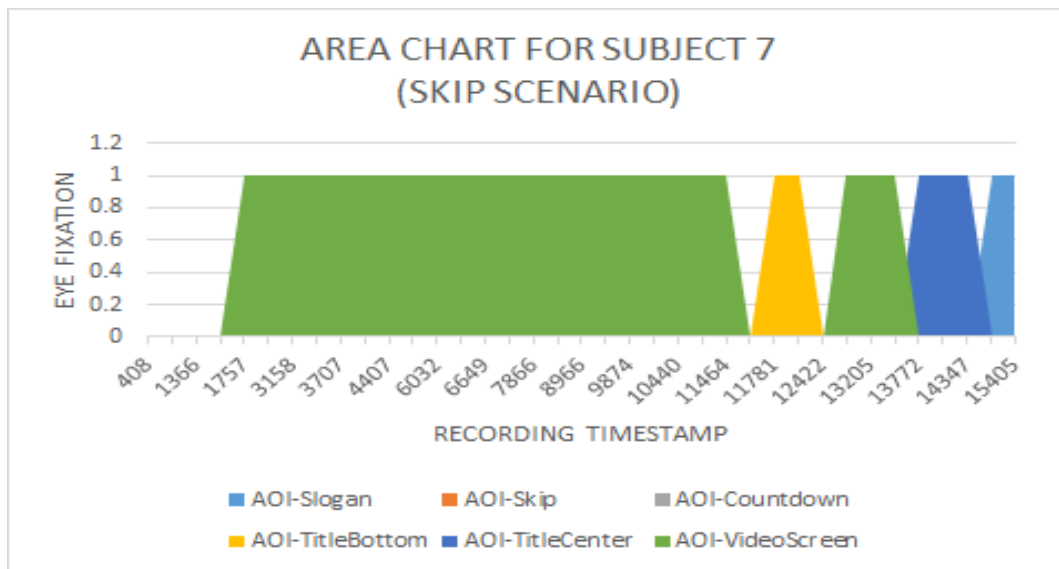
Figure A28: Area chart for subject 8 (Skip scenario)

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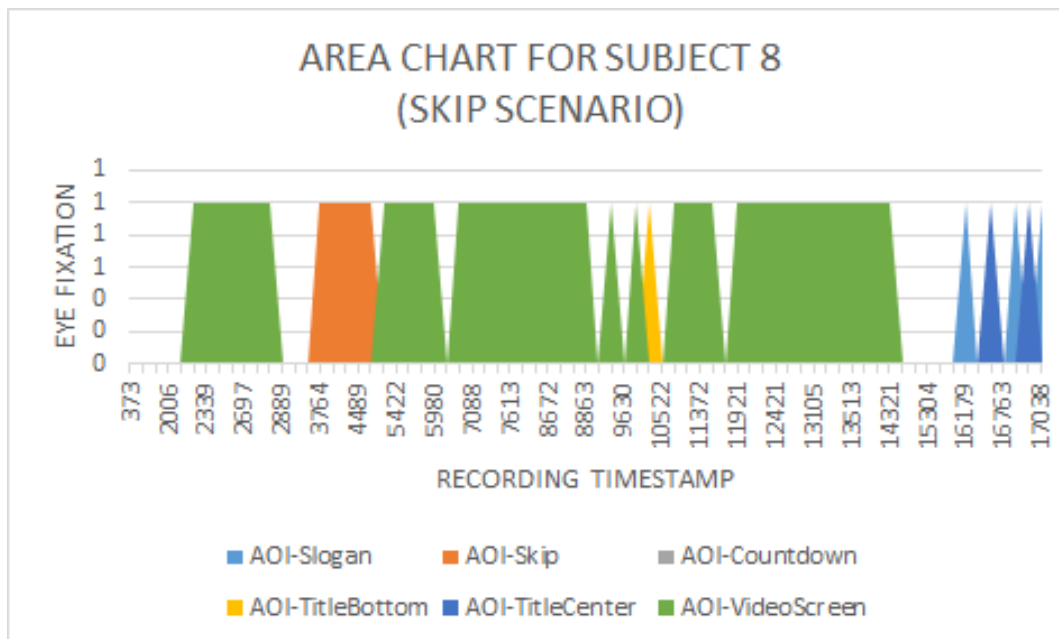
Figure A29: Area chart for subject 9 (Skip scenario)
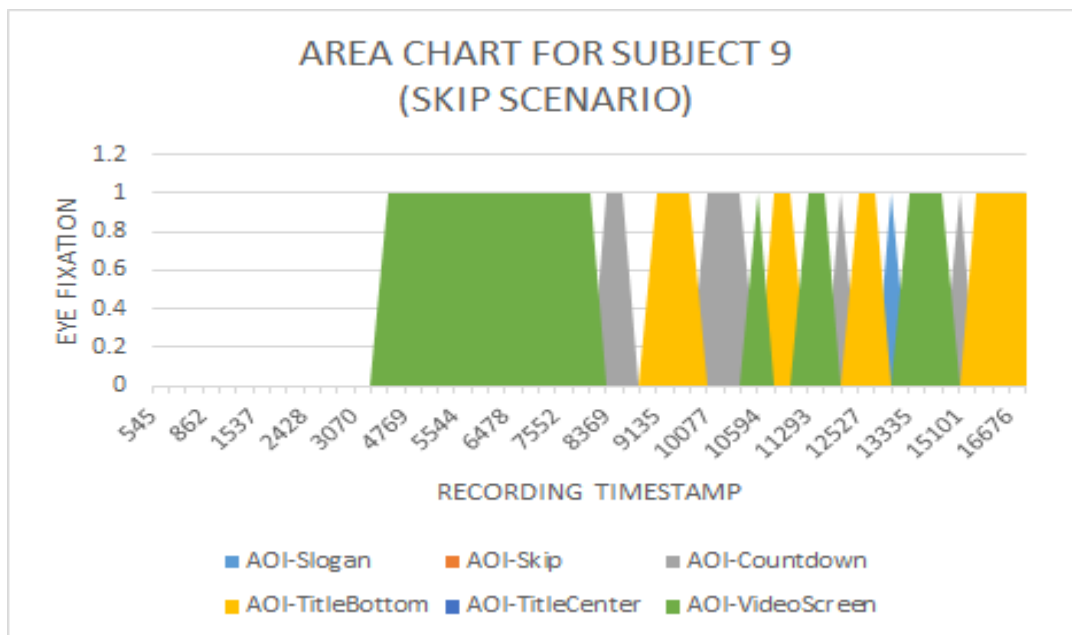
Figure A30: Area chart for subject 10 (Skip scenario)

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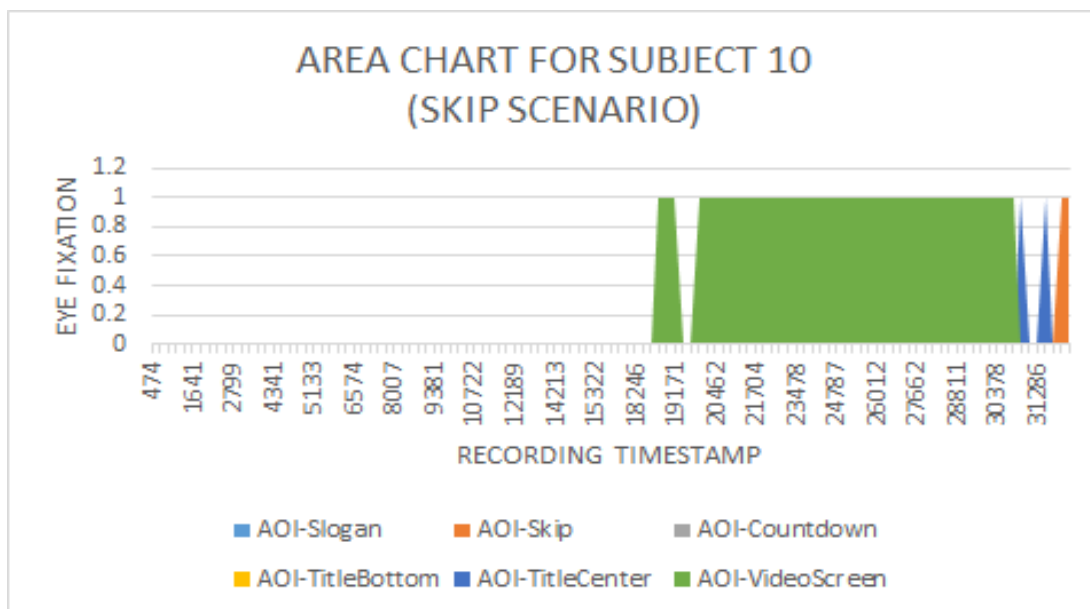
Figure A31: Stacked line graph for Skip scenario
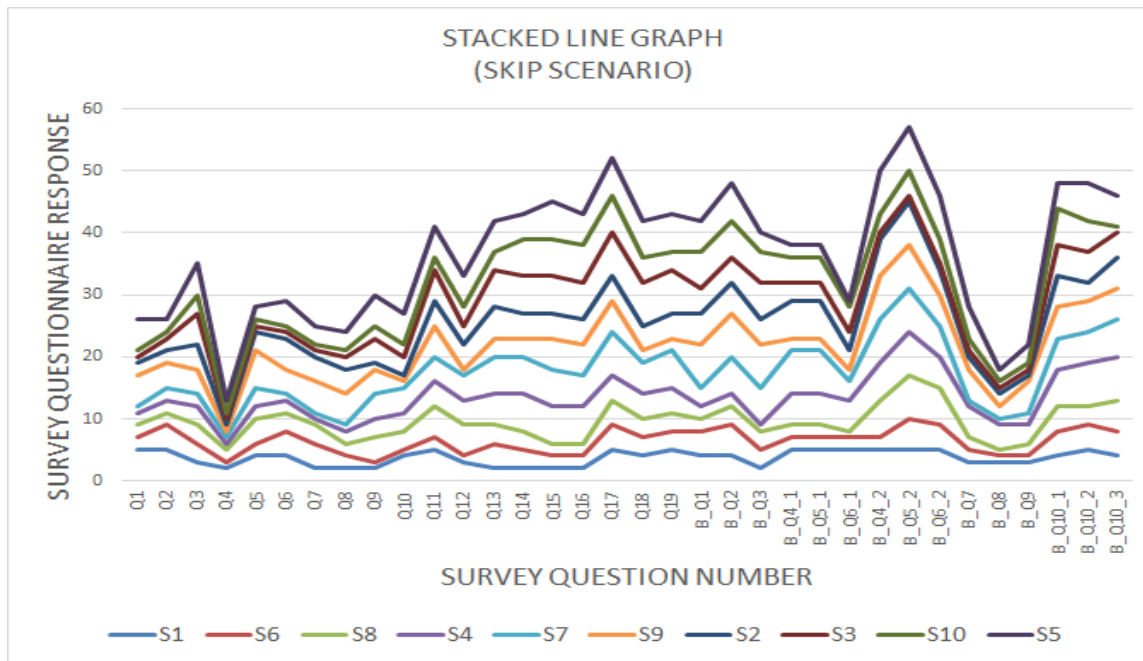
Figure A32: Stacked line graph for No-Skip scenario
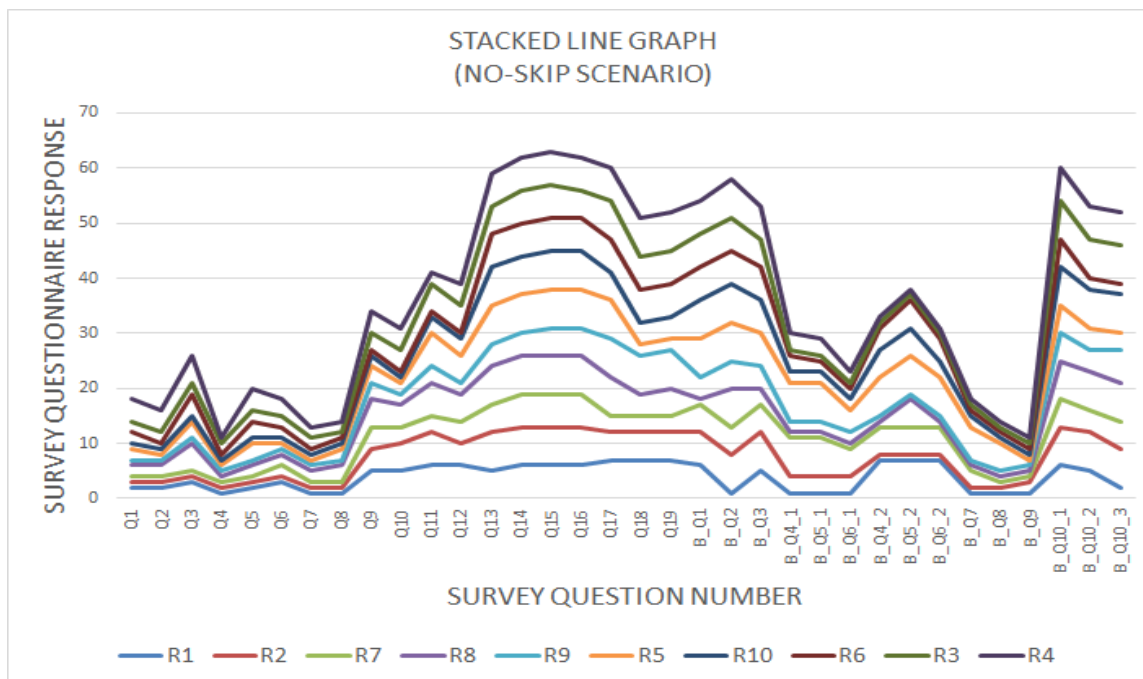
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Figure A33: Stacked line graph for mean of Skip VS No-Skip responses
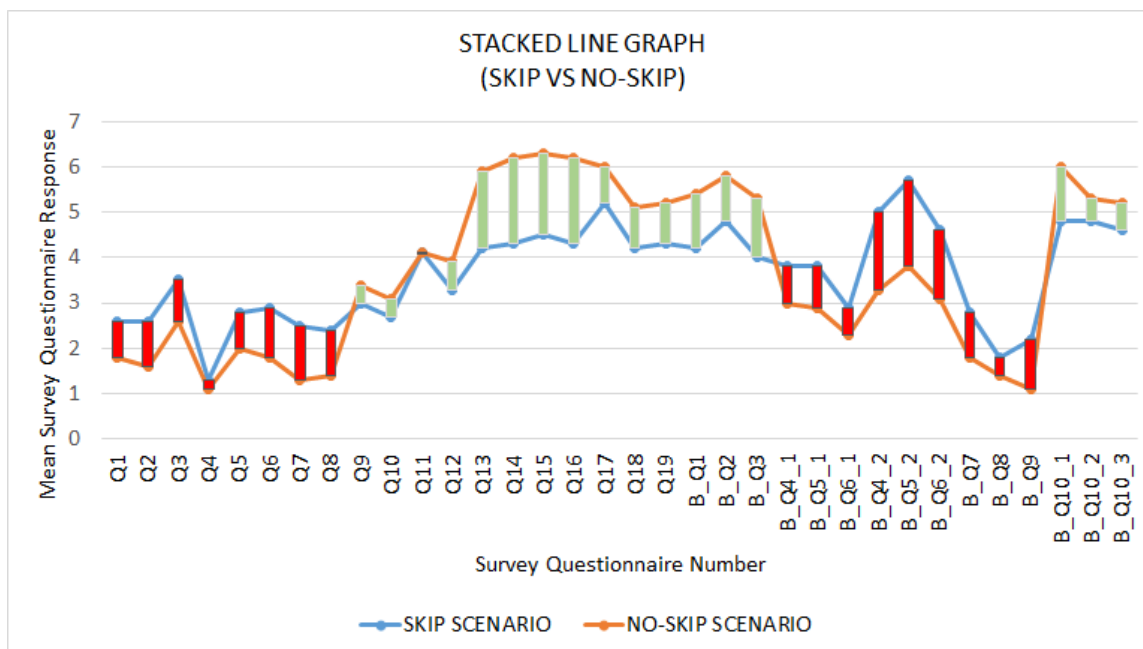
Figure A34: Fixations for Title-Bottom (Not recorded) (subject-3, No-skip scenario)
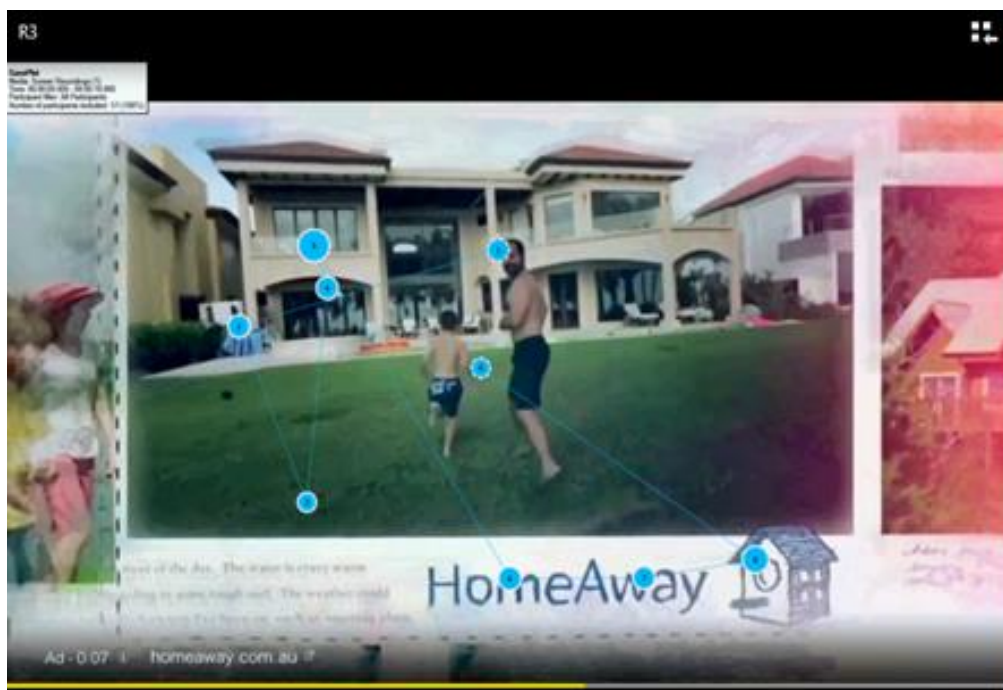
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Figure A35: Fixations for Video Screen (Not recorded) (subject-5, skip scenario)
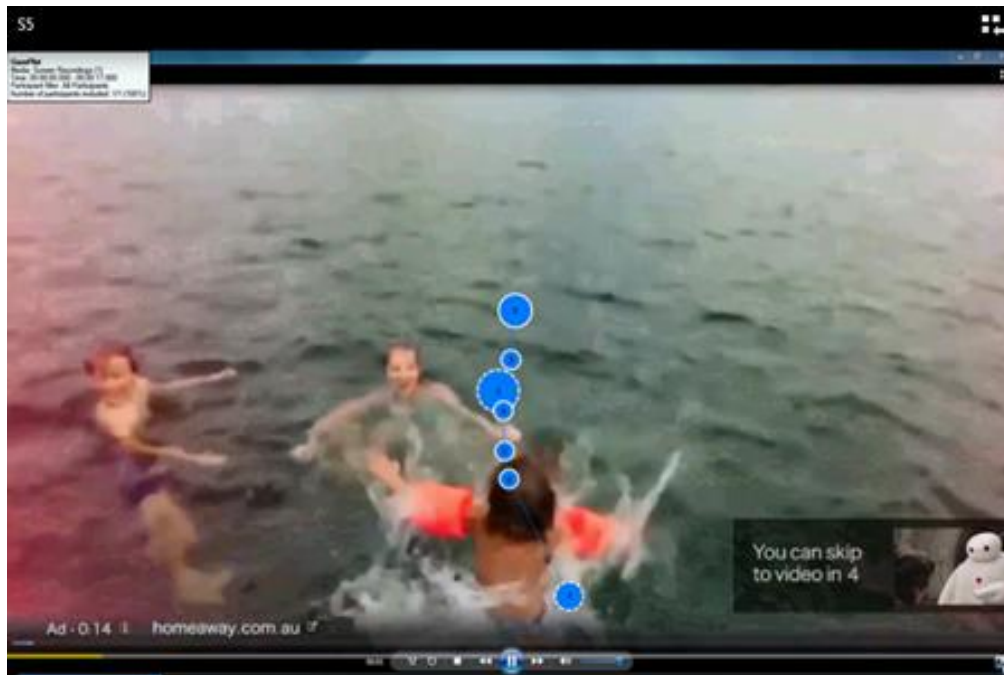
Figure A36: A scan path for subject 3 (scenario 2: with skip and countdown)

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Figure A37: A scan path for subject 3 (scenario 2: with skip and countdown)

Table A1: Eye fixation duration and eye fixation counts for Skip scenario

	AREA OF INTEREST(AOI)	Slogan	Skip	Countdown	Title-Bott	Title-Cent	VideoScreen
1	Eye fixation durations (seconds)	0.3	1.034	0.325	0.575	0.951	10.257
2	Eye fixation durations (seconds)	0	0.625	0.258	0	1.792	10.891
3	Eye fixation durations (seconds)	0.55	0	0	0	1.665	11.739
4	Eye fixation durations (seconds)	1.367	0.233	0	0.908	0.925	10.257
5	Eye fixation durations (seconds)	4.473	0.483	3.608	1.259	2.966	0
6	Eye fixation durations (seconds)	0.691	0.2	0	0.8	0.817	10.233
7	Eye fixation durations (seconds)	2.733	0	0	0.641	0.975	10.584
8	Eye fixation durations (seconds)	0.334	1.401	0	0.408	0.175	7.549
9	Eye fixation durations (seconds)	0.05	0	1.666	4.725	0	7.175
10	Eye fixation durations (seconds)	0	0.517	0	0	0.75	11.303
	AREA OF INTEREST(AOI)	Slogan	Skip	Countdown	Title-Bott	Title-Cent	VideoScreen
1	Eye fixation numbers	1	4	1	2	5	22
2	Eye fixation numbers	0	2	1	0	7	31
3	Eye fixation numbers	1	0	0	0	7	30
4	Eye fixation numbers	5	1	0	4	3	26
5	Eye fixation numbers	14	2	12	3	7	0
6	Eye fixation numbers	3	1	0	2	1	32
7	Eye fixation numbers	2	0	0	2	3	24
8	Eye fixation numbers	3	5	0	1	2	42
9	Eye fixation numbers	1	0	7	11	0	19
10	Eye fixation numbers	0	2	0	0	2	43

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Table A2: Eye fixation duration and eye fixation counts for Skip scenario

	AREA OF INTEREST(AOI)	Slogan	Countdown	Title-Bottom	Title-Center	VideoScreen
1	Eye fixation durations (seconds)	0.509	0.183	0.533	1.85	10.169
2	Eye fixation durations (seconds)	0.525	0.192	0.817	1.517	9.86
3	Eye fixation durations (seconds)	0.791	0.25	0	1.142	11.383
4	Eye fixation durations (seconds)	1.083	0	0	0.766	12.493
5	Eye fixation durations (seconds)	0.867	0.25	0.45	0.825	11.368
6	Eye fixation durations (seconds)	0	2.275	0.358	0.484	8.484
7	Eye fixation durations (seconds)	0	1.475	0.909	2.017	9.325
8	Eye fixation durations (seconds)	1.516	0.783	0.667	0.675	10.407
9	Eye fixation durations (seconds)	0.417	0.175	0.883	1.209	10.567
10	Eye fixation durations (seconds)	0	0	0.9	2.392	9.858
	AREA OF INTEREST(AOI)	Slogan	Countdown	Title-Bottom	Title-Center	VideoScreen
1	Eye fixation numbers	2	1	2	6	21
2	Eye fixation numbers	2	1	3	5	30
3	Eye fixation numbers	2	1	0	3	35
4	Eye fixation numbers	3	0	0	3	40
5	Eye fixation numbers	3	1	3	3	32
6	Eye fixation numbers	0	12	1	2	39
7	Eye fixation numbers	0	5	3	6	31
8	Eye fixation numbers	2	3	3	3	35
9	Eye fixation numbers	1	1	3	5	33
10	Eye fixation numbers	0	0	3	6	29

Table A3: P-value results.

