

The Usage of Food Influencing Emotion

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Introduction

Emotions have always been looked at as a way to express to the world as to what humans are genuinely thinking about. When it comes to food though, both emotions and food are seen as unrelated. There are metaphors, like “love is sweet”, that relate to taste on how an emotion is portrayed (Chan, Tong, Tan, & Koh, 2013).

These positive emotions are reinforced through out society. Sagioglou and Greitemeyer (2016) are two researchers that conducted an experiment in regards of the association between the taste of sense and personality traits. They specifically set out to see as to what extent bitter taste are to the darker side of personality and noticed that bitter was associated more to the darker side of personality traits (Gritemeyer & Sagioglou, 2016).

Other researchers conducted similar studies that discussed the way that our emotions might affect the way we eat. Different from this study that I conducted, but Adriaanse, de Ridder, and Evers (2011) looked at how emotion is an indicator, whether it be negative or positive emotions, when eating. Tasting food and having individuals emotions being affected.

Discussion

- I found that emotions are not influenced necessarily through the use of food. Food may have little to no impact on emotions. There is also other outliers and limitations that could have resulted in the fact that there was no significance related to food influencing emotions.

Limitations:

- Small population
- Emotions influenced on what people preferred
- Influence of cravings
- This study, by being conducted, could be altered and made more proficient in order for the limitations to not be in the way. There has not been a study directly associating the way food impacts emotions like this. Alterations and modifications to this study should be done to notice if there is any change or influence of emotions.

Method

- Stimuli:
 - Junk food
 - Sweet – Starbursts®
 - Bitter – Hershey’s® Dark Chocolates
 - Sour – Sour Punch® Straws
 - Salty – Lays® Chip



1st Study:

- Gave out a survey before they tasted the various foods in order to get a perspective of what their expectations of what each taste would generally go to which emotions.