AOI	P-Value (Durations)	P-Value (Counts)
Slogan	0.8490	0.5882
Title-Bottom	0.9696	0.6113
Title-Center	0.5891	0.6163
Video Screen	0.8501	0.2039
Countdown	0.5579	0.2008

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Appendix B

Appendix B: SAS codes

TASK-1 SKIP, TASK-2 NO SKIP

Code B1: NORMALITY TESTS for Eye Fixation Duration (AOI- Slogan)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1     0.3          2       0.509
1     0            2       0.525
1     0.55         2       0.791
1     1.367        2       1.083
1     4.473        2       0.867
1     0.691        2       0
1     2.733        2       0
1     0.334        2       1.516
1     0.05         2       0.417
1     0            2       0
;
proc univariate DATA = X normal plot;
class TaskNumber;
var ResponseTime;
run;
```

Code B2:Mann-Whitney-Wilcoxon test for Eye Fixation Duration(AOI- Slogan)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1     0.3          2       0.509
1     0            2       0.525
1     0.55         2       0.791
1     1.367        2       1.083
1     4.473        2       0.867
1     0.691        2       0
1     2.733        2       0
1     0.334        2       1.516
1     0.05         2       0.417
1     0            2       0
;
proc npar1way data = X wilcoxon;
class TaskNumber;
var ResponseTime;
exact wilcoxon;
run;
```

Code B3:NORMALITY TESTS for Eye Fixation Duration(AOI- Countdown)

```
data X;
input TaskNumber ResponseTime @@;
```

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```
datalines;
1      0.325       2      0.183
1      0258        2      0.192
1      0           2      0.25
1      0           2      0
1      3.608       2      0.25
1      0           2      2.275
1      0           2      1.475
1      0           2      0.783
1      1.666       2      0.175
1      0           2      0
;
proc univariate DATA = X normal plot;
class TaskNumber;
var ResponseTime;
run;
```

Code B4:Mann-Whitney-Wilcoxon test for Eye Fixation Duration(AOI- Countdown)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1      0.325       2      0.183
1      0258        2      0.192
1      0           2      0.25
1      0           2      0
1      3.608       2      0.25
1      0           2      2.275
1      0           2      1.475
1      0           2      0.783
1      1.666       2      0.175
1      0           2      0
;
proc npar1way data = X wilcoxon;
class TaskNumber;
var ResponseTime;
exact wilcoxon;
run;
```

Code B5:NORMALITY TESTS for Eye Fixation Duration(AOI- Title Bottom)

```
data X;
```

```
input TaskNumber ResponseTime @@;
datalines;
1      0.575 2      0.533
1      0     2      0.817
1      0     2      0
1      0.908 2      0
1      1.259 2      0.45
1      0.8   2      0.358
1      0.641 2      0.909
1      0.408 2      0.667
1      4.725 2      0.883
1      0     2      0.9
;
proc univariate DATA = X normal plot;
class TaskNumber;
var ResponseTime;
run;
```

Code B6:Mann-Whitney-Wilcoxon test for Eye Fixation Duration(AOI- Title Bottom)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1      0.575 2      0.533
1      0     2      0.817
1      0     2      0
1      0.908 2      0
1      1.259 2      0.45
1      0.8   2      0.358
1      0.641 2      0.909
1      0.408 2      0.667
1      4.725 2      0.883
1      0     2      0.9
;
proc npar1way data = X wilcoxon;
class TaskNumber;
var ResponseTime;
exact wilcoxon;
run;
```

Code B7:NORMALITY TESTS for Eye Fixation Duration(AOI- Title Center)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1      0.951      2      1.85
1      1.792      2      1.517
1      1.665      2      1.142
1      0.925      2      0.766
1      2.966      2      0.825
1      0.817      2      0.484
1      0.975      2      2.017
1      0.175      2      0.675
```

```
1       0               2       1.209
1       0.75            2       2.392
;
proc univariate DATA = X normal plot;
class TaskNumber;
var ResponseTime;
run;
```

Code B8:Mann-Whitney-Wilcoxon test for Eye Fixation Duration(AOI- Title Center)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1       0.951           2       1.85
1       1.792           2       1.517
1       1.665           2       1.142
1       0.925           2       0.766
1       2.966           2       0.825
1       0.817           2       0.484
1       0.975           2       2.017
1       0.175           2       0.675
1       0               2       1.209
1       0.75            2       2.392
;
proc npar1way data = X wilcoxon;
class TaskNumber;
var ResponseTime;
exact wilcoxon;
run;
```

Code B9:NORMALITY TESTS for Eye Fixation Duration(AOI- Video Center)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1       10.257          2       10.169
1       10.891          2       9.86
1       11.739          2       11.383
1       10.257          2       12.493
1       0               2       1.368
1       10.233          2       8.484
1       10.584          2       9.325
1       7.549           2       10.407
1       7.175           2       10.567
1       11.303          2       9.858
;
proc univariate DATA = X normal plot;
class TaskNumber;
var ResponseTime;
run;
```

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Code B10:Mann-Whitney-Wilcoxon test for Eye Fixation Duration(AOI- Video screen)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1      10.257      2      10.169
1      10.891      2      9.86
1      11.739      2      11.383
1      10.257      2      12.493
1      0           2      1.368
1      10.233      2      8.484
1      10.584      2      9.325
1      7.549       2      10.407
1      7.175       2      10.567
1      11.303      2      9.858
;
proc npar1way data = X wilcoxon;
class TaskNumber;
var ResponseTime;
exact Wilcoxon;
run;
```

Code B11:NORMALITY TESTS for Eye Fixation Counts(AOI- Slogan)

TASK-1 SKIP, TASK-2 NO SKIP

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1      1      2      2
1      0      2      2
1      1      2      2
1      5      2      3
1      14     2      3
1      3      2      0
1      2      2      0
1      3      2      2
1      1      2      1
1      0      2      0
;
proc univariate DATA = X normal plot;
class TaskNumber;
var ResponseTime;
run;
```

Code B12:Mann-Whitney-Wilcoxon test for Eye Fixation Counts(AOI- Slogan)
```
data X;
input TaskNumber ResponseTime @@;
datalines;
1      1      2      2
1      0      2      2
1      1      2      2
```

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```
1      5      2      3
1      14     2      3
1      3      2      0
1      2      2      0
1      3      2      2
1      1      2      1
1      0      2      0
;
proc npar1way data = X wilcoxon;
class TaskNumber;
var ResponseTime;
run;
```

Code B13:NORMALITY TESTS for Eye Fixation Counts(AOI- Countdown)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1      1      2      1
1      1      2      1
1      0      2      1
1      0      2      0
1      12     2      1
1      0      2      12
1      0      2      5
1      0      2      3
1      7      2      1
1      0      2      0
;
proc univariate DATA = X normal plot;
class TaskNumber;
var ResponseTime;
run;
```

Code B14: Mann-Whitney-Wilcoxon test for Eye Fixation Counts(AOI- Countdown)
```
data X;
input TaskNumber ResponseTime @@;
datalines;
1      1      2      1
1      1      2      1
1      0      2      1
1      0      2      0
1      12     2      1
1      0      2      12
```

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```
1       0       2       5
1       0       2       3
1       7       2       1
1       0       2       0
;
proc npar1way data = X wilcoxon;
class TaskNumber;
var ResponseTime;
exact Wilcoxon;
run;
```

Code B15:NORMALITY TESTS for Eye Fixation Counts(AOI- Title Bottom)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1       2       2       2
1       0       2       3
1       0       2       0
1       4       2       0
1       3       2       3
1       2       2       1
1       2       2       3
1       1       2       3
1       11      2       3
1       0       2       3
;
proc univariate DATA = X normal plot;
class TaskNumber;
var ResponseTime;
run;
```

Code B16:Mann-Whitney-Wilcoxon test for Eye Fixation Counts(AOI- Title Bottom)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1       2       2       2
1       0       2       3
1       0       2       0
1       4       2       0
1       3       2       3
1       2       2       1
1       2       2       3
1       1       2       3
1       11      2       3
1       0       2       3
;
proc npar1way data = X wilcoxon;
class TaskNumber;
var ResponseTime;
exact Wilcoxon;
run;
```

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Code B17:NORMALITY TESTS for Eye Fixation Counts(AOI- Title Center)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1     5     2     6
1     7     2     5
1     7     2     3
1     3     2     3
1     7     2     3
1     1     2     2
1     3     2     6
1     2     2     3
1     0     2     5
1     2     2     6
;
proc univariate DATA = X normal plot;
class TaskNumber;
var ResponseTime;
run;
```

Code B18:Mann-Whitney-Wilcoxon test for Eye Fixation Counts(AOI- Title Center)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1     5     2     6
1     7     2     5
1     7     2     3
1     3     2     3
1     7     2     3
1     1     2     2
1     3     2     6
1     2     2     3
1     0     2     5
1     2     2     6
;
proc npar1way data = X wilcoxon;
class TaskNumber;
var ResponseTime;
exact Wilcoxon;
run;
```

Code B19:NORMALITY TESTS for Eye Fixation Counts(AOI- Video Center)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1     22    2     21
1     31    2     30
```

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```
1      30      2      35
1      26      2      40
1      0       2      32
1      32      2      39
1      24      2      31
1      42      2      35
1      19      2      33
1      43      2      29
;
proc univariate DATA = X normal plot;
class TaskNumber;
var ResponseTime;
run;
```

Code B20:T-test for Eye Fixation Counts(AOI- Video screen)

```
data X;
input TaskNumber ResponseTime @@;
datalines;
1      22      2      21
1      31      2      30
1      30      2      35
1      26      2      40
1      0       2      32
1      32      2      39
1      24      2      31
1      42      2      35
1      19      2      33
1      43      2      29
;
proc ttest DATA = X;
class TaskNumber;
var ResponseTime;
run;
```

Appendix C :

SAS OUTPUT C1: SAS Output for Normality test for Eye Fixation Duration(AOI-Slogan)

The SAS System

The UNIVARIATE Procedure
Variable: Response Time
Task Number = 1

Moments			
N	10	Sum Weights	10
Mean	1.0498	Sum Observations	10.498

YouTube Commercial: Exploring human's perspective of commercials

Std Deviation	1.46473144	Variance	2.14543818
Skewness	1.79626236	Kurtosis	2.74671161
Uncorrected SS	30.329744	Corrected SS	19.3089436
Coeff Variation	139.524808	Std Error Mean	0.46318875

Basic Statistical Measures			
Location		Variability	
Mean	1.049800	Std Deviation	1.46473
Median	0.442000	Variance	2.14544
Mode	0.000000	Range	4.47300
		Interquartile Range	1.31700

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	2.266463	Pr > |t|	0.0496
Sign	M	4	Pr >= |M|	0.0078
Signed Rank	S	18	Pr >= |S|	0.0078

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.749521	Pr < W	0.0035
Kolmogorov-Smirnov	D	0.296756	Pr > D	0.0137
Cramer-von Mises	W-Sq	0.19553	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	1.069841	Pr > A-Sq	<0.0050

Quantiles (Definition 5)	

YouTube Commercial: Exploring human's perspective of commercials

Level	Quantile
100% Max	4.473
99%	4.473
95%	4.473
90%	3.603
75% Q3	1.367
50% Median	0.442
25% Q1	0.050
10%	0.000
5%	0.000
1%	0.000
0% Min	0.000

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0.000	19	0.550	5
0.000	3	0.691	11
0.050	17	1.367	7
0.300	1	2.733	13
0.334	15	4.473	9
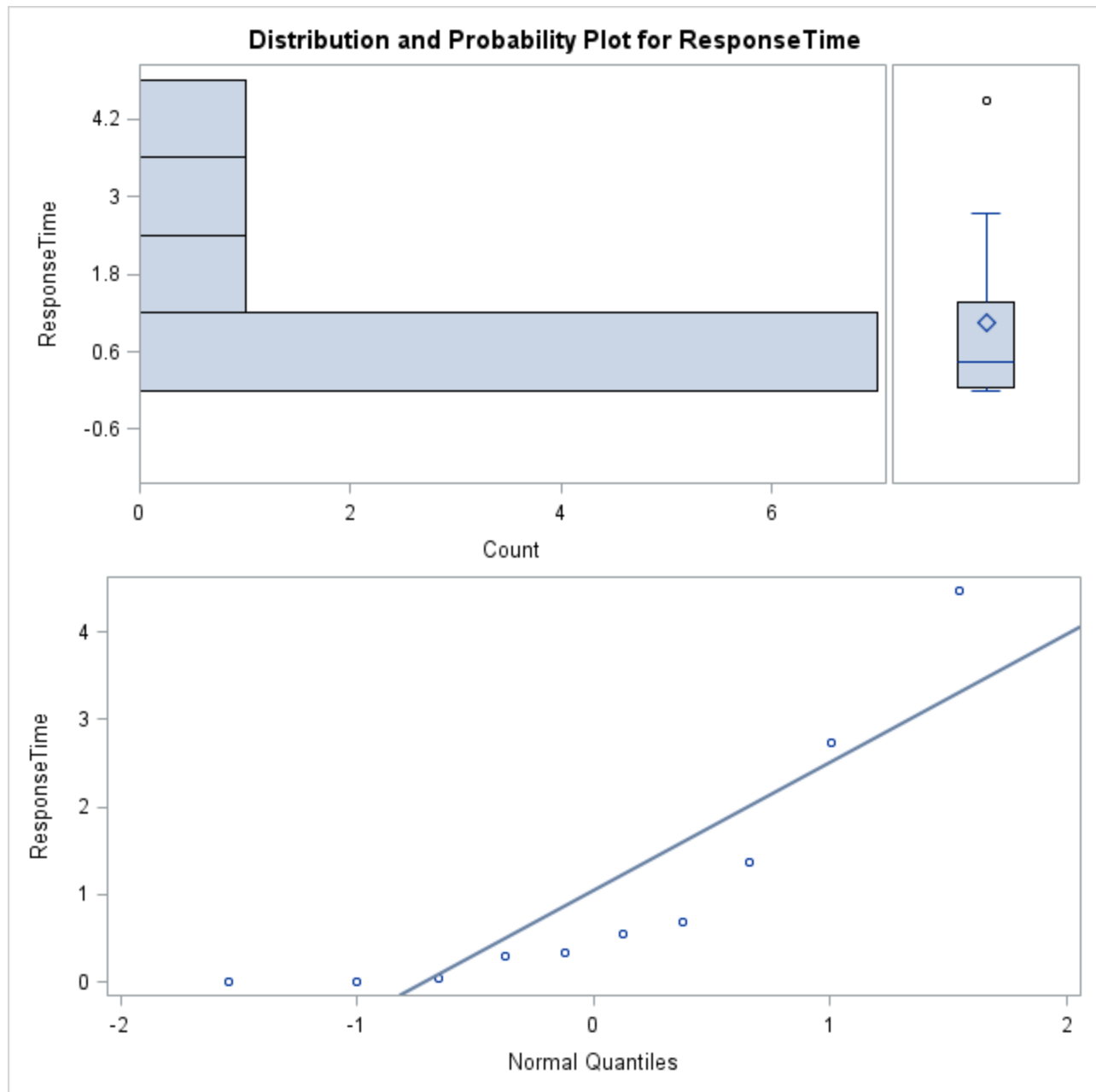
YouTube Commercial: Exploring human's perspective of commercials

Distribution and Probability Plot for ResponseTime

YouTube Commercial: Exploring human's perspective of commercials

The SAS System

The UNIVARIATE Procedure
Variable: Response Time
Task Number = 2

Moments			
N	10	Sum Weights	10
Mean	0.5708	Sum Observations	5.708
Std Deviation	0.50541332	Variance	0.25544262
Skewness	0.4879696	Kurtosis	-0.3385738
Uncorrected SS	5.55711	Corrected SS	2.2989836
Coeff Variation	88.5447299	Std Error Mean	0.15982572

Basic Statistical Measures			
Location		Variability	
Mean	0.570800	Std Deviation	0.50541
Median	0.517000	Variance	0.25544
Mode	0.000000	Range	1.51600
		Interquartile Range	0.86700

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	3.57139	Pr > |t|	0.0060
Sign	M	3.5	Pr >= |M|	0.0156
Signed Rank	S	14	Pr >= |S|	0.0156

Tests for Normality				
Test	Statistic		p Value	

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Shapiro-Wilk	W	0.925202	Pr < W	0.4024
Kolmogorov-Smirnov	D	0.17063	Pr > D	>0.1500
Cramer-von Mises	W-Sq	0.039531	Pr > W-Sq	>0.2500
Anderson-Darling	A-Sq	0.306796	Pr > A-Sq	>0.2500

Quantiles (Definition 5)	
Level	Quantile
100% Max	1.5160
99%	1.5160
95%	1.5160
90%	1.2995
75% Q3	0.8670
50% Median	0.5170
25% Q1	0.0000
10%	0.0000
5%	0.0000
1%	0.0000
0% Min	0.0000

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0.000	20	0.525	4
0.000	14	0.791	6
0.000	12	0.867	10
0.417	18	1.083	8

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0.509	2	1.516	16

Distribution and Probability Plot for ResponseTime

YouTube Commercial: Exploring human's perspective of commercials

The SAS System

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable ResponseTime Classified by Variable TaskNumber					
TaskNumber	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	10	108.0	105.0	13.128915	10.80
2	10	102.0	105.0	13.128915	10.20
Average scores were used for ties.					

Wilcoxon Two-Sample Test	
Statistic (S)	108.0000
Normal Approximation	
Z	0.1904
One-Sided Pr > Z	0.4245
Two-Sided Pr > |Z|	0.8490
t Approximation	
One-Sided Pr > Z	0.4255
Two-Sided Pr > |Z|	0.8510
Exact Test	
One-Sided Pr >= S	0.4261
Two-Sided Pr >= |S - Mean|	0.8522
Z includes a continuity correction of 0.5.	

Kruskal-Wallis Test	
Chi-Square	0.0522
DF	1
Pr > Chi-Square	0.8193

YouTube Commercial: Exploring human's perspective of commercials
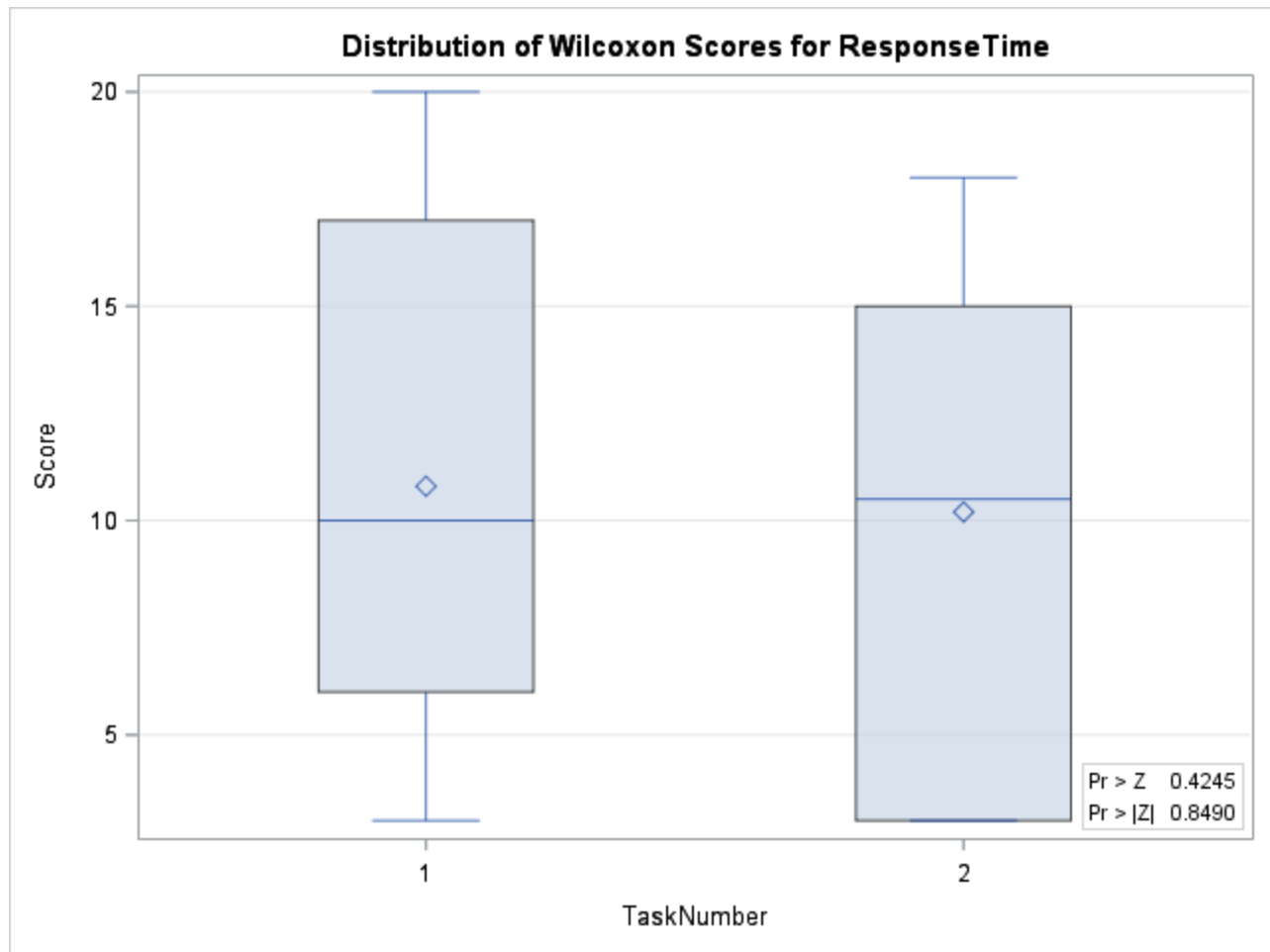
SAS OUTPUT C3: SAS Output for Normality test for Eye Fixation Duration(AOI-Countdown)

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 1

Moments			
N	10	Sum Weights	10
Mean	26.3599	Sum Observations	263.599
Std Deviation	81.3985091	Variance	6625.71728
Skewness	3.16105	Kurtosis	9.99426185

YouTube Commercial: Exploring human's perspective of commercials

Uncorrected SS	66579.8988	Corrected SS	59631.4556
Coeff Variation	308.79673	Std Error Mean	25.7404687

Basic Statistical Measures			
Location		Variability	
Mean	26.35990	Std Deviation	81.39851
Median	0.00000	Variance	6626
Mode	0.00000	Range	258.00000
		Interquartile Range	1.66600

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	1.024064	Pr > |t|	0.3325
Sign	M	2	Pr >= |M|	0.1250
Signed Rank	S	5	Pr >= |S|	0.1250

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.37532	Pr < W	<0.0001
Kolmogorov-Smirnov	D	0.510074	Pr > D	<0.0100
Cramer-von Mises	W-Sq	0.641468	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	3.129332	Pr > A-Sq	<0.0050

Quantiles (Definition 5)	
Level	Quantile
100% Max	258.000
99%	258.000
95%	258.000
90%	130.804
75% Q3	1.666
50% Median	0.000
25% Q1	0.000

YouTube Commercial: Exploring human's perspective of commercials

10%	0.000
5%	0.000
1%	0.000
0% Min	0.000

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0	19	0.000	19
0	15	0.325	1
0	13	1.666	17
0	11	3.608	9
0	7	258.000	3
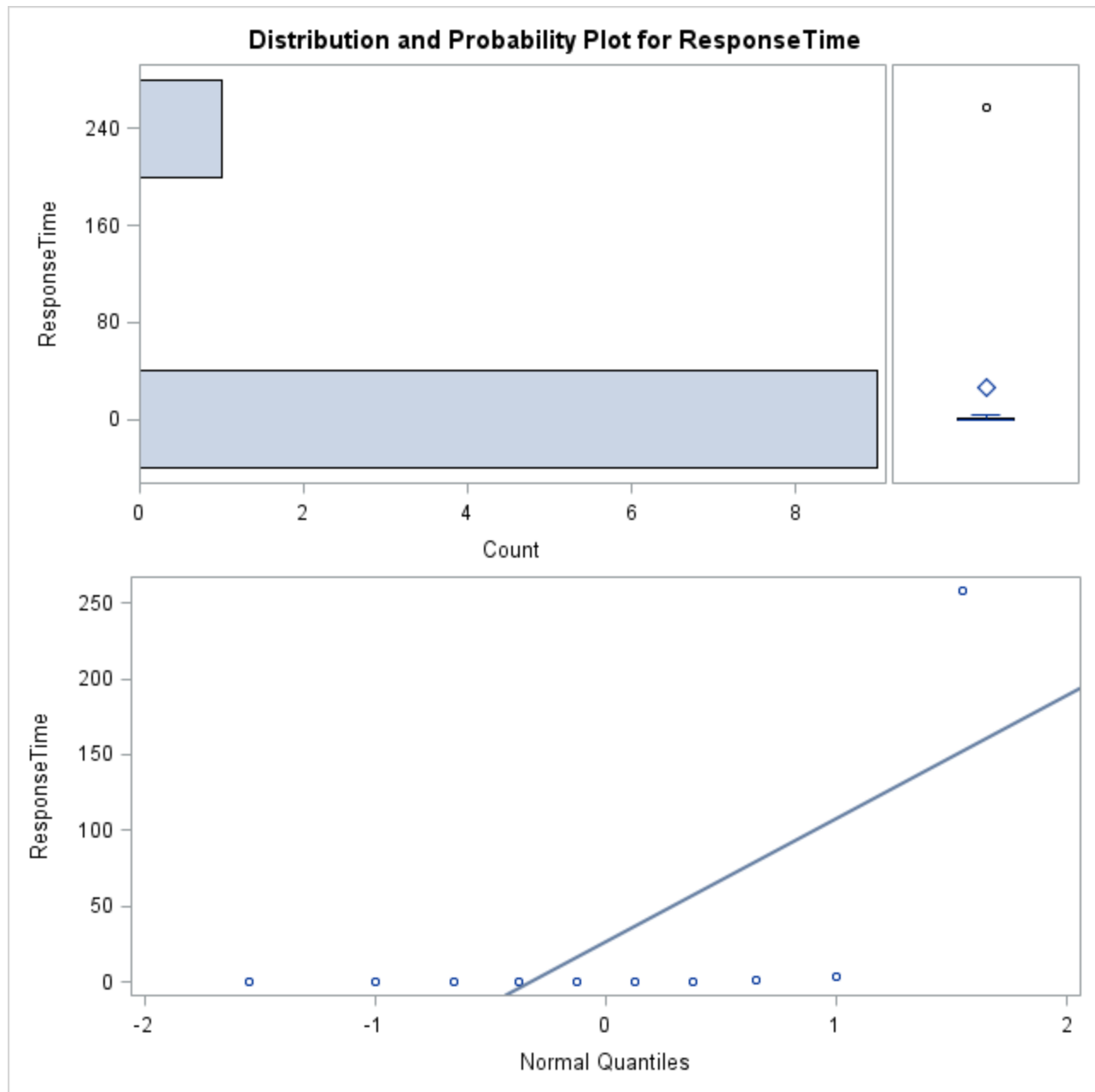
YouTube Commercial: Exploring human's perspective of commercials

Distribution and Probability Plot for ResponseTime

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 2

Moments			
N	10	Sum Weights	10
Mean	0.5583	Sum Observations	5.583

YouTube Commercial: Exploring human's perspective of commercials

Std Deviation	0.75080165	Variance	0.56370312
Skewness	1.73137261	Kurtosis	2.29957882
Uncorrected SS	8.190317	Corrected SS	5.0733281
Coeff Variation	134.479967	Std Error Mean	0.23742433

Basic Statistical Measures			
Location		Variability	
Mean	0.558300	Std Deviation	0.75080
Median	0.221000	Variance	0.56370
Mode	0.000000	Range	2.27500
		Interquartile Range	0.60800

Note: The mode displayed is the smallest of 2 modes with a count of 2.

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	2.351486	Pr > |t|	0.0432
Sign	M	4	Pr >= |M|	0.0078