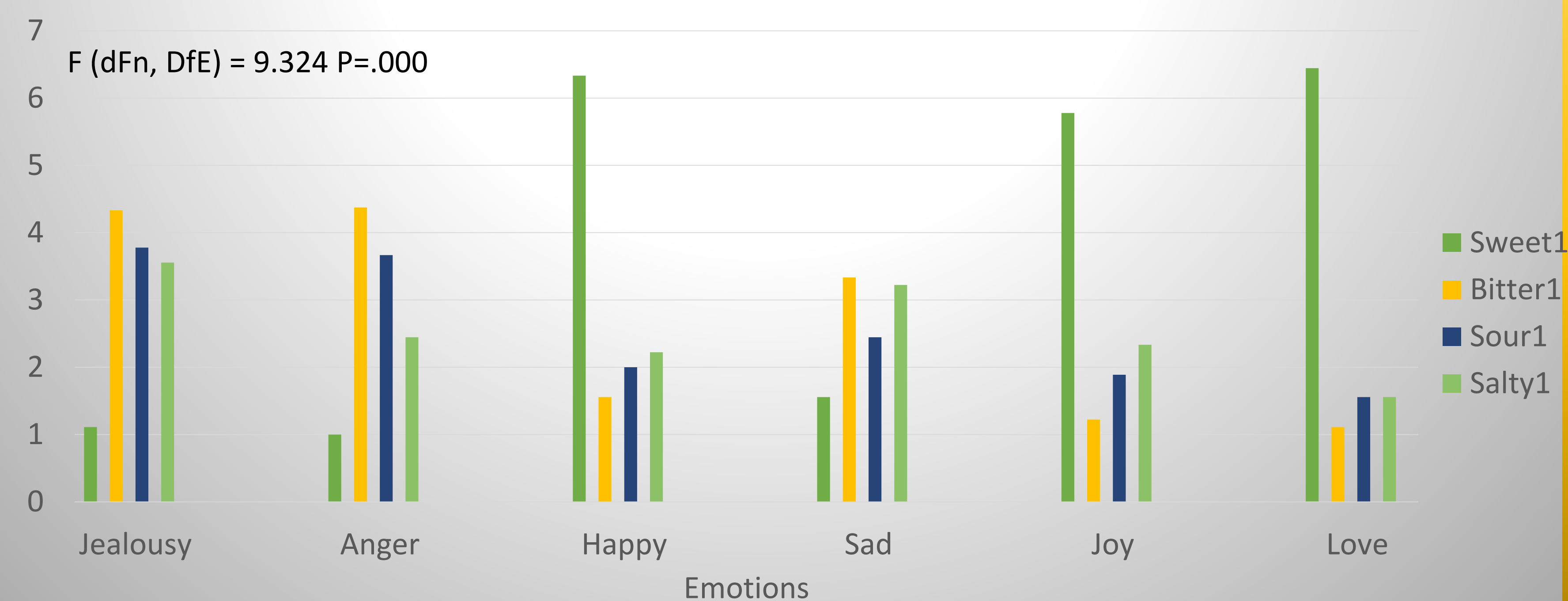
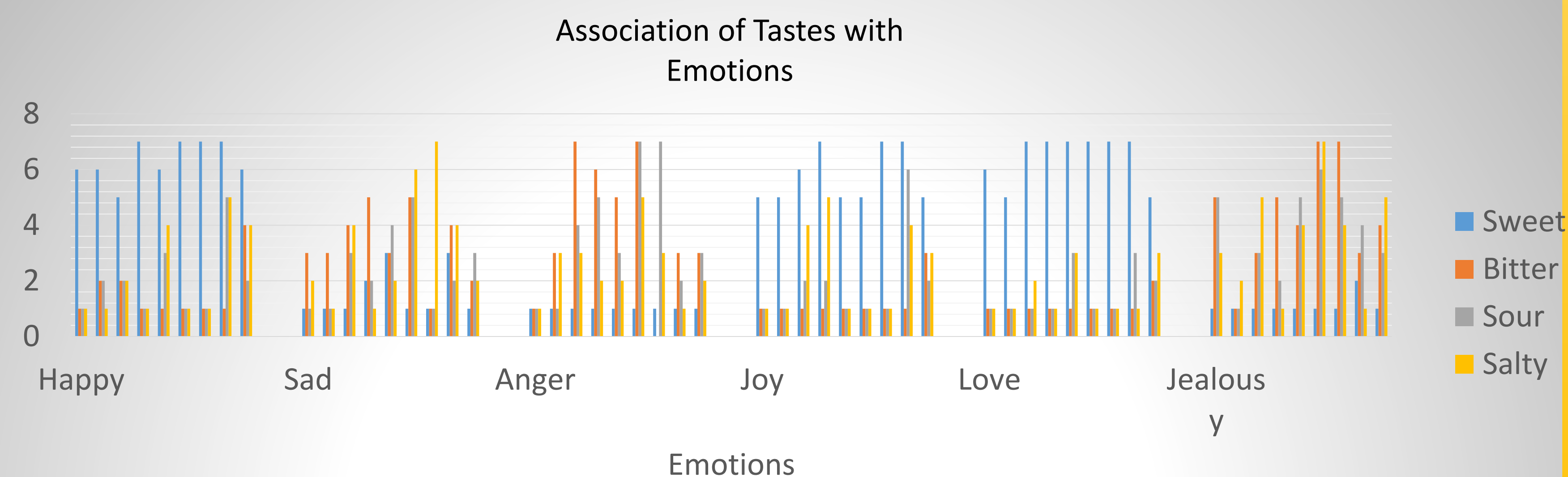


2nd Study:

- Then each individual went to each “station” and ate each food and rated their emotions during the tasting.