Signed Rank	S	18	Pr >= |S|	0.0078

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.735208	Pr < W	0.0024
Kolmogorov-Smirnov	D	0.359327	Pr > D	<0.0100
Cramer-von Mises	W-Sq	0.22998	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	1.210285	Pr > A-Sq	<0.0050

Quantiles (Definition 5)	
Level	Quantile
100% Max	2.275
99%	2.275
95%	2.275

YouTube Commercial: Exploring human's perspective of commercials

90%	1.875
75% Q3	0.783
50% Median	0.221
25% Q1	0.175
10%	0.000
5%	0.000
1%	0.000
0% Min	0.000

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0.000	20	0.250	6
0.000	8	0.250	10
0.175	18	0.783	16
0.183	2	1.475	14
0.192	4	2.275	12

YouTube Commercial: Exploring human's perspective of commercials
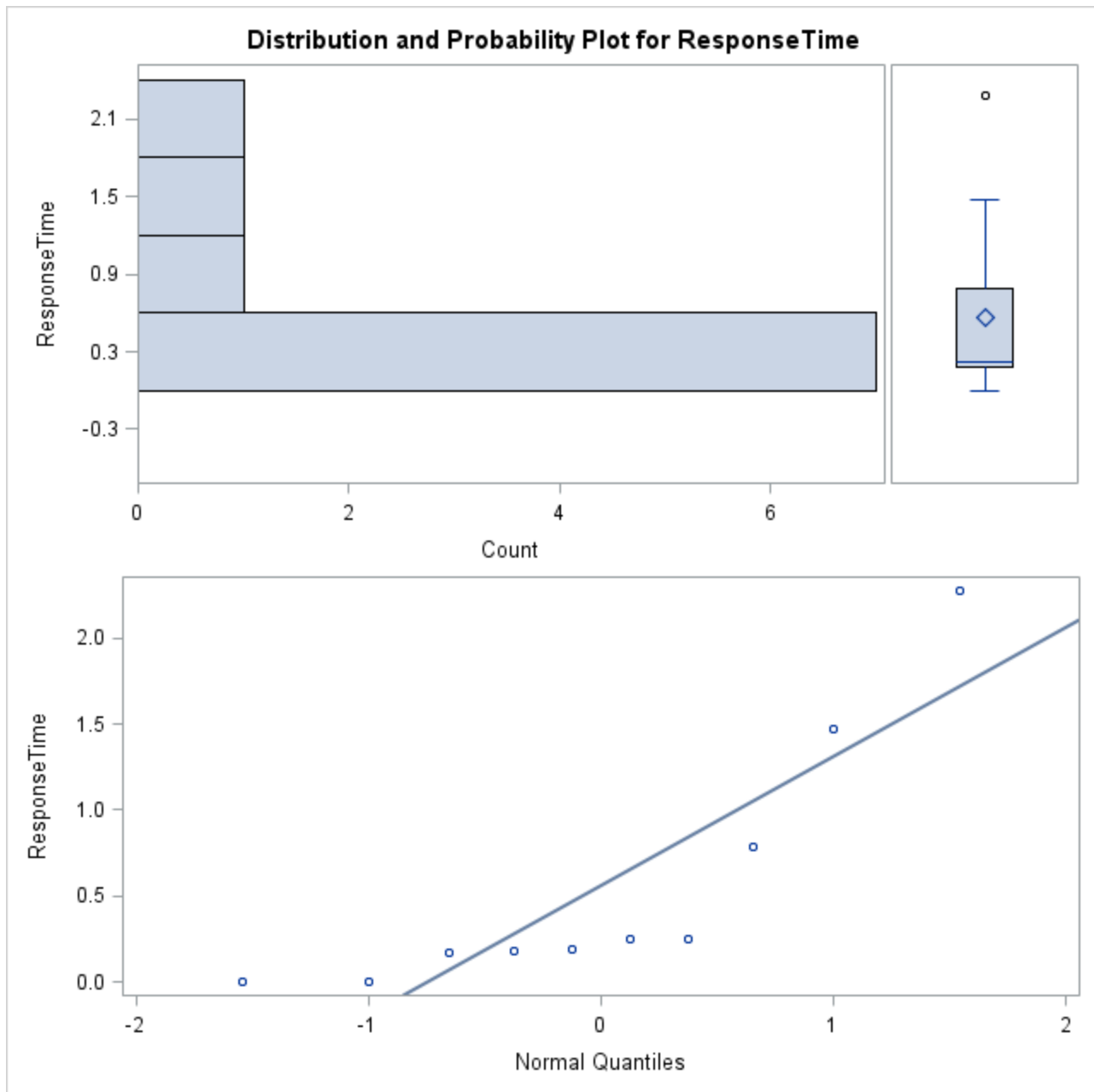
SAS OUTPUT C4: SAS Output for Mann-Whitney-Wilcoxon test for Eye Fixation Duration(AOI- Countdown)

The SAS System

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable						

YouTube Commercial: Exploring human's perspective of commercials

ResponseTime Classified by Variable TaskNumber					
TaskNumber	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	10	97.0	105.0	12.799054	9.70
2	10	113.0	105.0	12.799054	11.30
Average scores were used for ties.					

Wilcoxon Two-Sample Test	
Statistic (S)	97.0000
Normal Approximation	
Z	-0.5860
One-Sided Pr < Z	0.2789
Two-Sided Pr > |Z|	0.5579
t Approximation	
One-Sided Pr < Z	0.2824
Two-Sided Pr > |Z|	0.5648
Exact Test	
One-Sided Pr <= S	0.2765
Two-Sided Pr >= |S - Mean|	0.5531
Z includes a continuity correction of 0.5.	

Kruskal-Wallis Test	
Chi-Square	0.3907
DF	1
Pr > Chi-Square	0.5319

YouTube Commercial: Exploring human's perspective of commercials

Distribution of Wilcoxon Scores for ResponseTime
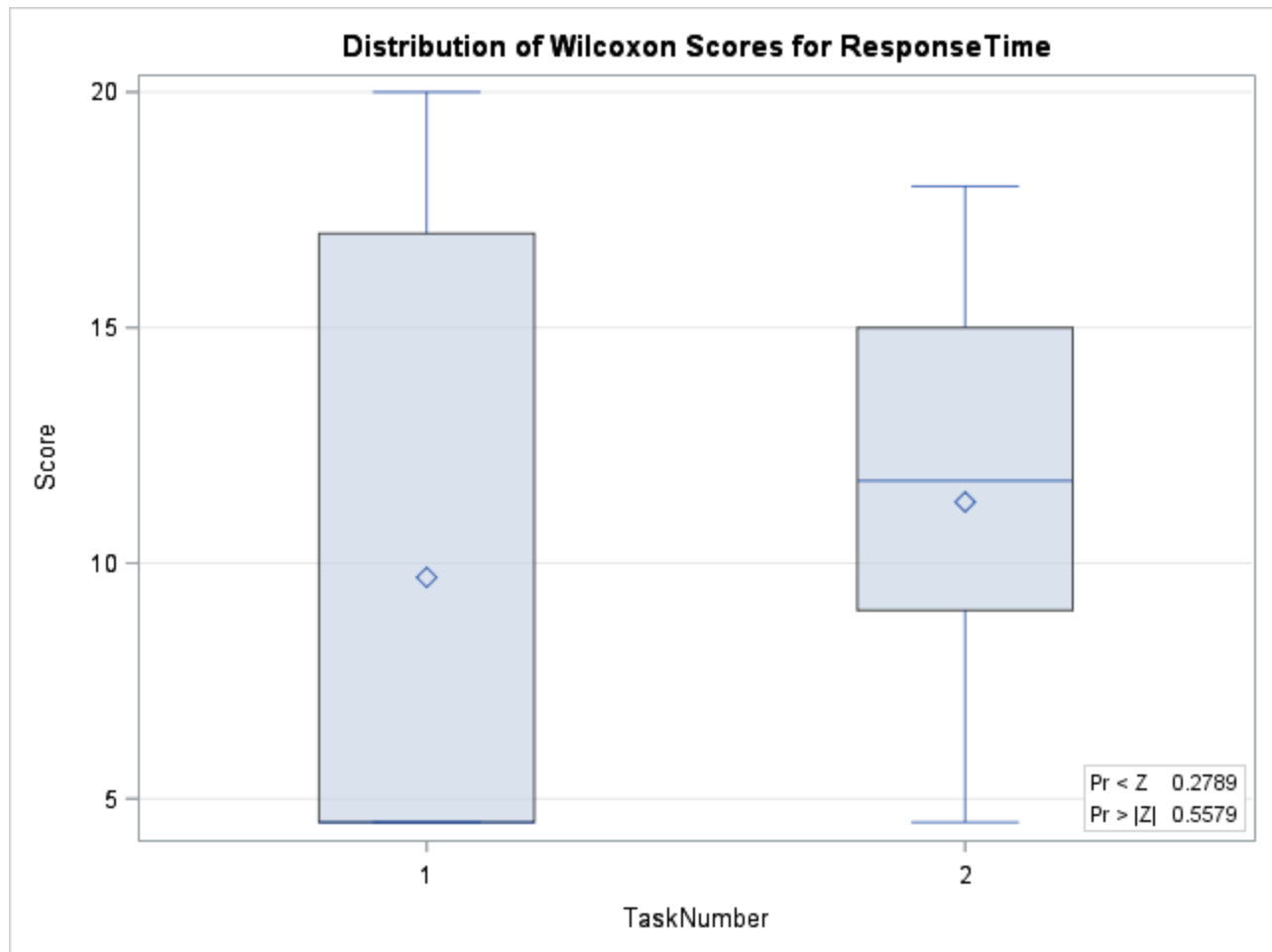
SAS OUTPUT C5: SAS Output for Normality test for Eye Fixation Duration (AOI-Title Bottom)

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 1

Moments			
N	10	Sum Weights	10
Mean	0.9316	Sum Observations	9.316
Std Deviation	1.39858478	Variance	1.95603938

YouTube Commercial: Exploring human's perspective of commercials

Skewness	2.63900832	Kurtosis	7.60784943
Uncorrected SS	26.28314	Corrected SS	17.6043544
Coeff Variation	150.127177	Std Error Mean	0.44227134

Basic Statistical Measures			
Location		Variability	
Mean	0.931600	Std Deviation	1.39858
Median	0.608000	Variance	1.95604
Mode	0.000000	Range	4.72500
		Interquartile Range	0.90800

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	2.106399	Pr > |t|	0.0644
Sign	M	3.5	Pr >= |M|	0.0156
Signed Rank	S	14	Pr >= |S|	0.0156

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.645266	Pr < W	0.0002
Kolmogorov-Smirnov	D	0.307456	Pr > D	<0.0100
Cramer-von Mises	W-Sq	0.249563	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	1.424719	Pr > A-Sq	<0.0050

Quantiles (Definition 5)	
Level	Quantile
100% Max	4.725
99%	4.725
95%	4.725
90%	2.992
75% Q3	0.908
50% Median	0.608

YouTube Commercial: Exploring human's perspective of commercials

25% Q1	0.000
10%	0.000
5%	0.000
1%	0.000
0% Min	0.000

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0.000	19	0.641	13
0.000	5	0.800	11
0.000	3	0.908	7
0.408	15	1.259	9
0.575	1	4.725	17

YouTube Commercial: Exploring human's perspective of commercials
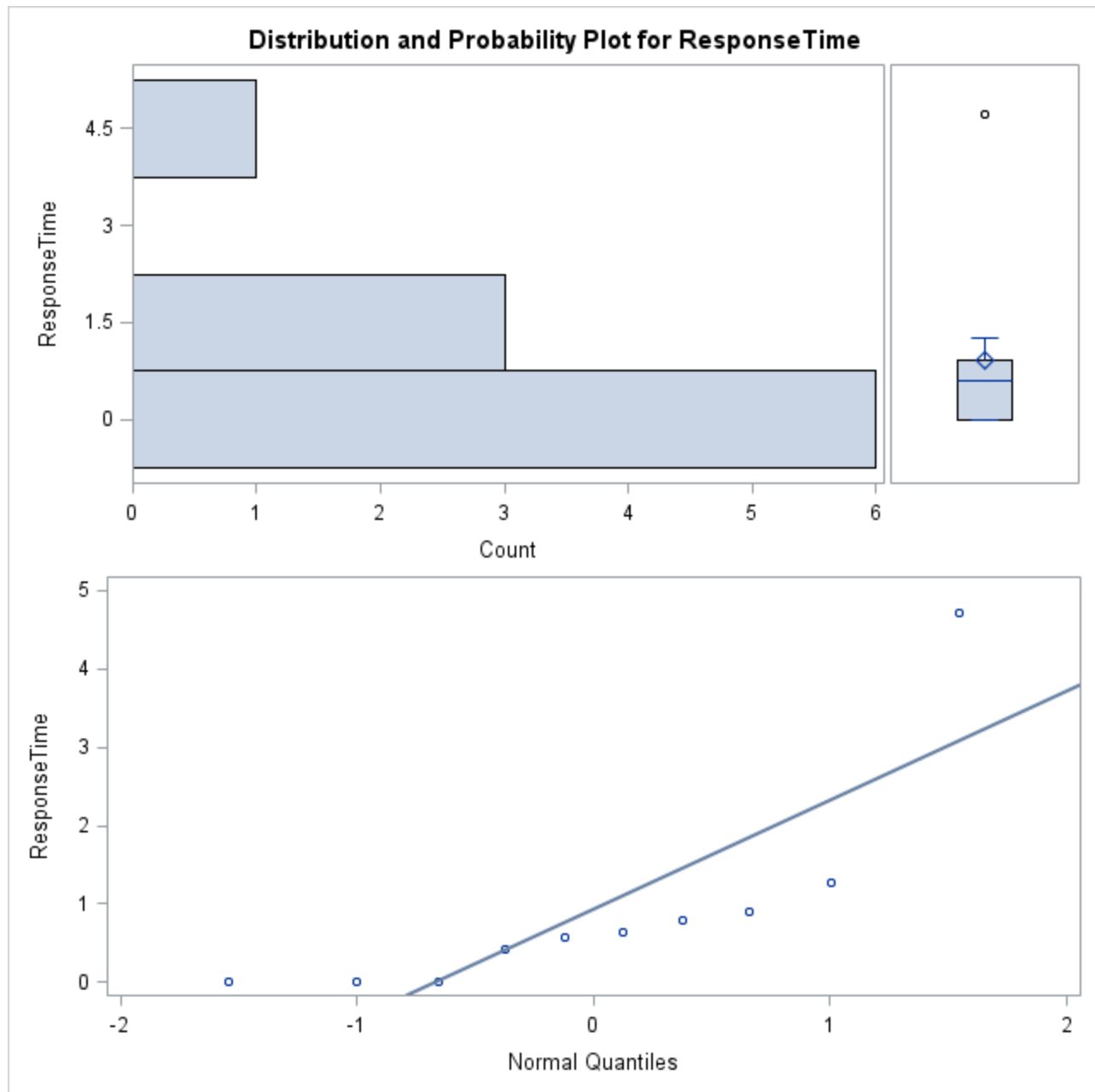
Distribution and Probability Plot for ResponseTime

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 2

Moments			
N	10	Sum Weights	10
Mean	0.5517	Sum Observations	5.517

Std Deviation	0.34950316	Variance	0.12215246
Skewness	-0.6497816	Kurtosis	-0.9020218
Uncorrected SS	4.143101	Corrected SS	1.0993721
Coeff Variation	63.3502185	Std Error Mean	0.1105226

Basic Statistical Measures			
Location		Variability	
Mean	0.551700	Std Deviation	0.34950
Median	0.600000	Variance	0.12215
Mode	0.000000	Range	0.90900
		Interquartile Range	0.52500

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	4.991739	Pr > |t|	0.0007
Sign	M	4	Pr >= |M|	0.0078
Signed Rank	S	18	Pr >= |S|	0.0078

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.874569	Pr < W	0.1130
Kolmogorov-Smirnov	D	0.176097	Pr > D	>0.1500
Cramer-von Mises	W-Sq	0.059751	Pr > W-Sq	>0.2500
Anderson-Darling	A-Sq	0.462086	Pr > A-Sq	0.2092

Quantiles (Definition 5)	
Level	Quantile
100% Max	0.9090
99%	0.9090
95%	0.9090
90%	0.9045
75% Q3	0.8830

YouTube Commercial: Exploring human's perspective of commercials

50% Median	0.6000
25% Q1	0.3580
10%	0.0000
5%	0.0000
1%	0.0000
0% Min	0.0000

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0.000	8	0.667	16
0.000	6	0.817	4
0.358	12	0.883	18
0.450	10	0.900	20
0.533	2	0.909	14

YouTube Commercial: Exploring human's perspective of commercials

Distribution and Probability Plot for ResponseTime

The SAS System

The NPAR1WAY Procedure

YouTube Commercial: Exploring human's perspective of commercials

Wilcoxon Scores (Rank Sums) for Variable ResponseTime Classified by Variable TaskNumber					
TaskNumber	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	10	106.0	105.0	13.128915	10.60
2	10	104.0	105.0	13.128915	10.40
Average scores were used for ties.					

Wilcoxon Two-Sample Test	
Statistic (S)	106.0000
Normal Approximation	
Z	0.0381
One-Sided Pr > Z	0.4848
Two-Sided Pr > |Z|	0.9696
t Approximation	
One-Sided Pr > Z	0.4850
Two-Sided Pr > |Z|	0.9700
Exact Test	
One-Sided Pr >= S	0.4852
Two-Sided Pr >= |S - Mean|	0.9703
Z includes a continuity correction of 0.5.	

Kruskal-Wallis Test	
Chi-Square	0.0058
DF	1
Pr > Chi-Square	0.9393

YouTube Commercial: Exploring human's perspective of commercials

Distribution of Wilcoxon Scores for ResponseTime

| Pr > Z | 0.4848 |
| Pr > |Z| | 0.9696 |

SAS OUTPUT C7: SAS Output for Normality test for Eye Fixation Duration(AOI-Title Center)

The SAS System

The SAS System
The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 1

Moments			
N	10	Sum Weights	10
Mean	1.1016	Sum Observations	11.016

YouTube Commercial: Exploring human's perspective of commercials

Std Deviation	0.85743055	**Variance**	0.73518716
Skewness	1.05288195	**Kurtosis**	1.57389592
Uncorrected SS	18.75191	**Corrected SS**	6.6166844
Coeff Variation	77.8350176	**Std Error Mean**	0.27114335

Basic Statistical Measures			
Location		**Variability**	
Mean	1.101600	**Std Deviation**	0.85743
Median	0.938000	**Variance**	0.73519
Mode	.	**Range**	2.96600
		Interquartile Range	0.91500

Tests for Location: Mu0=0				
Test	**Statistic**		**p Value**	
Student's t	t	4.062796	Pr > |t|	0.0028
Sign	M	4.5	Pr >= |M|	0.0039
Signed Rank	S	22.5	Pr >= |S|	0.0039

Tests for Normality				
Test	**Statistic**		**p Value**	
Shapiro-Wilk	W	0.907291	Pr < W	0.2629
Kolmogorov-Smirnov	D	0.258691	Pr > D	0.0566
Cramer-von Mises	W-Sq	0.083328	Pr > W-Sq	0.1706
Anderson-Darling	A-Sq	0.464814	Pr > A-Sq	0.2059

Quantiles (Definition 5)	

YouTube Commercial: Exploring human's perspective of commercials

Level	Quantile
100% Max	2.9660
99%	2.9660
95%	2.9660
90%	2.3790
75% Q3	1.6650
50% Median	0.9380
25% Q1	0.7500
10%	0.0875
5%	0.0000
1%	0.0000
0% Min	0.0000

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0.000	17	0.951	1
0.175	15	0.975	13
0.750	19	1.665	5
0.817	11	1.792	3
0.925	7	2.966	9

YouTube Commercial: Exploring human's perspective of commercials

Distribution and Probability Plot for ResponseTime
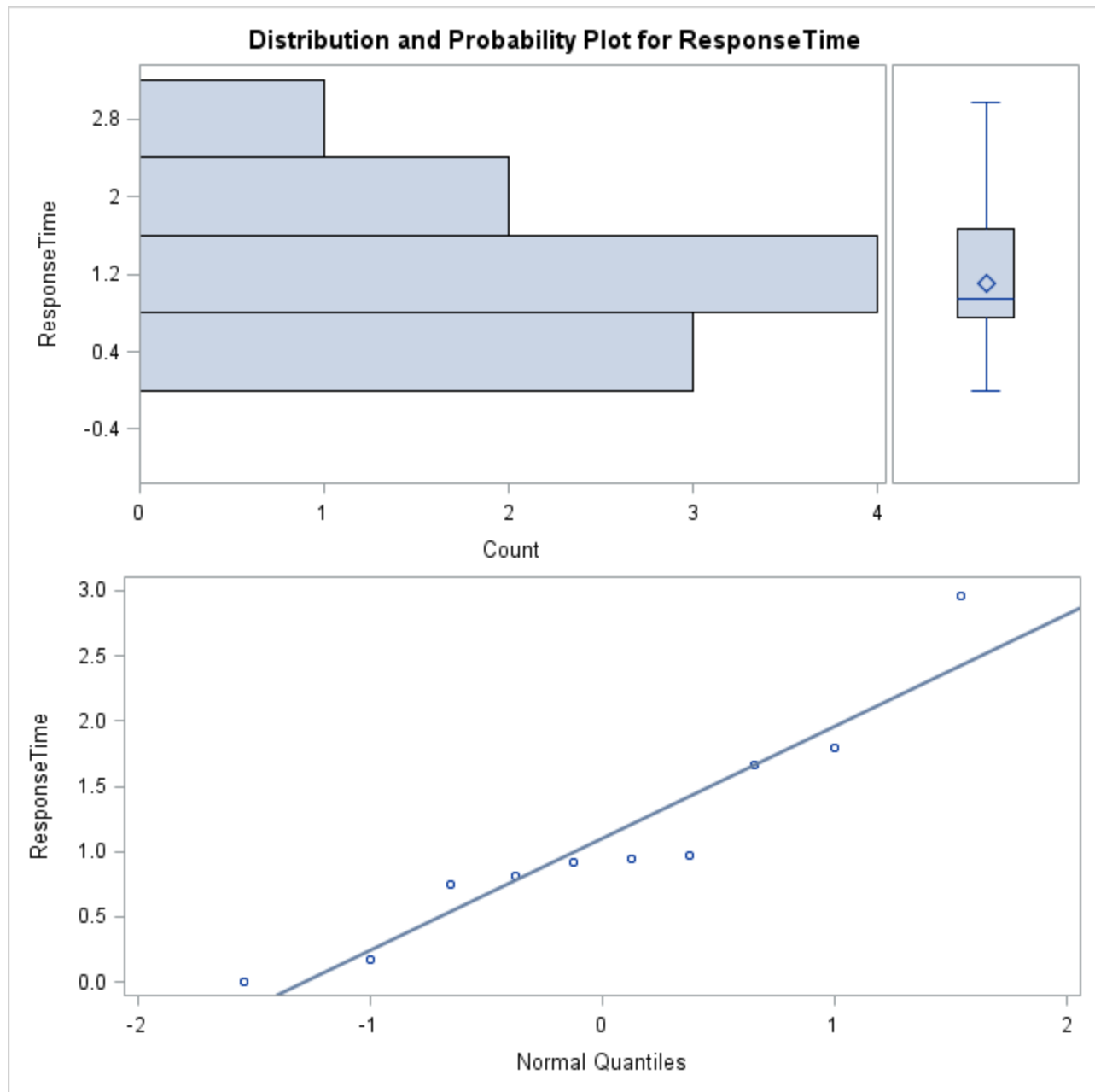
The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime

Variable: ResponseTime
TaskNumber = 2

Moments			

YouTube Commercial: Exploring human's perspective of commercials

N	10	Sum Weights	10
Mean	1.2877	Sum Observations	12.877
Std Deviation	0.63728034	Variance	0.40612623
Skewness	0.49940874	Kurtosis	-0.9632722
Uncorrected SS	20.236849	Corrected SS	3.6551361
Coeff Variation	49.4898145	Std Error Mean	0.20152574

Basic Statistical Measures			
Location		Variability	
Mean	1.287700	Std Deviation	0.63728
Median	1.175500	Variance	0.40613
Mode	.	Range	1.90800
		Interquartile Range	1.08400

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	6.389755	Pr > |t|	0.0001
Sign	M	5	Pr >= |M|	0.0020
Signed Rank	S	27.5	Pr >= |S|	0.0020

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.942576	Pr < W	0.5820
Kolmogorov-Smirnov	D	0.166097	Pr > D	>0.1500
Cramer-von Mises	W-Sq	0.042846	Pr > W-Sq	>0.2500
Anderson-Darling	A-Sq	0.271844	Pr > A-Sq	>0.2500

YouTube Commercial: Exploring human's perspective of commercials

Quantiles (Definition 5)	
Level	Quantile
100% Max	2.3920
99%	2.3920
95%	2.3920
90%	2.2045
75% Q3	1.8500
50% Median	1.1755
25% Q1	0.7660
10%	0.5795
5%	0.4840
1%	0.4840
0% Min	0.4840

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0.484	12	1.209	18
0.675	16	1.517	4
0.766	8	1.850	2
0.825	10	2.017	14
1.142	6	2.392	20

YouTube Commercial: Exploring human's perspective of commercials
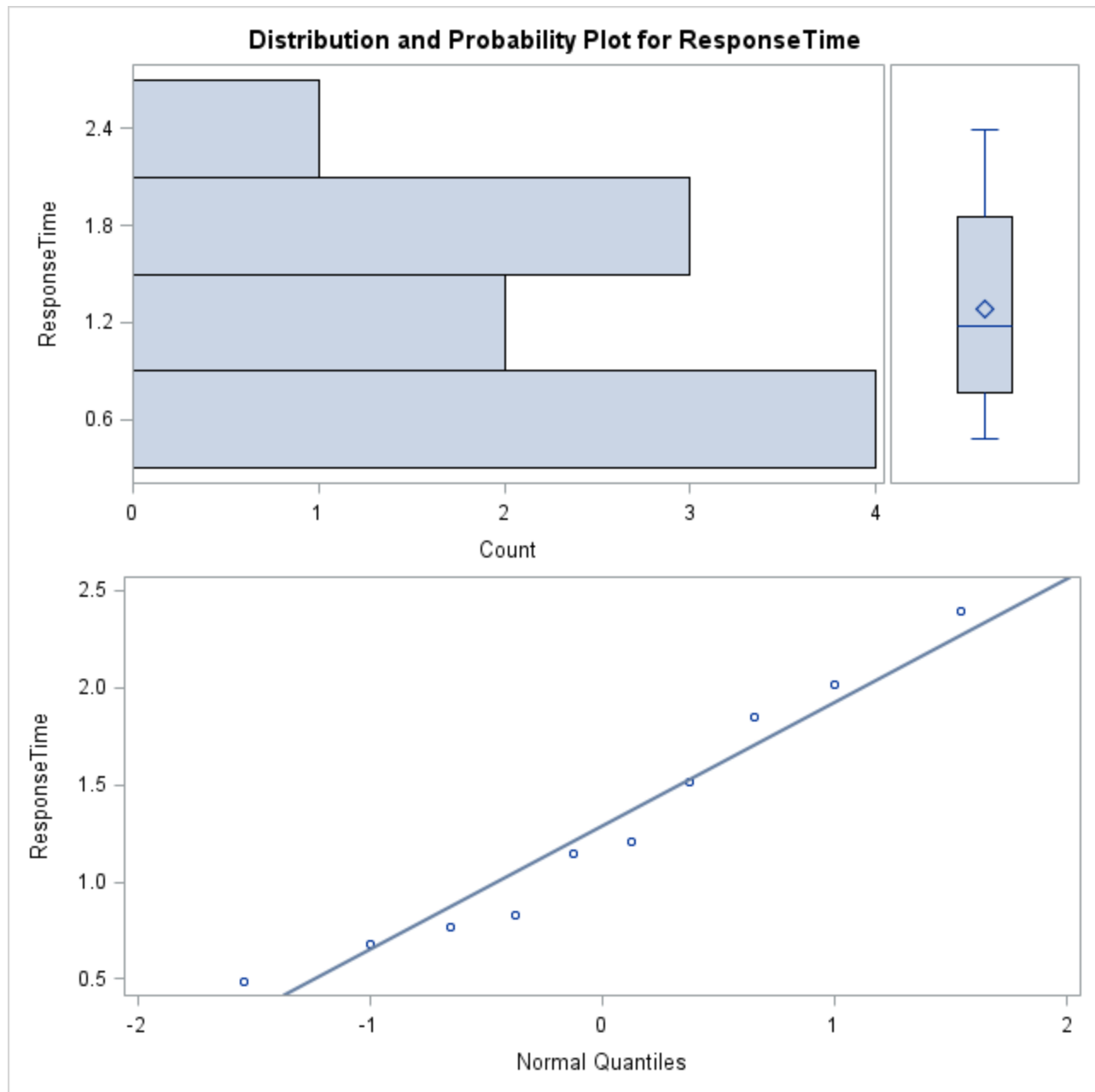
SAS OUTPUT C8: SAS Output for Mann-Whitney-Wilcoxon test for Eye Fixation Duration(AOI- Title Center)
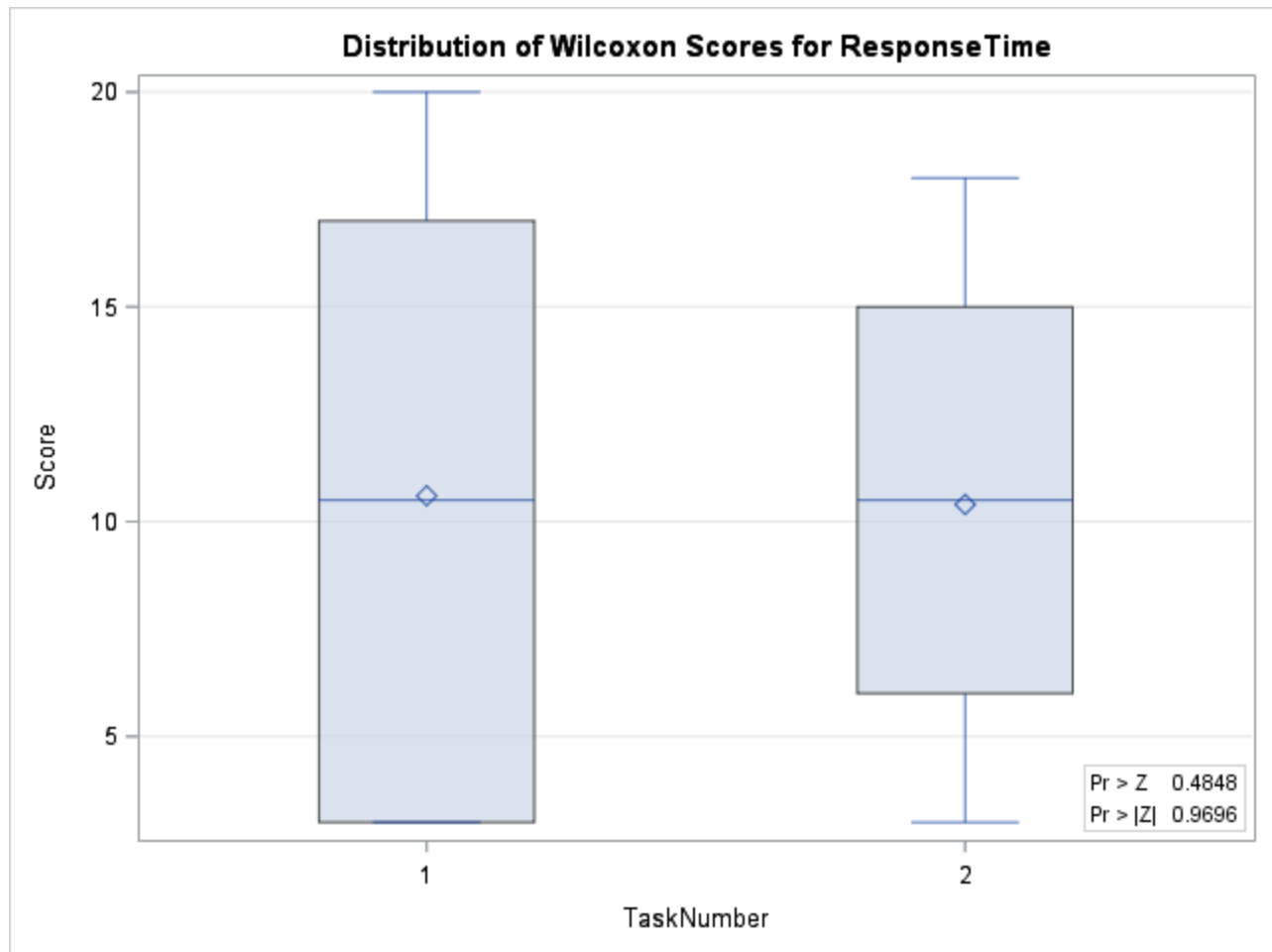
The SAS System

The NPAR1WAY Procedure

YouTube Commercial: Exploring human's perspective of commercials

Wilcoxon Scores (Rank Sums) for Variable ResponseTime Classified by Variable TaskNumber					
TaskNumber	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	10	96.0	105.0	13.228757	9.60
2	10	114.0	105.0	13.228757	11.40

Wilcoxon Two-Sample Test	
Statistic (S)	96.0000
Normal Approximation	
Z	-0.6425
One-Sided Pr < Z	0.2603
Two-Sided Pr > |Z|	0.5205
t Approximation	
One-Sided Pr < Z	0.2641
Two-Sided Pr > |Z|	0.5282
Exact Test	
One-Sided Pr <= S	0.2644
Two-Sided Pr >= |S - Mean|	0.5288
Z includes a continuity correction of 0.5.	

Kruskal-Wallis Test	
Chi-Square	0.4629
DF	1
Pr > Chi-Square	0.4963

YouTube Commercial: Exploring human's perspective of commercials

Distribution of Wilcoxon Scores for ResponseTime

| Pr < Z | 0.2603 |
| Pr > \|Z\| | 0.5205 |
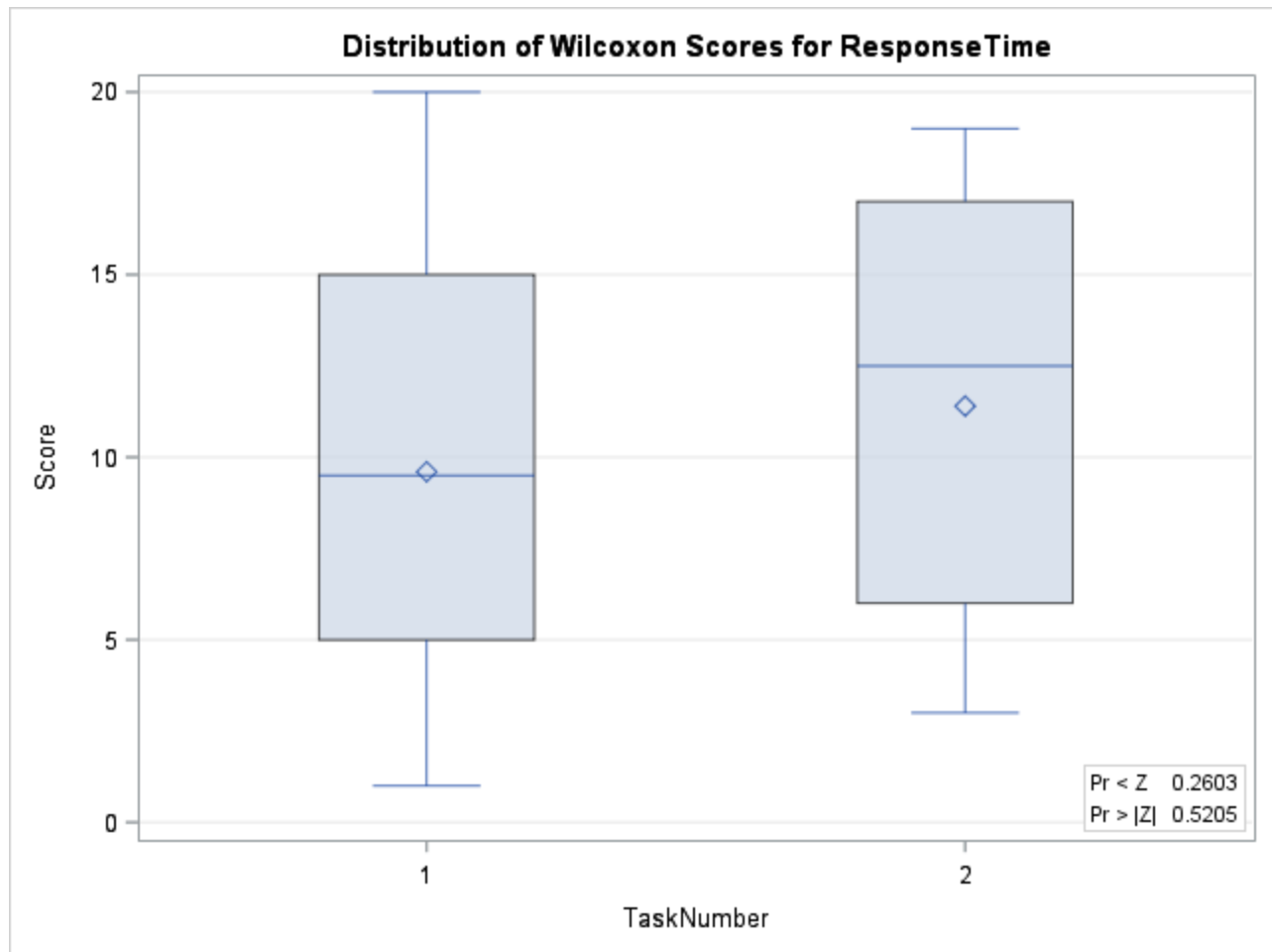
SAS OUTPUT C9: SAS Output for Normality test for Eye Fixation Duration(AOI-Video Center)

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 1

Moments			
N	10	Sum Weights	10
Mean	8.9988	Sum Observations	89.988
Std Deviation	3.49614495	Variance	12.2230295
Skewness	-2.2373531	Kurtosis	5.42503717
Uncorrected SS	919.79128	Corrected SS	110.007266

YouTube Commercial: Exploring human's perspective of commercials

Coeff Variation	38.8512352	Std Error Mean	1.10557811

Basic Statistical Measures			
Location		Variability	
Mean	8.99880	Std Deviation	3.49614
Median	10.25700	Variance	12.22303
Mode	10.25700	Range	11.73900
		Interquartile Range	3.34200

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	8.139452	Pr > |t|	<.0001
Sign	M	4.5	Pr >= |M|	0.0039
Signed Rank	S	22.5	Pr >= |S|	0.0039

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.712342	Pr < W	0.0012
Kolmogorov-Smirnov	D	0.337962	Pr > D	<0.0100
Cramer-von Mises	W-Sq	0.209848	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	1.201505	Pr > A-Sq	<0.0050

Quantiles (Definition 5)	
Level	Quantile
100% Max	11.7390
99%	11.7390
95%	11.7390
90%	11.5210
75% Q3	10.8910
50% Median	10.2570
25% Q1	7.5490
10%	3.5875

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5%	0.0000
1%	0.0000
0% Min	0.0000

Extreme Observations			
Lowest		**Highest**	
Value	**Obs**	**Value**	**Obs**
0.000	9	10.257	7
7.175	17	10.584	13
7.549	15	10.891	3
10.233	11	11.303	19
10.257	7	11.739	5

YouTube Commercial: Exploring human's perspective of commercials
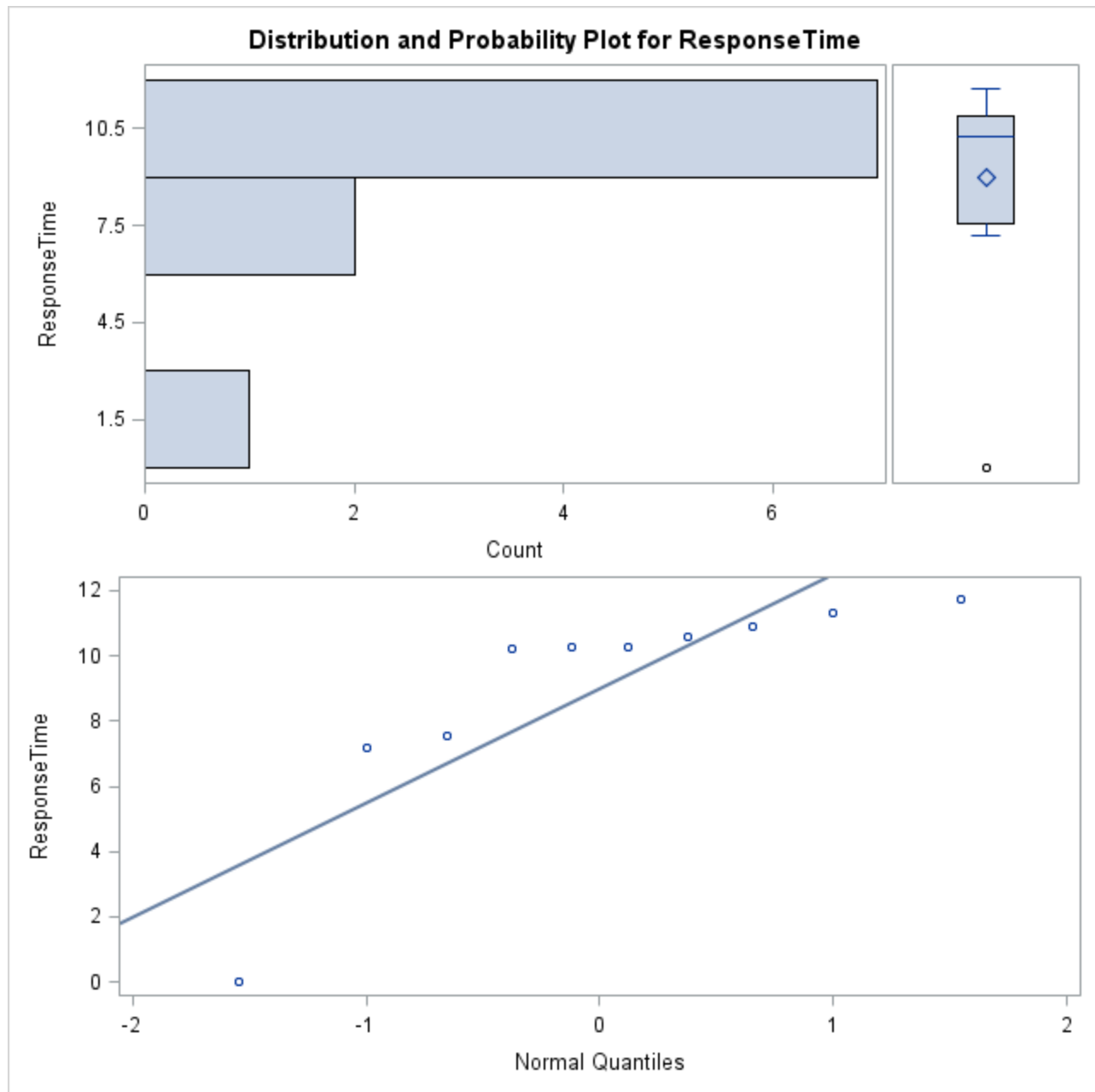
Distribution and Probability Plot for ResponseTime

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 2

Moments			
N	10	Sum Weights	10
Mean	9.3914	Sum Observations	93.914

YouTube Commercial: Exploring human's perspective of commercials

Std Deviation	3.02295967	Variance	9.13828516
Skewness	-2.3940443	Kurtosis	6.78539865
Uncorrected SS	964.228506	Corrected SS	82.2445664
Coeff Variation	32.1885945	Std Error Mean	0.95594378

Basic Statistical Measures			
Location		Variability	
Mean	9.39140	Std Deviation	3.02296
Median	10.01450	Variance	9.13829
Mode	.	Range	11.12500
		Interquartile Range	1.24200

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	9.824218	Pr > |t|	<.0001
Sign	M	5	Pr >= |M|	0.0020
Signed Rank	S	27.5	Pr >= |S|	0.0020

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.717585	Pr < W	0.0014
Kolmogorov-Smirnov	D	0.291238	Pr > D	0.0172
Cramer-von Mises	W-Sq	0.213848	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	1.204323	Pr > A-Sq	<0.0050

Quantiles (Definition 5)	
Level	Quantile
100% Max	12.4930
99%	12.4930
95%	12.4930
90%	11.9380
75% Q3	10.5670

YouTube Commercial: Exploring human's perspective of commercials

50% Median	10.0145
25% Q1	9.3250
10%	4.9260
5%	1.3680
1%	1.3680
0% Min	1.3680

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
1.368	10	10.169	2
8.484	12	10.407	16
9.325	14	10.567	18
9.858	20	11.383	6
9.860	4	12.493	8

YouTube Commercial: Exploring human's perspective of commercials

Distribution and Probability Plot for ResponseTime

YouTube Commercial: Exploring human's perspective of commercials

The SAS System

The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable ResponseTime Classified by Variable TaskNumber					
TaskNumber	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	10	108.0	105.0	13.223782	10.80
2	10	102.0	105.0	13.223782	10.20