Results



References

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Introduction

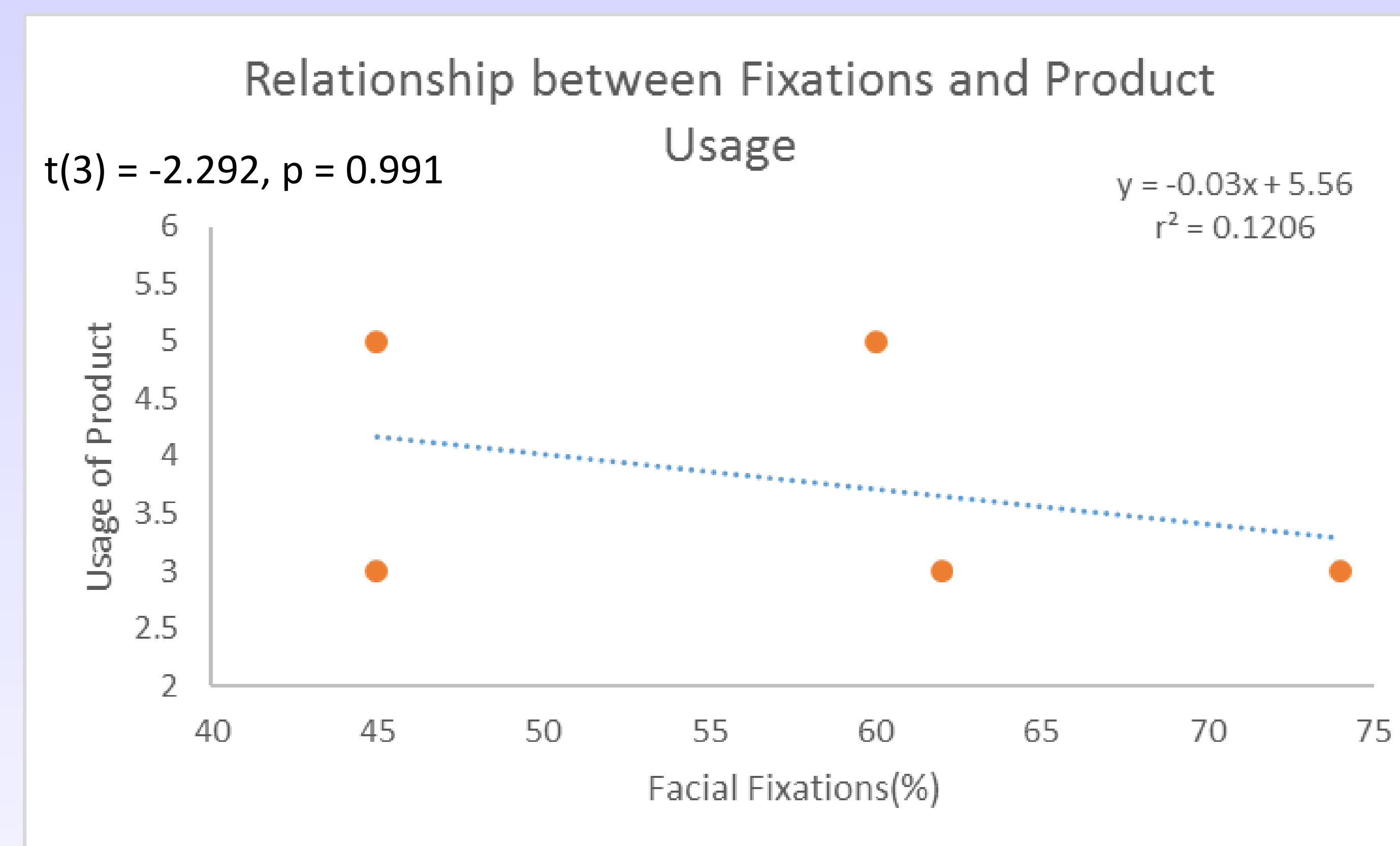
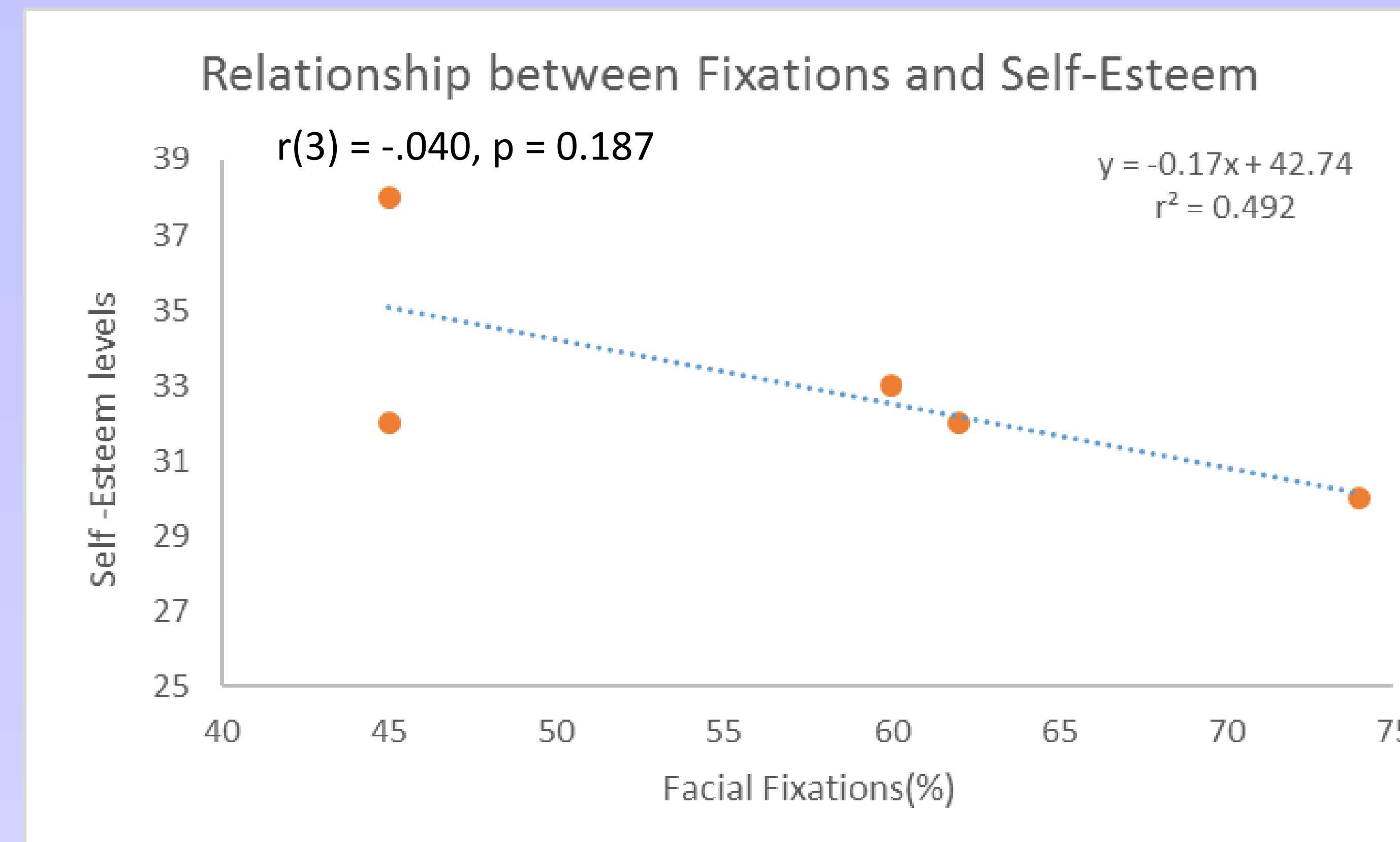
- I decided to do my study on the relationship between self-esteem among women with fixations on the head and facial features of women in advertisements. I hypothesized that women with lower self-esteem are more likely to be fixated on the face of the model in the advertisement.
- I had done research to see if my hypothesis was correct, a study similar to mine had found that, that exposure to high-status ingroup or low-status outgroup portrayals enhances self-esteem through positive ingroup distinctiveness (Hoplamazian & Knobloch-Westerwick, 2014). So I concluded if it were the opposite the results would be similar. Prior research has found that appealing ads can negatively or positively impact the consumer (Lee, Haley, & Yang, 2014).

Method

- Participants eye movement was tracked with an Arrington Research Labs Eye Tracker and they were given 30 seconds to look at each ad. They were then asked to fill out a brief survey.



Results



Body Esteem = 33.00 ± 3.00
Percent of Fixations on the Head = $57.20 \pm 12.36\%$

- A Pearson correlation was calculated examining the relationship between participants percent of fixations and self-esteem. A weak correlation that was not significant was found ($r(3) = -.040, p > .05$). Self-esteem is not related to the fixations of the head in the ad.
- An independent-samples t test comparing the mean scores of the percent of fixations and if the participants would or would not use the face lotion. No significant difference was found ($t(3) = -2.292, p > .05$). The mean of the yes group ($M = 50.00, SD = 8.660$) was not significantly different from the mean of the no group ($M = 68.00, SD = 8.485$).

Discussion

- Some limitations for this study were that the sample size was extremely small. The size of each advertisement varied, there was a broad variety of facial features amongst the pictures, and human error with counting the amount of head fixations. I was also constrained with time, we only had 4 days to come up with a topic and run the experiment.
- This study means that people don't always compare themselves to the faces they see in advertisements and that when people are looking at advertisements they are looking at the product. They also don't feel the need to compare themselves.

References

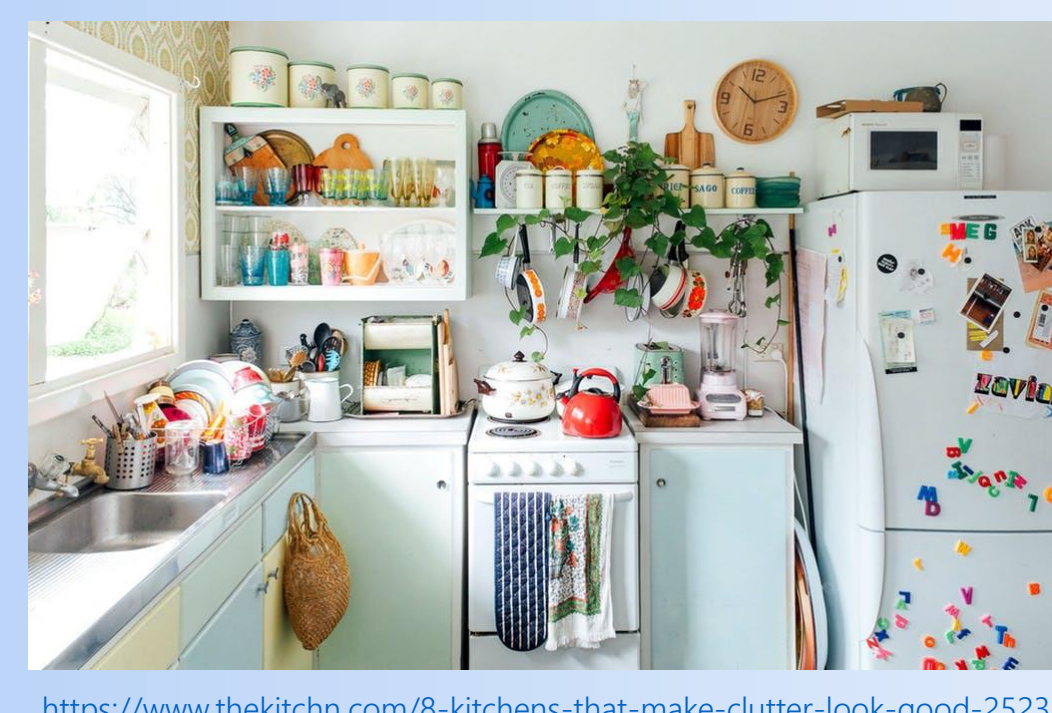
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Introduction

- Individuals may listen to music if they find it helpful when trying to remember information (Middlebrooks, Kerr, & Castel, 2017).
- Music that is familiar may allow an individual to recall related memories, which in turn can be more distracting than unfamiliar music (Middlebrooks et al., 2017).
- In the Middlebrooks et al. (2017) study, participants in the divided attention condition recalled fewer words than participants in other conditions.
- Divided attention compared to full attention when encoding results in recalling less information (Naveh-Benjamin, Craik, Perretta, & Tonev, 2000).
- Peaked confidence allows participants to report more information (Navajas, Sigman, & Kamienskowski, 2014).
- Yarbus (1967) used visual search techniques to see where participants looked in different scenes.
- Visual search tasks are used in real-life scenarios, such as baggage checks.
- Hypothesis: individuals will be less accurate as well as less confident in their responses with the added audio distraction.