Average scores were used for ties.					

Wilcoxon Two-Sample Test	
Statistic (S)	108.0000
Normal Approximation	
Z	0.1891
One-Sided Pr > Z	0.4250
Two-Sided Pr > |Z|	0.8501
t Approximation	
One-Sided Pr > Z	0.4260
Two-Sided Pr > |Z|	0.8521
Exact Test	
One-Sided Pr >= S	0.4191
Two-Sided Pr >= |S - Mean|	0.8382
Z includes a continuity correction of 0.5.	

Kruskal-Wallis Test	
Chi-Square	0.0515
DF	1

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Pr > Chi-Square	0.8205

Distribution of Wilcoxon Scores for ResponseTime

| Pr > Z | 0.4250 |
| Pr > |Z| | 0.8501 |
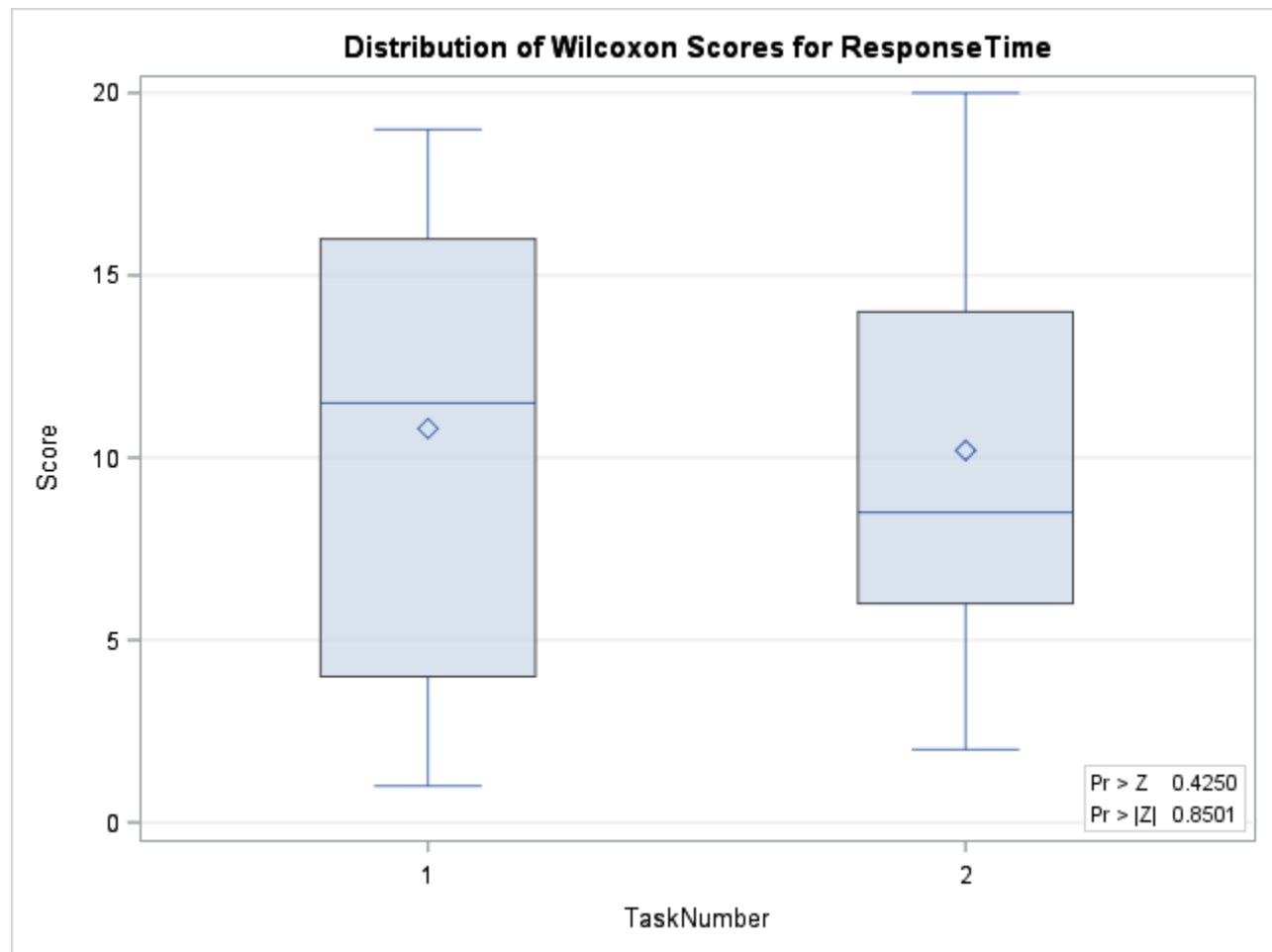
TASK-1 SKIP, TASK-2 NO SKIP

SAS OUTPUT C11: SAS Output for Normality test for Eye Fixation Counts(AOI-Slogan)

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 1

Moments			
N	10	Sum Weights	10

YouTube Commercial: Exploring human's perspective of commercials

Mean	3	Sum Observations	30
Std Deviation	4.163332	Variance	17.3333333
Skewness	2.42501771	Kurtosis	6.46137997
Uncorrected SS	246	Corrected SS	156
Coeff Variation	138.777733	Std Error Mean	1.31656118

Basic Statistical Measures			
Location		Variability	
Mean	3.000000	Std Deviation	4.16333
Median	1.500000	Variance	17.33333
Mode	1.000000	Range	14.00000
		Interquartile Range	2.00000

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	2.278664	Pr > |t|	0.0487
Sign	M	4	Pr >= |M|	0.0078
Signed Rank	S	18	Pr >= |S|	0.0078

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.692164	Pr < W	0.0007
Kolmogorov-Smirnov	D	0.3	Pr > D	0.0116
Cramer-von Mises	W-Sq	0.209162	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	1.22784	Pr > A-Sq	<0.0050

Quantiles (Definition 5)	
Level	Quantile
100% Max	14.0
99%	14.0
95%	14.0
90%	9.5

YouTube Commercial: Exploring human's perspective of commercials

75% Q3	3.0
50% Median	1.5
25% Q1	1.0
10%	0.0
5%	0.0
1%	0.0
0% Min	0.0

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0	19	2	13
0	3	3	11
1	17	3	15
1	5	5	7
1	1	14	9

YouTube Commercial: Exploring human's perspective of commercials
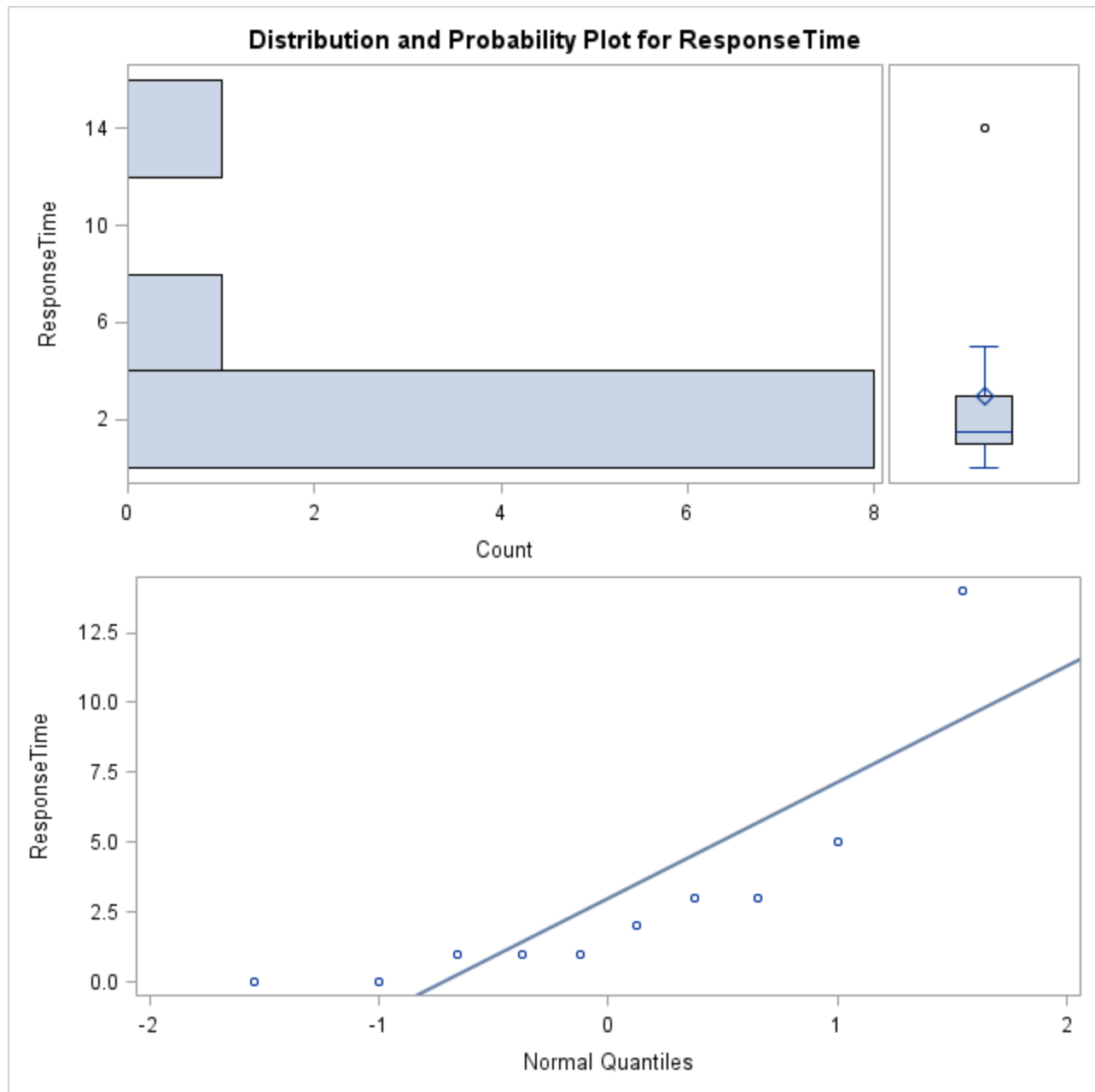
Distribution and Probability Plot for ResponseTime

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 2

Moments			
N	10	Sum Weights	10
Mean	1.5	Sum Observations	15

YouTube Commercial: Exploring human's perspective of commercials

Std Deviation	1.1785113	Variance	1.38888889
Skewness	-0.2545584	Kurtosis	-1.44
Uncorrected SS	35	Corrected SS	12.5
Coeff Variation	78.5674201	Std Error Mean	0.372678

Basic Statistical Measures			
Location		Variability	
Mean	1.500000	Std Deviation	1.17851
Median	2.000000	Variance	1.38889
Mode	2.000000	Range	3.00000
		Interquartile Range	2.00000

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	4.024922	Pr > |t|	0.0030
Sign	M	3.5	Pr >= |M|	0.0156
Signed Rank	S	14	Pr >= |S|	0.0156

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.84997	Pr < W	0.0580
Kolmogorov-Smirnov	D	0.264313	Pr > D	0.0462
Cramer-von Mises	W-Sq	0.107131	Pr > W-Sq	0.0807
Anderson-Darling	A-Sq	0.65707	Pr > A-Sq	0.0628

Quantiles (Definition 5)	
Level	Quantile
100% Max	3
99%	3
95%	3
90%	3
75% Q3	2

YouTube Commercial: Exploring human's perspective of commercials

50% Median	2
25% Q1	0
10%	0
5%	0
1%	0
0% Min	0

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0	20	2	4
0	14	2	6
0	12	2	16
1	18	3	8
2	16	3	10

YouTube Commercial: Exploring human's perspective of commercials
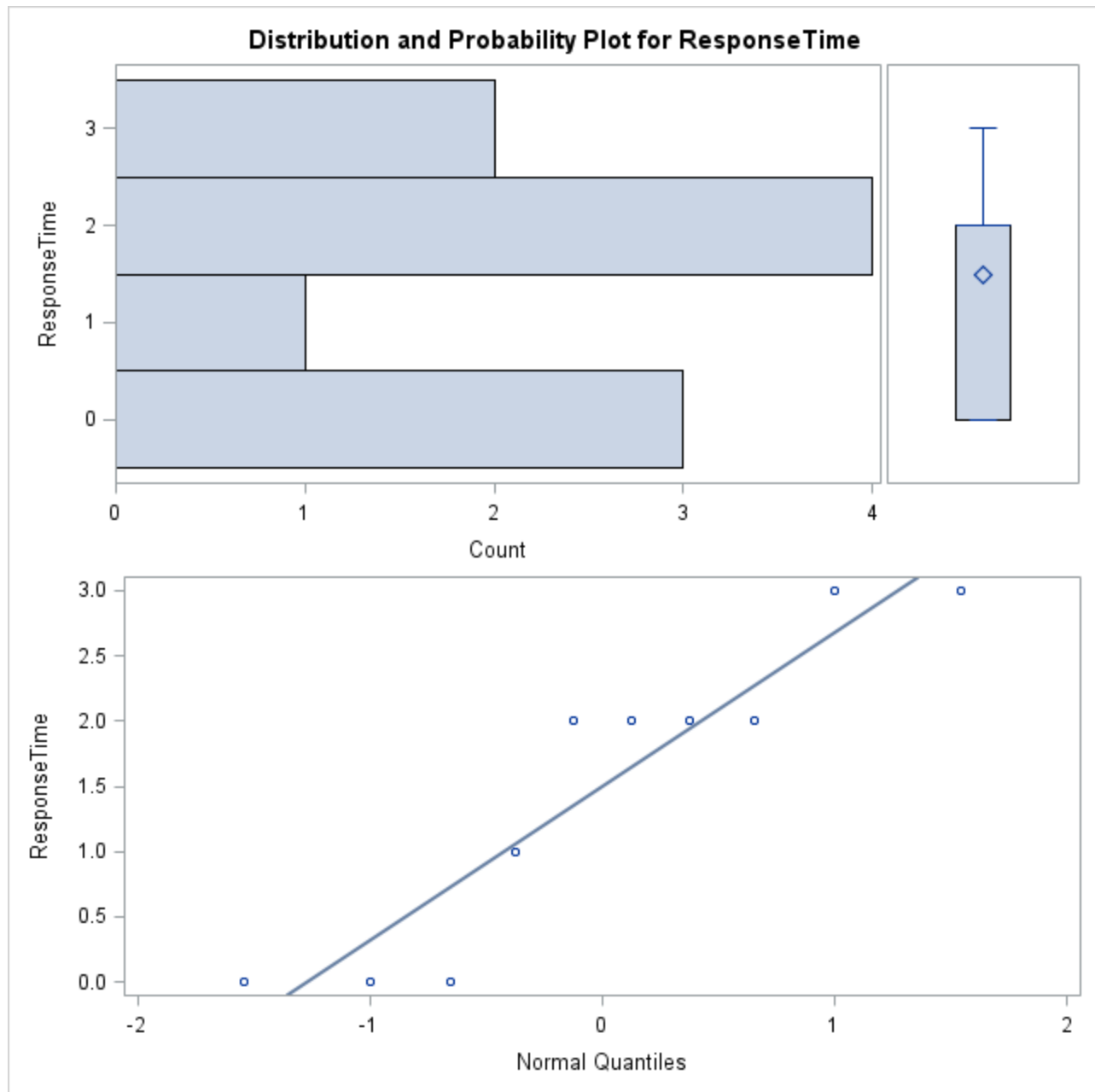
SAS OUTPUT C12: SAS Output for Mann-Whitney-Wilcoxon test for Eye Fixation Counts(AOI- Slogan)

The SAS System

The SAS System
The NPAR1WAY Procedure

YouTube Commercial: Exploring human's perspective of commercials

Wilcoxon Scores (Rank Sums) for Variable ResponseTime Classified by Variable TaskNumber					
TaskNumber	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	10	112.50	105.0	12.926920	11.250
2	10	97.50	105.0	12.926920	9.750
Average scores were used for ties.					

Wilcoxon Two-Sample Test	
Statistic (S)	112.5000
Normal Approximation	
Z	0.5415
One-Sided Pr > Z	0.2941
Two-Sided Pr > |Z|	0.5882
t Approximation	
One-Sided Pr > Z	0.2972
Two-Sided Pr > |Z|	0.5945
Exact Test	
One-Sided Pr >= S	0.3117
Two-Sided Pr >= |S - Mean|	0.6234
Z includes a continuity correction of 0.5.	

Kruskal-Wallis Test	
Chi-Square	0.3366
DF	1
Pr > Chi-Square	0.5618

YouTube Commercial: Exploring human's perspective of commercials

Distribution of Wilcoxon Scores for ResponseTime

Pr > Z   0.2941
Pr > |Z| 0.5882
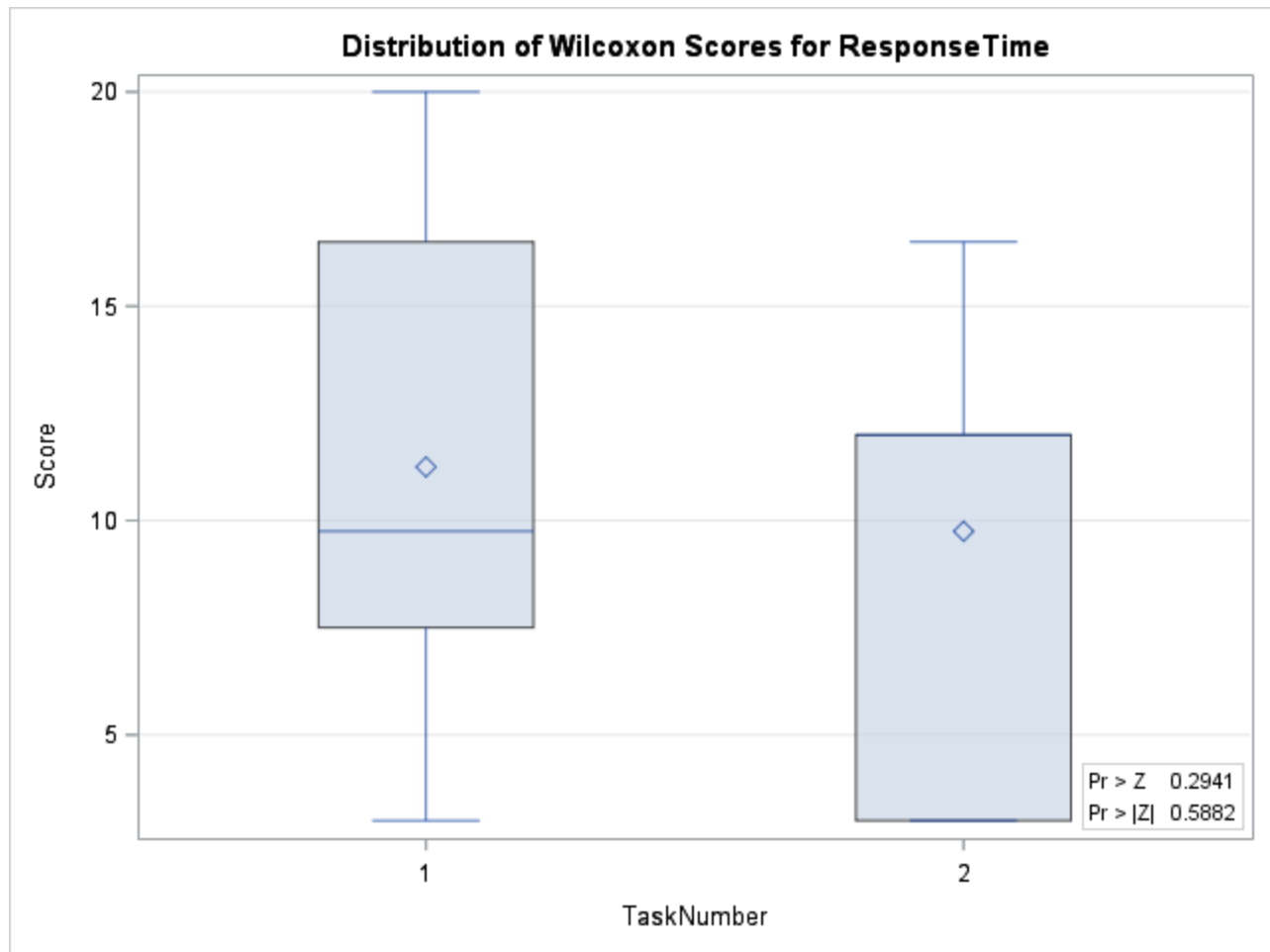
SAS OUTPUT C13: SAS Output for Normality test for Eye Fixation Counts(AOI-Countdown)

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 1

Moments			
N	10	Sum Weights	10
Mean	2.1	Sum Observations	21
Std Deviation	4.09471204	Variance	16.7666667

YouTube Commercial: Exploring human's perspective of commercials

Skewness	2.08313088	Kurtosis	3.65892122
Uncorrected SS	195	Corrected SS	150.9
Coeff Variation	194.986287	Std Error Mean	1.29486164

Basic Statistical Measures			
Location		Variability	
Mean	2.100000	Std Deviation	4.09471
Median	0.000000	Variance	16.76667
Mode	0.000000	Range	12.00000
		Interquartile Range	1.00000

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	1.621795	Pr > |t|	0.1393
Sign	M	2	Pr >= |M|	0.1250
Signed Rank	S	5	Pr >= |S|	0.1250

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.601168	Pr < W	<0.0001
Kolmogorov-Smirnov	D	0.405896	Pr > D	<0.0100
Cramer-von Mises	W-Sq	0.378531	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	1.895478	Pr > A-Sq	<0.0050

Quantiles (Definition 5)	
Level	Quantile
100% Max	12.0
99%	12.0
95%	12.0
90%	9.5
75% Q3	1.0
50% Median	0.0

YouTube Commercial: Exploring human's perspective of commercials

25% Q1	0.0
10%	0.0
5%	0.0
1%	0.0
0% Min	0.0

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0	19	0	19
0	15	1	1
0	13	1	3
0	11	7	17
0	7	12	9

YouTube Commercial: Exploring human's perspective of commercials
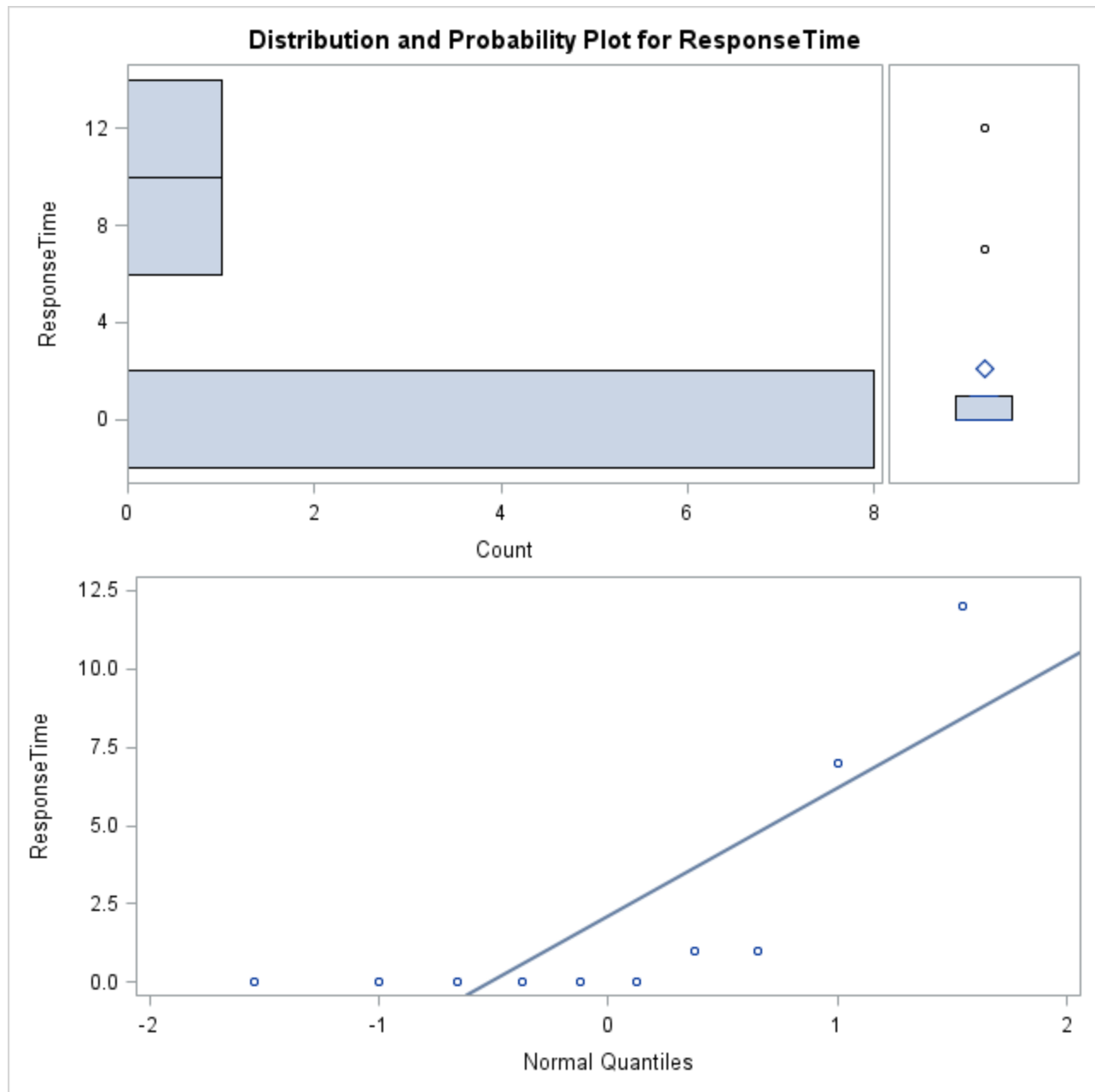
Distribution and Probability Plot for ResponseTime

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 2

Moments			
N	10	Sum Weights	10
Mean	2.5	Sum Observations	25

YouTube Commercial: Exploring human's perspective of commercials

Std Deviation	3.65908307	Variance	13.3888889
Skewness	2.33886226	Kurtosis	5.75099307
Uncorrected SS	183	Corrected SS	120.5
Coeff Variation	146.363323	Std Error Mean	1.15710366

Basic Statistical Measures			
Location		Variability	
Mean	2.500000	Std Deviation	3.65908
Median	1.000000	Variance	13.38889
Mode	1.000000	Range	12.00000
		Interquartile Range	2.00000

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	2.160567	Pr > |t|	0.0590