Method

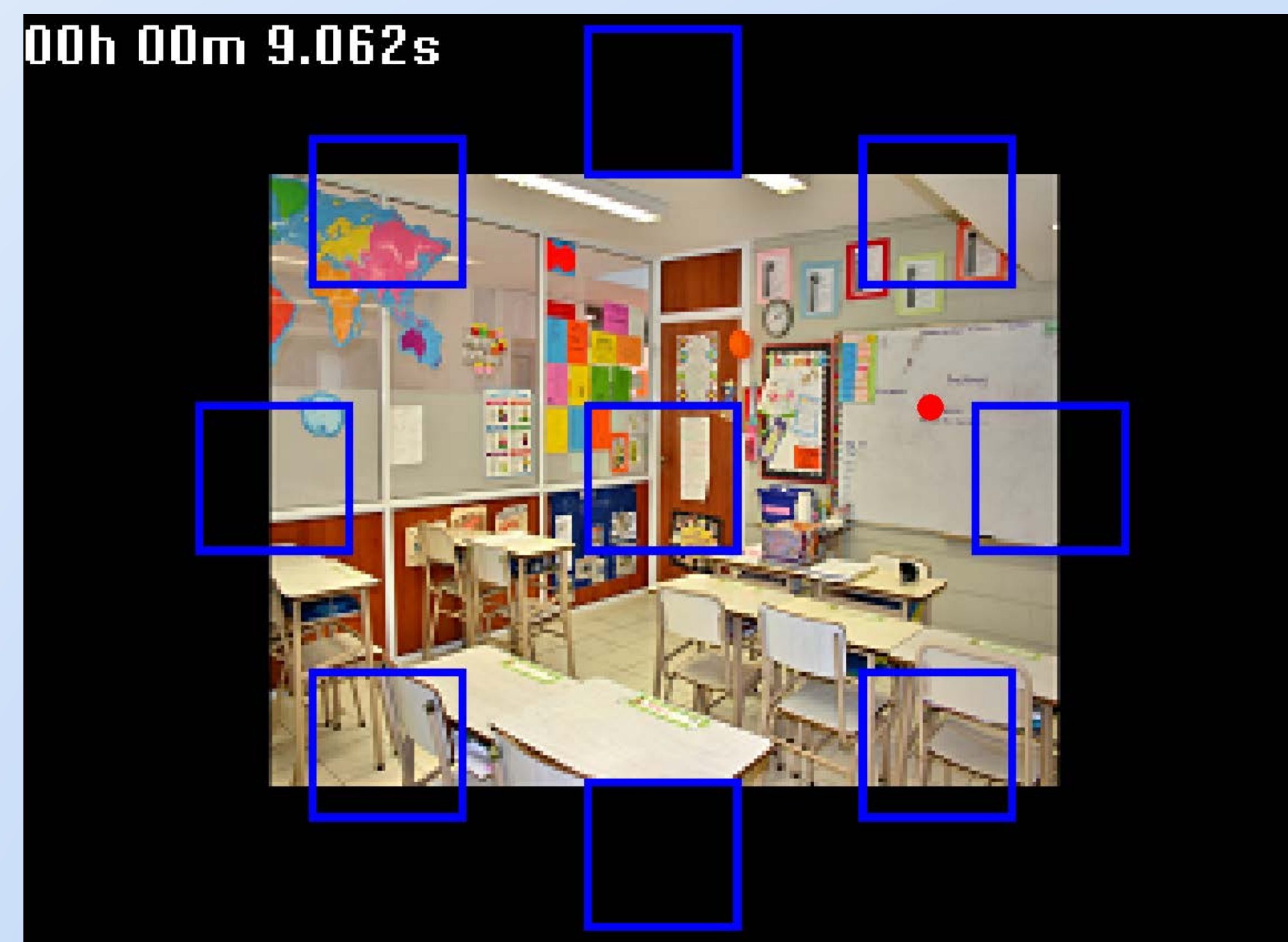
- Participants (n=6) were shown four different images for 30 seconds each
- After each image, participants were asked if they saw five items in that specific scene
- For two scenes, participants looked through the images while audio of construction work was playing
- Participants rated on a scale from 1 to 7 in how confident they were about an item's presence in the image
- Used the Arrington Research Labs eyetracker
- Used a correlation between four variables: accuracy with no distraction, accuracy with distraction, confidence with no distraction, confidence with distraction