Sign	M	4	Pr >= |M|	0.0078
Signed Rank	S	18	Pr >= |S|	0.0078

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.665958	Pr < W	0.0003
Kolmogorov-Smirnov	D	0.359075	Pr > D	<0.0100
Cramer-von Mises	W-Sq	0.265959	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	1.452643	Pr > A-Sq	<0.0050

Quantiles (Definition 5)	
Level	Quantile
100% Max	12.0
99%	12.0
95%	12.0
90%	8.5
75% Q3	3.0

YouTube Commercial: Exploring human's perspective of commercials

50% Median	1.0
25% Q1	1.0
10%	0.0
5%	0.0
1%	0.0
0% Min	0.0

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0	20	1	10
0	8	1	18
1	18	3	16
1	10	5	14
1	6	12	12

YouTube Commercial: Exploring human's perspective of commercials

The SAS System

The SAS System
The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable					

YouTube Commercial: Exploring human's perspective of commercials

ResponseTime Classified by Variable TaskNumber					
TaskNumber	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	10	88.50	105.0	12.507892	8.850
2	10	121.50	105.0	12.507892	12.150
Average scores were used for ties.					

Wilcoxon Two-Sample Test	
Statistic (S)	88.5000
Normal Approximation	
Z	-1.2792
One-Sided Pr < Z	0.1004
Two-Sided Pr > |Z|	0.2008
t Approximation	
One-Sided Pr < Z	0.1081
Two-Sided Pr > |Z|	0.2162
Exact Test	
One-Sided Pr <= S	0.1085
Two-Sided Pr >= |S - Mean|	0.2171
Z includes a continuity correction of 0.5.	

Kruskal-Wallis Test	
Chi-Square	1.7402
DF	1
Pr > Chi-Square	0.1871

YouTube Commercial: Exploring human's perspective of commercials

Distribution of Wilcoxon Scores for ResponseTime

Pr < Z   0.1004
Pr > |Z| 0.2008
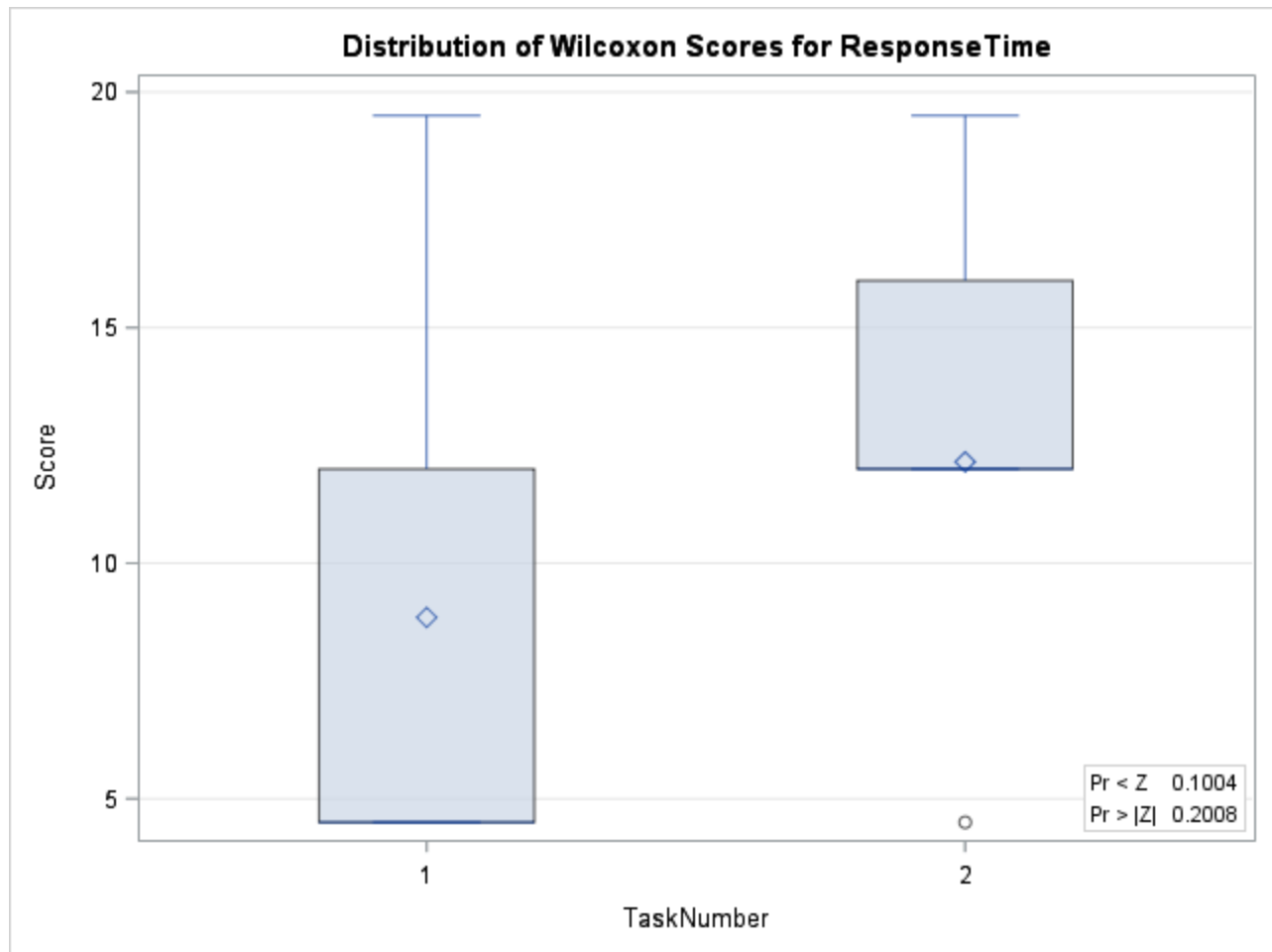
SAS OUTPUT C15: SAS Output for Normality test for Eye Fixation Counts(AOI-Title Bottom)

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 1

Moments			
N	10	Sum Weights	10
Mean	2.5	Sum Observations	25
Std Deviation	3.27448045	Variance	10.7222222

YouTube Commercial: Exploring human's perspective of commercials

Skewness	2.24296944	Kurtosis	5.81275816
Uncorrected SS	159	Corrected SS	96.5
Coeff Variation	130.979218	Std Error Mean	1.03548164

Basic Statistical Measures			
Location		Variability	
Mean	2.500000	Std Deviation	3.27448
Median	2.000000	Variance	10.72222
Mode	0.000000	Range	11.00000
		Interquartile Range	3.00000

Note: The mode displayed is the smallest of 2 modes with a count of 3.

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	2.414335	Pr > |t|	0.0390
Sign	M	3.5	Pr >= |M|	0.0156
Signed Rank	S	14	Pr >= |S|	0.0156

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.7299	Pr < W	0.0020
Kolmogorov-Smirnov	D	0.260681	Pr > D	0.0521
Cramer-von Mises	W-Sq	0.169572	Pr > W-Sq	0.0100
Anderson-Darling	A-Sq	1.037609	Pr > A-Sq	0.0058

Quantiles (Definition 5)	
Level	Quantile
100% Max	11.0
99%	11.0
95%	11.0
90%	7.5

YouTube Commercial: Exploring human's perspective of commercials

75% Q3	3.0
50% Median	2.0
25% Q1	0.0
10%	0.0
5%	0.0
1%	0.0
0% Min	0.0

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0	19	2	11
0	5	2	13
0	3	3	9
1	15	4	7
2	13	11	17

YouTube Commercial: Exploring human's perspective of commercials
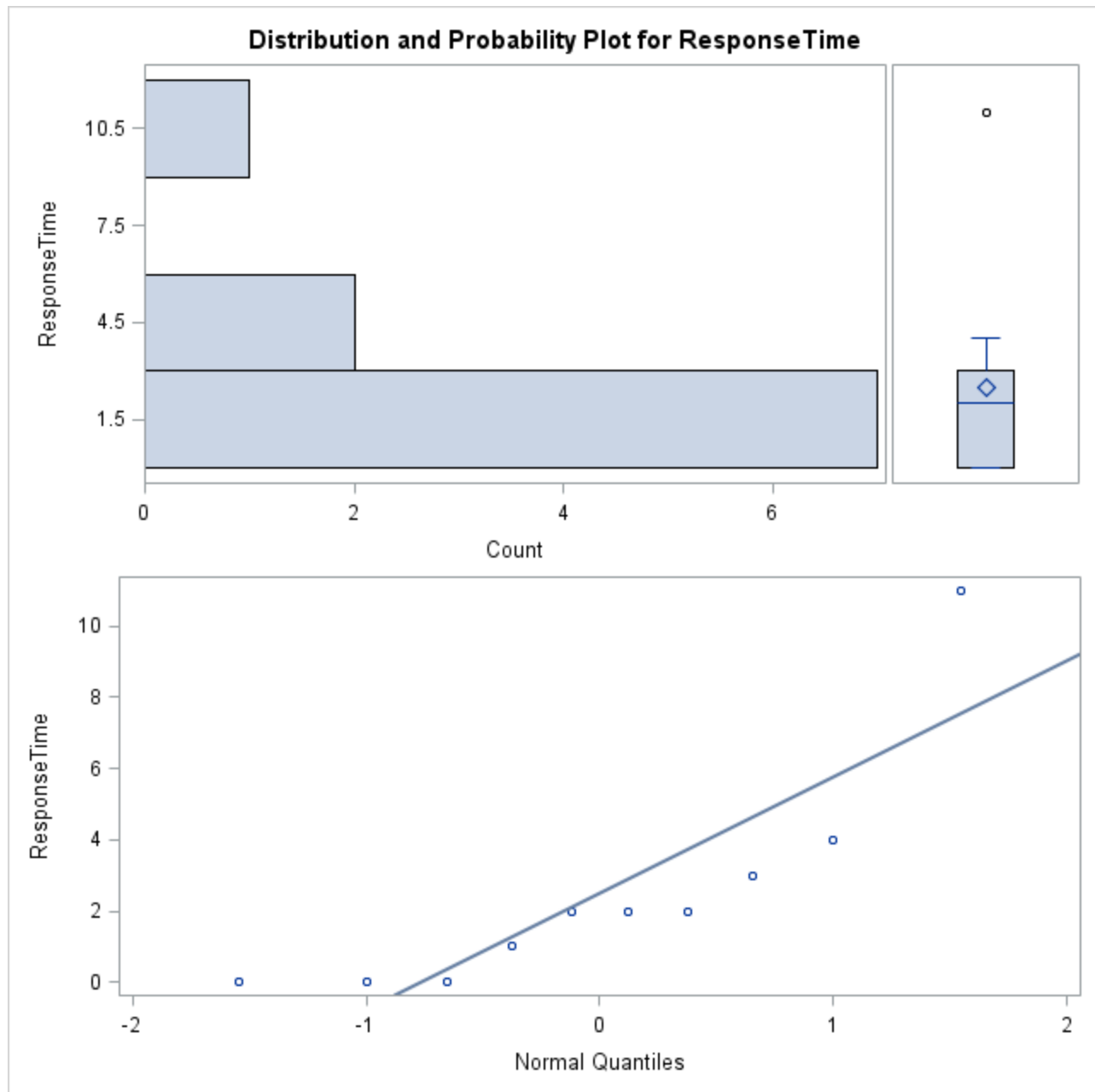
Distribution and Probability Plot for ResponseTime

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 2

Moments			
N	10	Sum Weights	10
Mean	2.1	Sum Observations	21

YouTube Commercial: Exploring human's perspective of commercials

Std Deviation	1.28668394	Variance	1.65555556
Skewness	-1.0093059	Kurtosis	-0.8119325
Uncorrected SS	59	Corrected SS	14.9
Coeff Variation	61.2706637	Std Error Mean	0.40688519

Basic Statistical Measures			
Location		Variability	
Mean	2.100000	Std Deviation	1.28668
Median	3.000000	Variance	1.65556
Mode	3.000000	Range	3.00000
		Interquartile Range	2.00000

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	5.161161	Pr > |t|	0.0006
Sign	M	4	Pr >= |M|	0.0078
Signed Rank	S	18	Pr >= |S|	0.0078

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.713062	Pr < W	0.0013
Kolmogorov-Smirnov	D	0.357872	Pr > D	<0.0100
Cramer-von Mises	W-Sq	0.230217	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	1.306928	Pr > A-Sq	<0.0050

Quantiles (Definition 5)	
Level	Quantile
100% Max	3
99%	3
95%	3
90%	3
75% Q3	3

YouTube Commercial: Exploring human's perspective of commercials

50% Median	3
25% Q1	1
10%	0
5%	0
1%	0
0% Min	0

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0	8	3	10
0	6	3	14
1	12	3	16
2	2	3	18
3	20	3	20

YouTube Commercial: Exploring human's perspective of commercials

Distribution and Probability Plot for ResponseTime
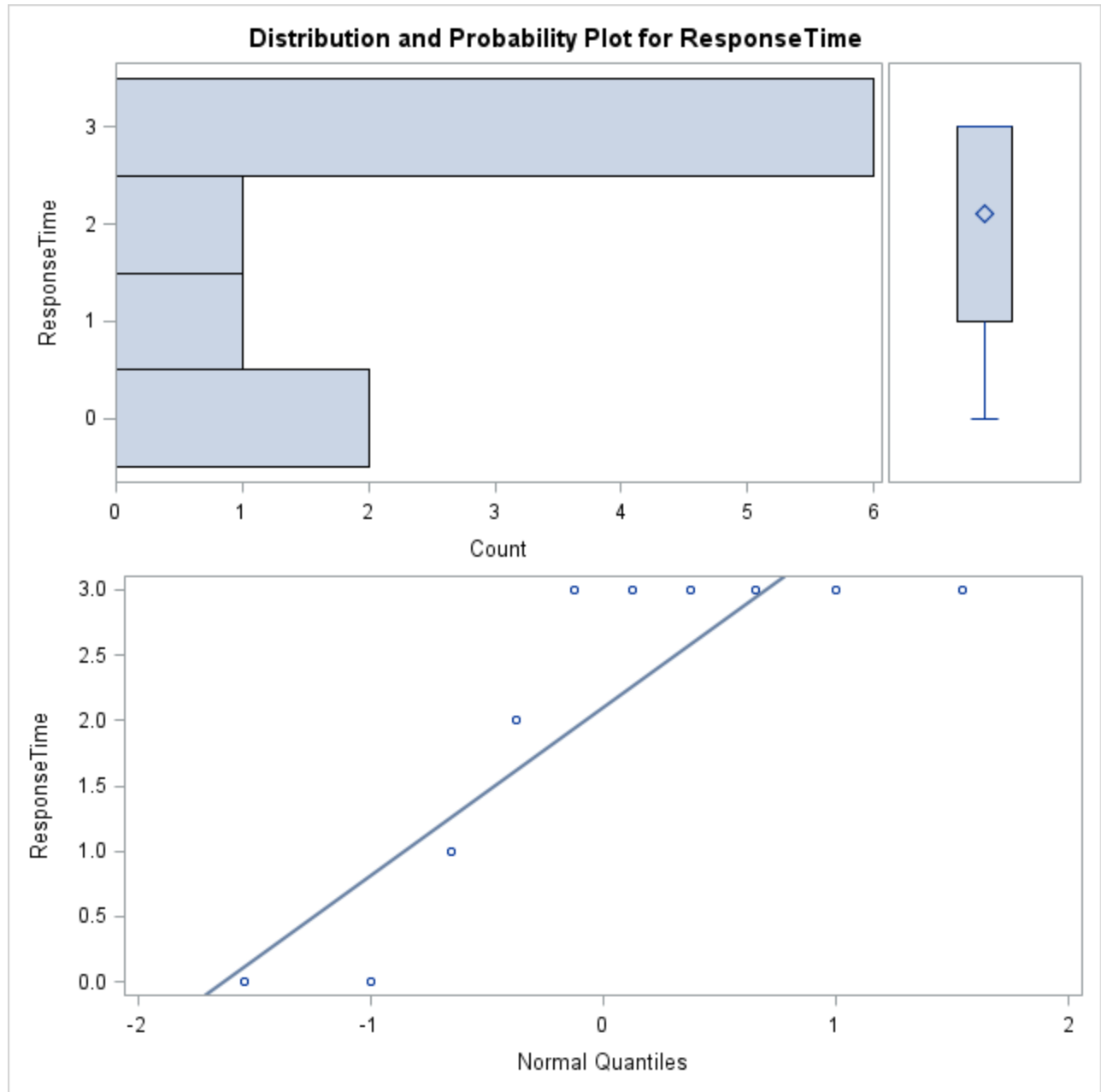
YouTube Commercial: Exploring human's perspective of commercials

SAS OUTPUT C16: SAS Output for Mann-Whitney-Wilcoxon test for Eye Fixation Counts(AOI- Title Bottom)

The SAS System

The SAS System
The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable ResponseTime Classified by Variable TaskNumber					
TaskNumber	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	10	98.0	105.0	12.788770	9.80
2	10	112.0	105.0	12.788770	11.20
Average scores were used for ties.					

Wilcoxon Two-Sample Test	
Statistic (S)	98.0000
Normal Approximation	
Z	-0.5083
One-Sided Pr < Z	0.3056
Two-Sided Pr > |Z|	0.6113
t Approximation	
One-Sided Pr < Z	0.3086
Two-Sided Pr > |Z|	0.6171
Exact Test	
One-Sided Pr <= S	0.2986
Two-Sided Pr >= |S - Mean|	0.5973
Z includes a continuity correction of 0.5.	

Kruskal-Wallis Test	
Chi-Square	0.2996
DF	1
Pr > Chi-Square	0.5841

YouTube Commercial: Exploring human's perspective of commercials

Distribution of Wilcoxon Scores for ResponseTime

Pr < Z 0.3056
Pr > |Z| 0.6113
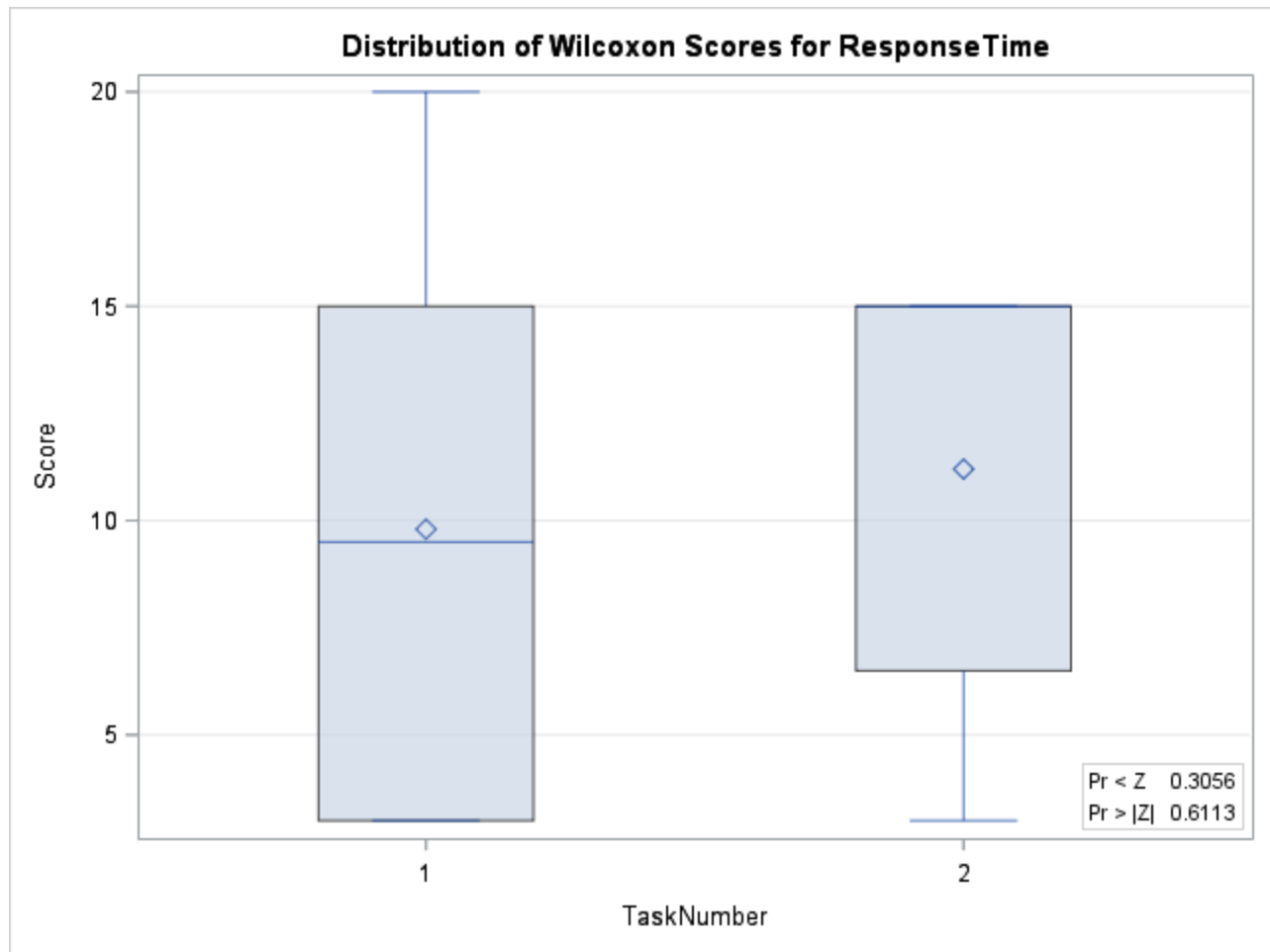
SAS OUTPUT C17: SAS Output for Normality test for Eye Fixation Counts(AOI-Title Center)

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 1

Moments			
N	10	Sum Weights	10
Mean	3.7	Sum Observations	37
Std Deviation	2.62678511	Variance	6.9
Skewness	0.22345053	Kurtosis	-1.5136876

YouTube Commercial: Exploring human's perspective of commercials

Uncorrected SS	199	Corrected SS	62.1
Coeff Variation	70.9941921	Std Error Mean	0.83066239

Basic Statistical Measures			
Location		Variability	
Mean	3.700000	Std Deviation	2.62679
Median	3.000000	Variance	6.90000
Mode	7.000000	Range	7.00000
		Interquartile Range	5.00000

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	4.454277	Pr > |t|	0.0016
Sign	M	4.5	Pr >= |M|	0.0039
Signed Rank	S	22.5	Pr >= |S|	0.0039

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.888954	Pr < W	0.1650
Kolmogorov-Smirnov	D	0.205067	Pr > D	>0.1500
Cramer-von Mises	W-Sq	0.072469	Pr > W-Sq	0.2377
Anderson-Darling	A-Sq	0.477255	Pr > A-Sq	0.1909

Quantiles (Definition 5)	
Level	Quantile
100% Max	7.0
99%	7.0
95%	7.0
90%	7.0
75% Q3	7.0
50% Median	3.0
25% Q1	2.0

YouTube Commercial: Exploring human's perspective of commercials

10%	0.5
5%	0.0
1%	0.0
0% Min	0.0

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0	17	3	13
1	11	5	1
2	19	7	3
2	15	7	5
3	13	7	9

YouTube Commercial: Exploring human's perspective of commercials

Distribution and Probability Plot for ResponseTime
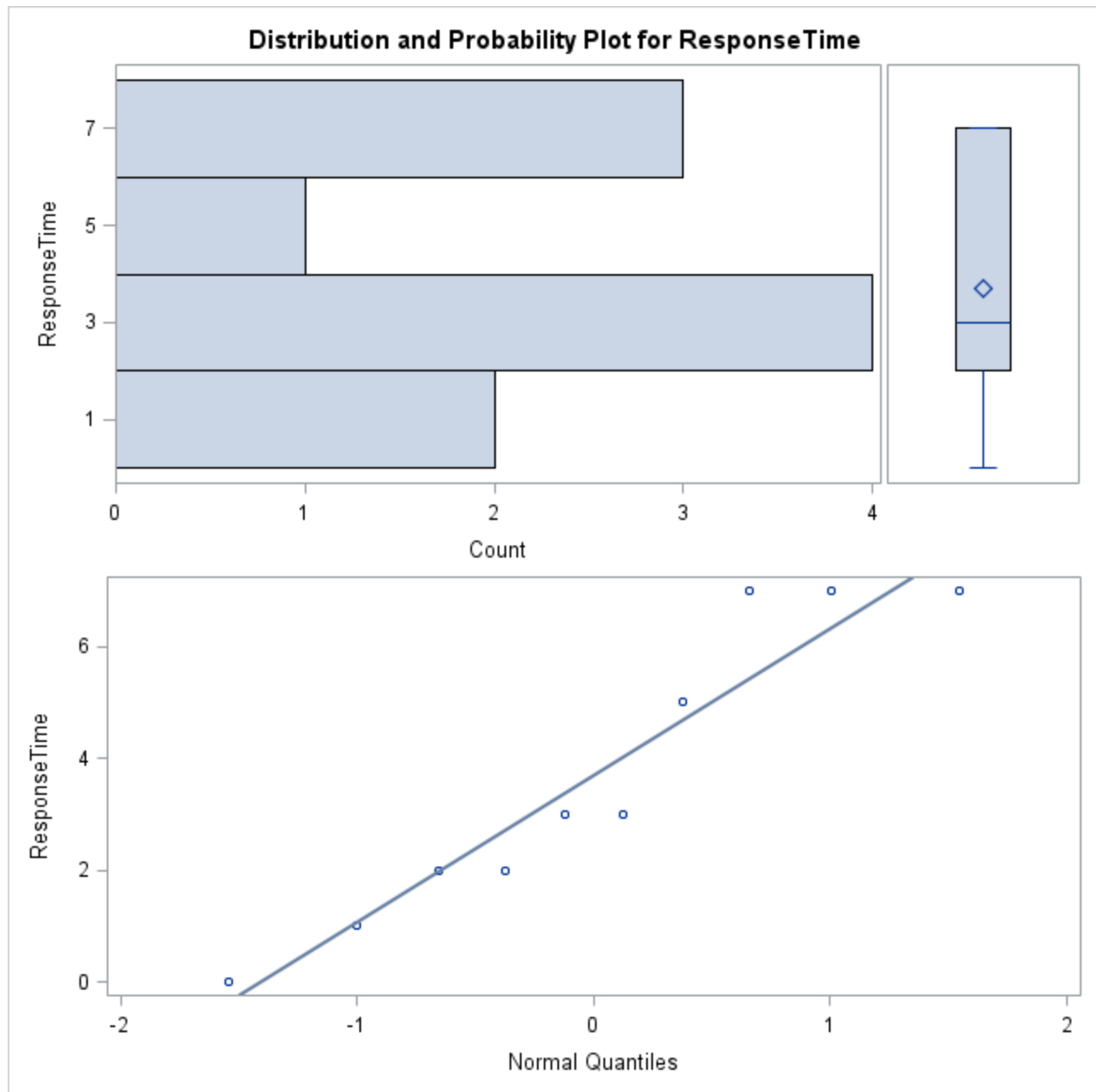
The UNIVARIATE Procedure
Variable: ResponseTime

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TaskNumber = 2

Moments			
N	10	Sum Weights	10
Mean	4.2	Sum Observations	42
Std Deviation	1.54919334	Variance	2.4
Skewness	0.03586096	Kurtosis	-1.9130291
Uncorrected SS	198	Corrected SS	21.6
Coeff Variation	36.8855557	Std Error Mean	0.48989795

Basic Statistical Measures			
Location		Variability	
Mean	4.200000	Std Deviation	1.54919
Median	4.000000	Variance	2.40000
Mode	3.000000	Range	4.00000
		Interquartile Range	3.00000

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	8.573214	Pr > |t|	<.0001
Sign	M	5	Pr >= |M|	0.0020
Signed Rank	S	27.5	Pr >= |S|	0.0020

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.836453	Pr < W	0.0400
Kolmogorov-Smirnov	D	0.280711	Pr > D	0.0240
Cramer-von Mises	W-Sq	0.131309	Pr > W-Sq	0.0365
Anderson-Darling	A-Sq	0.770277	Pr > A-Sq	0.0307

Quantiles (Definition 5)	
Level	Quantile
100% Max	6.0

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99%	6.0
95%	6.0
90%	6.0
75% Q3	6.0
50% Median	4.0
25% Q1	3.0
10%	2.5
5%	2.0
1%	2.0
0% Min	2.0

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
2	12	5	4
3	16	5	18
3	10	6	2
3	8	6	14
3	6	6	20

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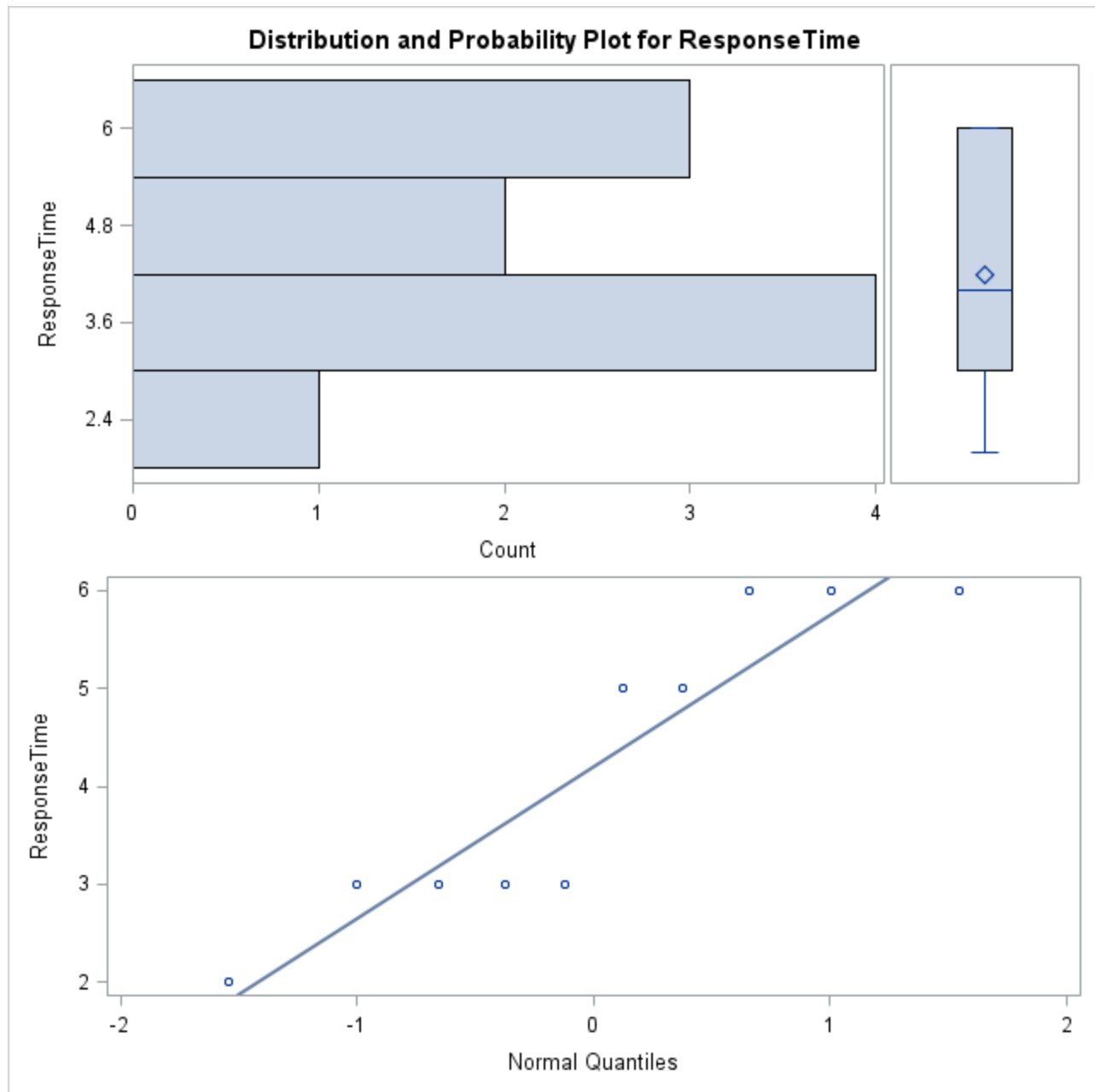
SAS OUTPUT C18: SAS Output for Mann-Whitney-Wilcoxon test for Eye Fixation Counts(AOI- Title center)

The SAS System

The SAS System

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The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable ResponseTime Classified by Variable TaskNumber					
TaskNumber	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1	10	98.0	105.0	12.972643	9.80
2	10	112.0	105.0	12.972643	11.20
Average scores were used for ties.					

Wilcoxon Two-Sample Test	
Statistic (S)	98.0000
Normal Approximation	
Z	-0.5011
One-Sided Pr < Z	0.3082
Two-Sided Pr > |Z|	0.6163
t Approximation	
One-Sided Pr < Z	0.3110
Two-Sided Pr > |Z|	0.6221
Exact Test	
One-Sided Pr <= S	0.3026
Two-Sided Pr >= |S - Mean|	0.6052
Z includes a continuity correction of 0.5.	

Kruskal-Wallis Test	
Chi-Square	0.2912
DF	1
Pr > Chi-Square	0.5895

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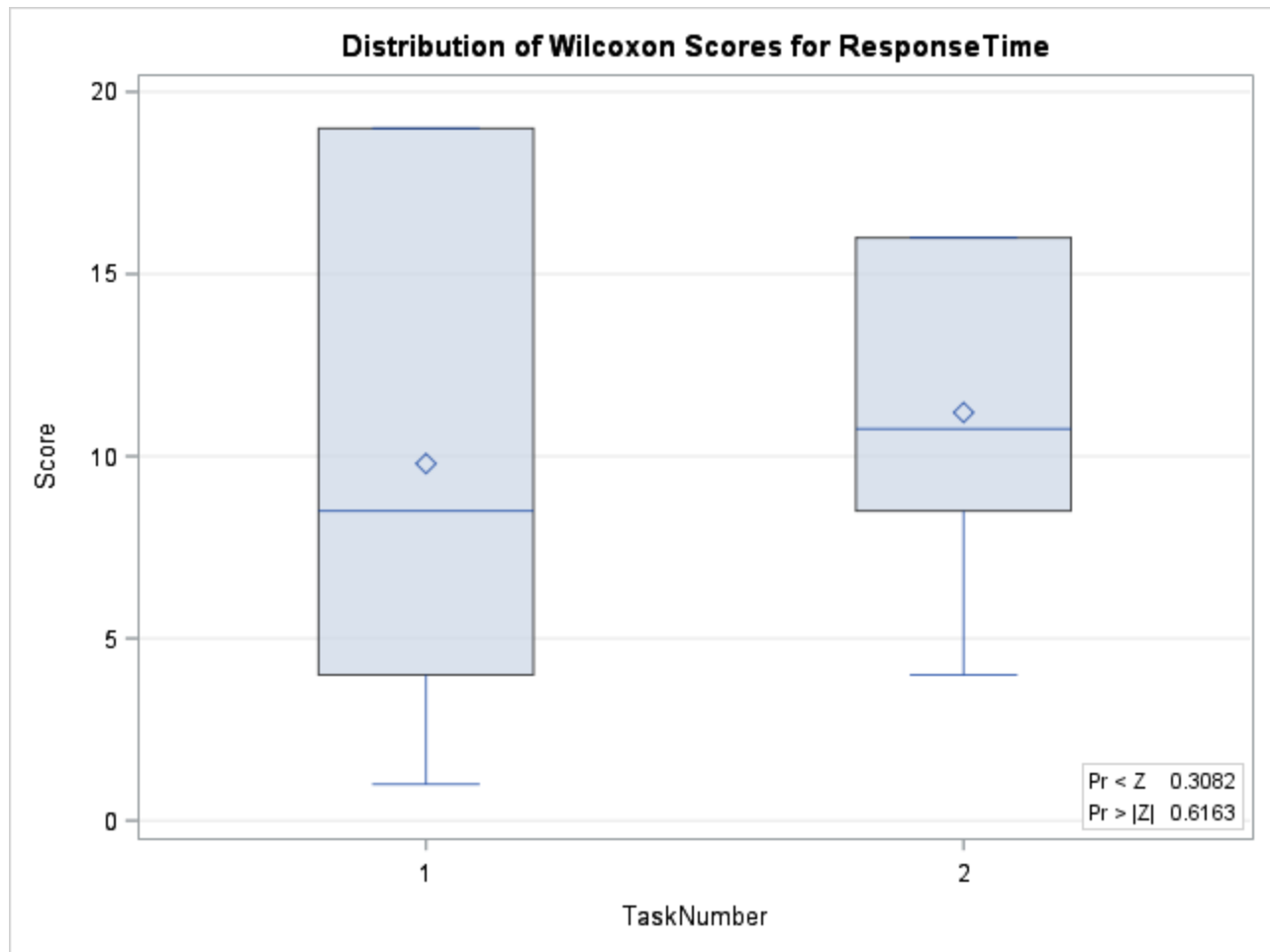
SAS OUTPUT C19: SAS Output for Normality test for Eye Fixation Counts(AOI-Video Screen)

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 1

Moments			
N	10	Sum Weights	10
Mean	26.9	Sum Observations	269

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Std Deviation	12.2877536	Variance	150.988889
Skewness	-0.917284	Kurtosis	1.86804024
Uncorrected SS	8595	Corrected SS	1358.9
Coeff Variation	45.6793815	Std Error Mean	3.88572887

Basic Statistical Measures			
Location		Variability	
Mean	26.90000	Std Deviation	12.28775
Median	28.00000	Variance	150.98889
Mode	.	Range	43.00000
		Interquartile Range	10.00000

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	6.922768	Pr > |t|	<.0001
Sign	M	4.5	Pr >= |M|	0.0039
Signed Rank	S	22.5	Pr >= |S|	0.0039

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.922157	Pr < W	0.3753
Kolmogorov-Smirnov	D	0.160139	Pr > D	>0.1500
Cramer-von Mises	W-Sq	0.048847	Pr > W-Sq	>0.2500
Anderson-Darling	A-Sq	0.352184	Pr > A-Sq	>0.2500

Quantiles (Definition 5)	
Level	Quantile
100% Max	43.0
99%	43.0
95%	43.0
90%	42.5
75% Q3	32.0

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50% Median	28.0
25% Q1	22.0
10%	9.5
5%	0.0
1%	0.0
0% Min	0.0

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
0	9	30	5
19	17	31	3
22	1	32	11
24	13	42	15
26	7	43	19

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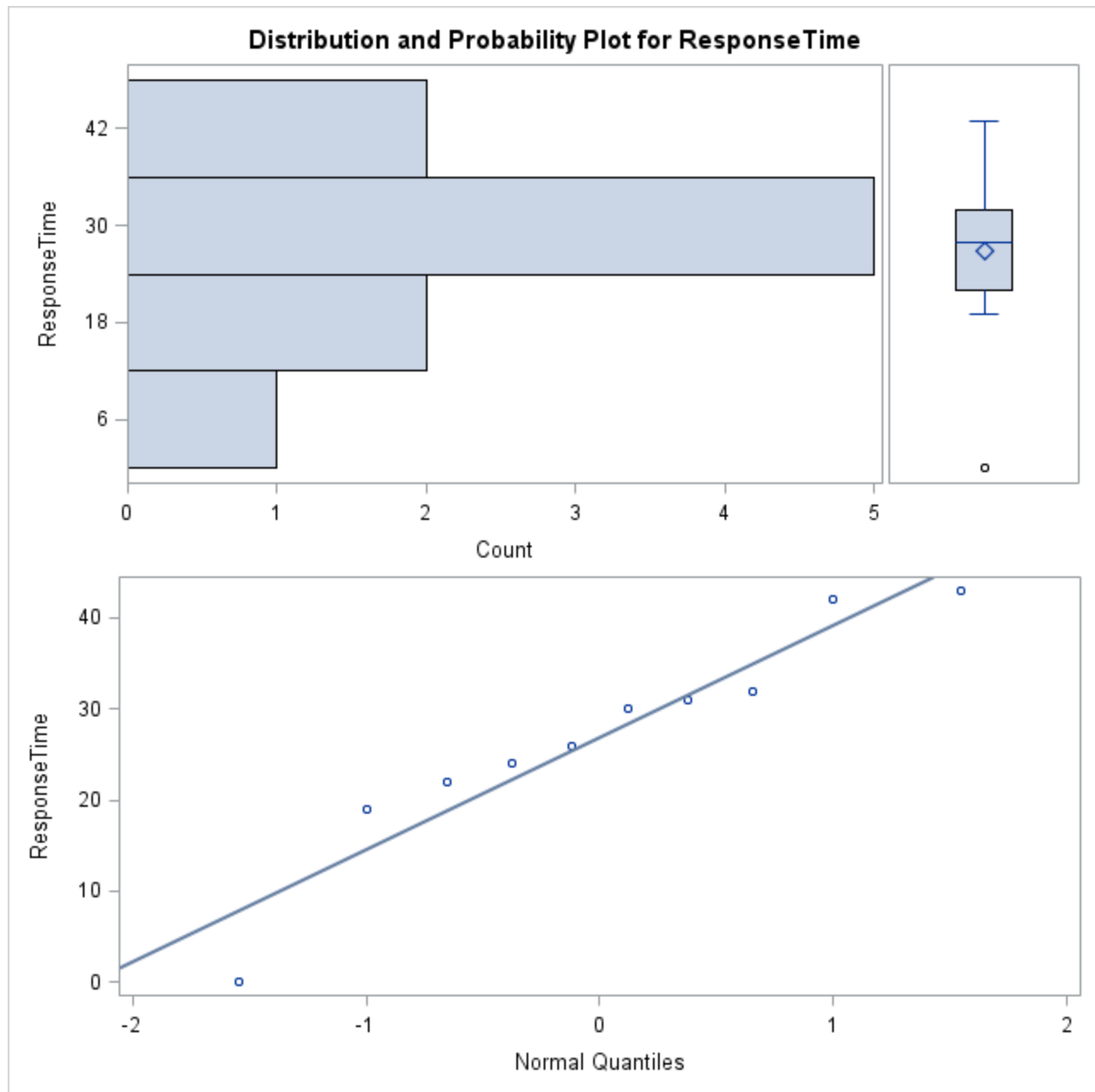
Distribution and Probability Plot for ResponseTime

The SAS System

The UNIVARIATE Procedure
Variable: ResponseTime
TaskNumber = 2

Moments			
N	10	Sum Weights	10
Mean	32.5	Sum Observations	325

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Std Deviation	5.42115199	Variance	29.3888889
Skewness	-0.7453476	Kurtosis	1.39981735
Uncorrected SS	10827	Corrected SS	264.5
Coeff Variation	16.6804677	Std Error Mean	1.71431878

Basic Statistical Measures			
Location		Variability	
Mean	32.50000	Std Deviation	5.42115
Median	32.50000	Variance	29.38889
Mode	35.00000	Range	19.00000
		Interquartile Range	5.00000

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	18.95797	Pr > |t|	<.0001
Sign	M	5	Pr >= |M|	0.0020
Signed Rank	S	27.5	Pr >= |S|	0.0020

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.943015	Pr < W	0.5870
Kolmogorov-Smirnov	D	0.159263	Pr > D	>0.1500
Cramer-von Mises	W-Sq	0.036942	Pr > W-Sq	>0.2500
Anderson-Darling	A-Sq	0.279353	Pr > A-Sq	>0.2500

Quantiles (Definition 5)	
Level	Quantile
100% Max	40.0
99%	40.0
95%	40.0
90%	39.5
75% Q3	35.0

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50% Median	32.5
25% Q1	30.0
10%	25.0
5%	21.0
1%	21.0
0% Min	21.0

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
21	2	33	18
29	20	35	6
30	4	35	16
31	14	39	12
32	10	40	8

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Distribution and Probability Plot for ResponseTime
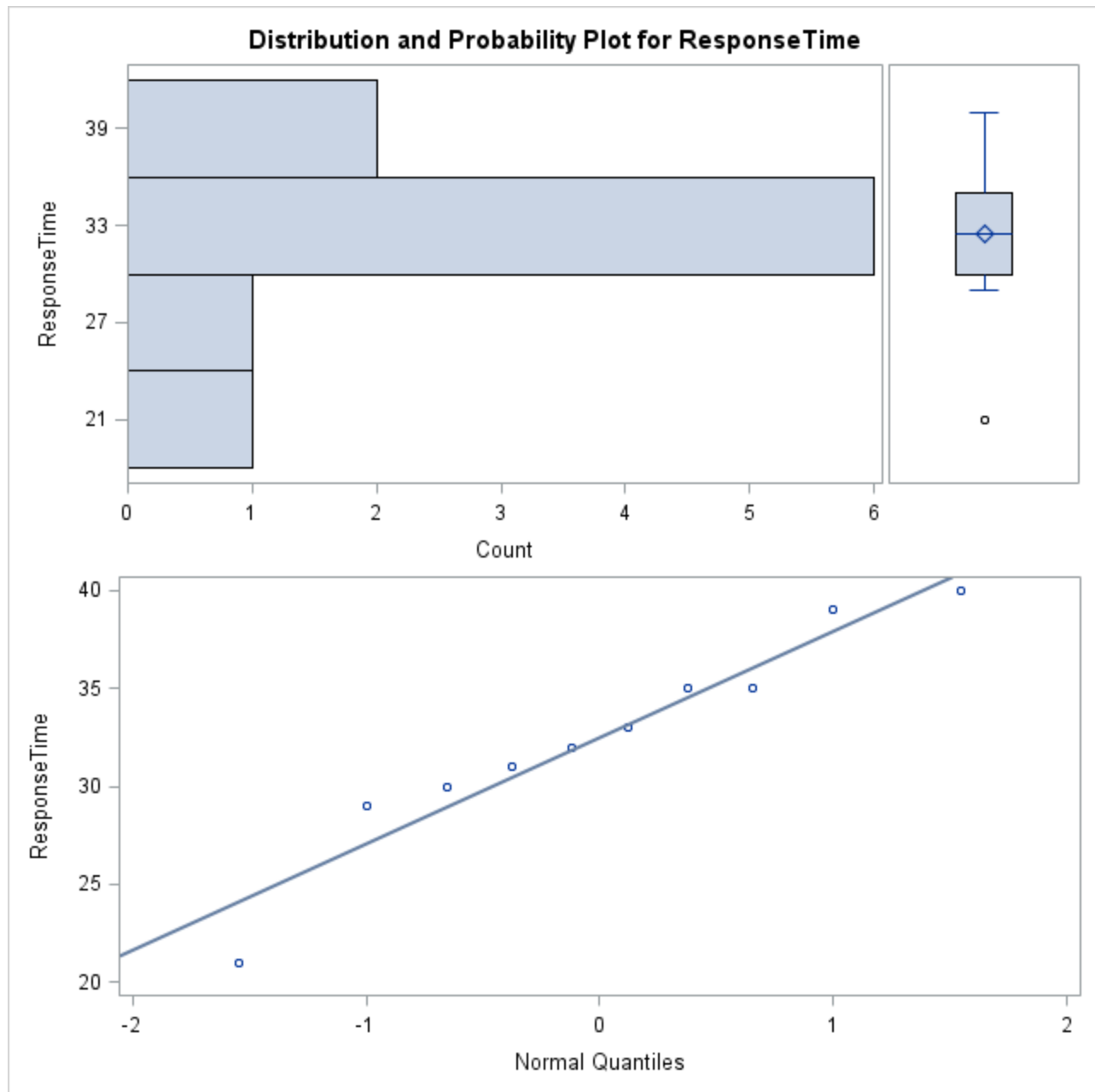
SAS OUTPUT C20: SAS Output for T-test for Eye Fixation Counts(AOI- Video screen)

The SAS System

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The TTEST Procedure

Variable: ResponseTime

TaskNumber	N	Mean	Std Dev	Std Err	Minimum	Maximum
1	10	26.9000	12.2878	3.8857	0	43.0000
2	10	32.5000	5.4212	1.7143	21.0000	40.0000
Diff (1-2)		-5.6000	9.4968	4.2471		

TaskNumber	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
1		26.9000	18.1099	35.6901	12.2878	8.4519	22.4326
2		32.5000	28.6219	36.3781	5.4212	3.7289	9.8969
Diff (1-2)	Pooled	-5.6000	-14.5228	3.3228	9.4968	7.1759	14.0441
Diff (1-2)	Satterthwaite	-5.6000	-14.8226	3.6226			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	18	-1.32	0.2039
Satterthwaite	Unequal	12.376	-1.32	0.2112

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	9	9	5.14	0.0229

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Distribution of ResponseTime

Q-Q Plots of ResponseTime