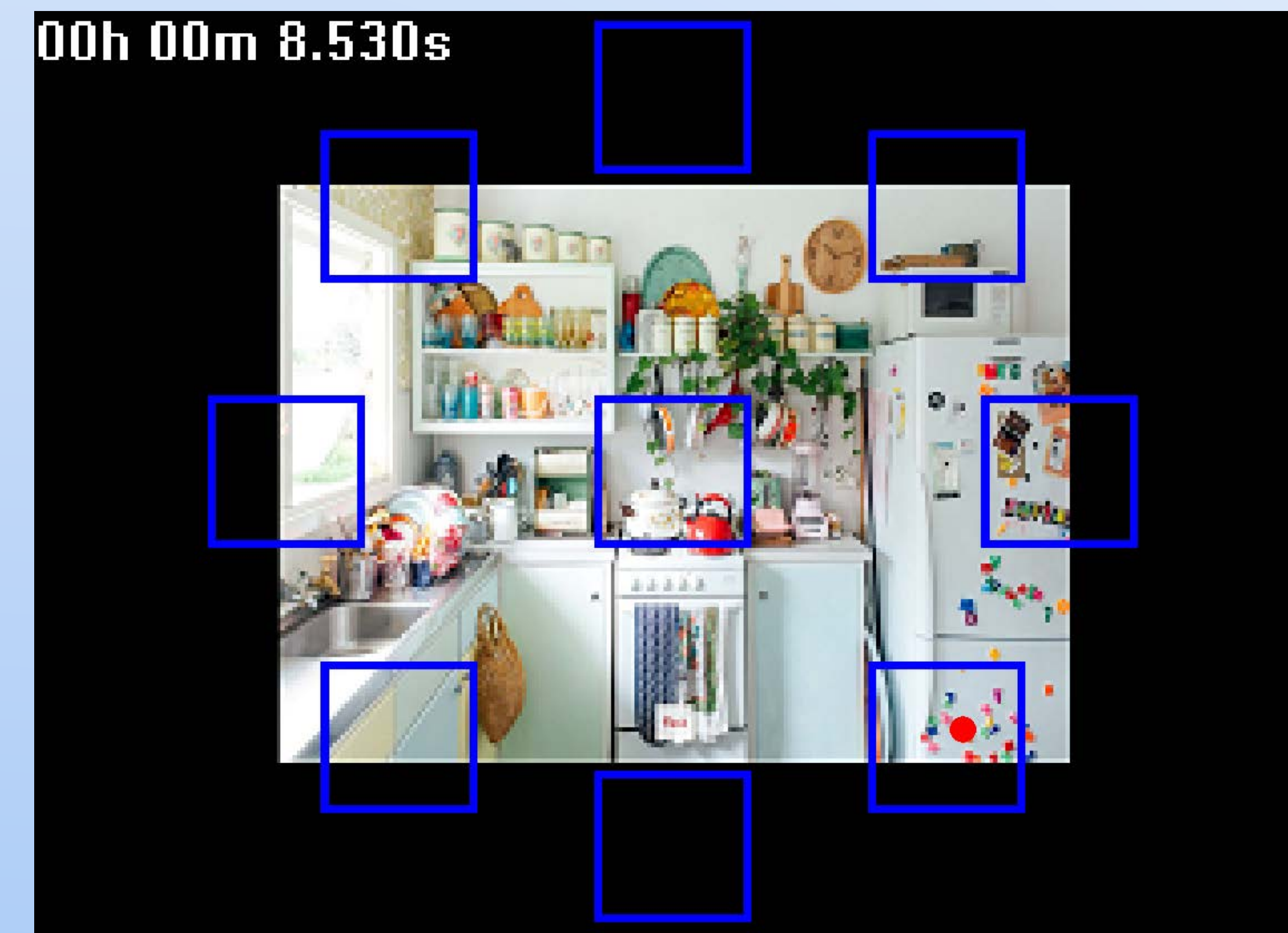
<http://www.baica.com/main-campus/>

<http://lifeunstyleblog.com/2012/07/kitchen-counter-clutter/>

Results



The eye (represented by the red dot) looking at a classroom whiteboard



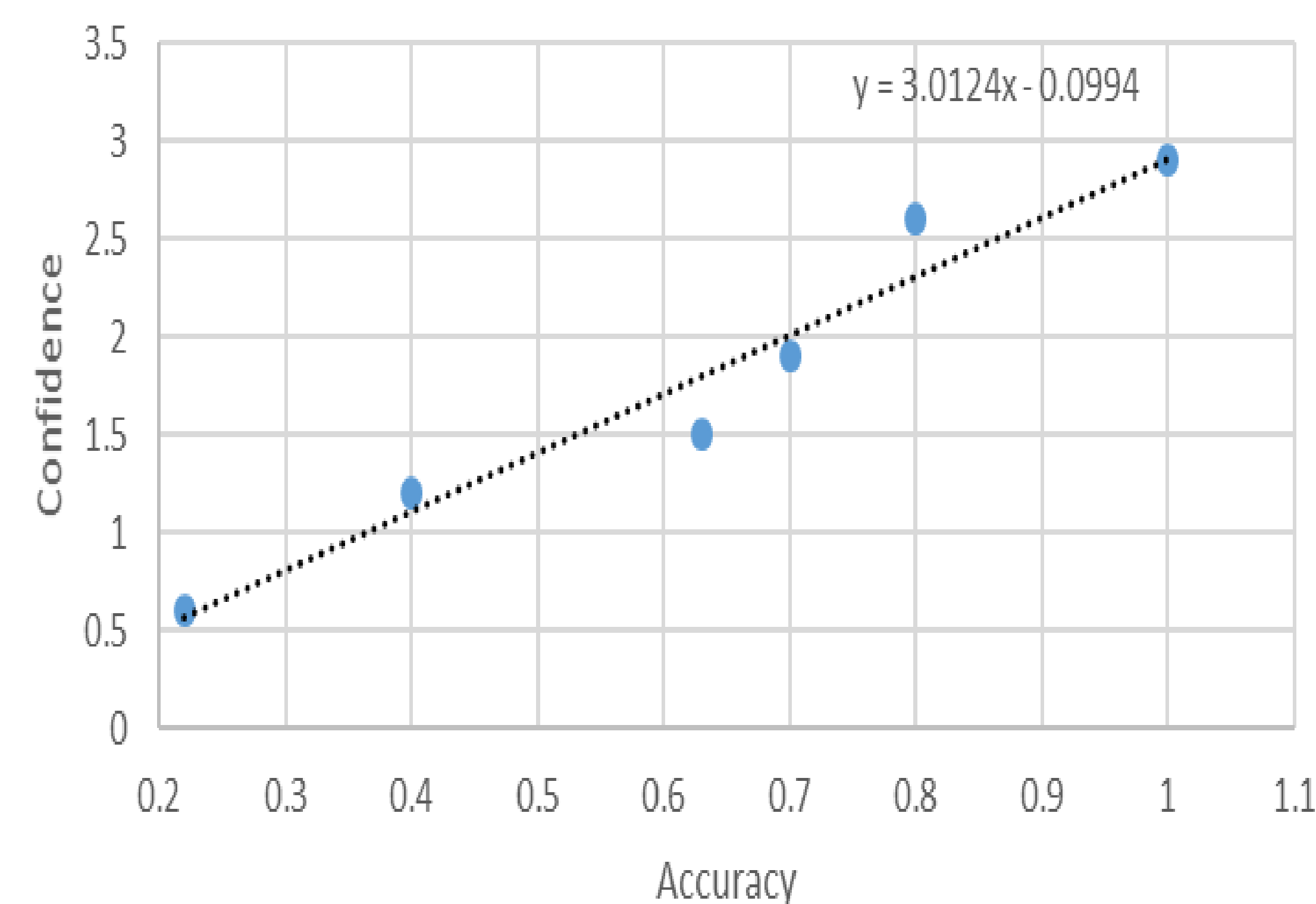
The eye (represented by the red dot) looking at refrigerator magnets

- Accuracy with no audio distraction has a significant positive correlation with confidence with no audio distraction

$$P = .001$$

$$r(4) = .974$$

Accuracy and Confidence with no Audio Distraction

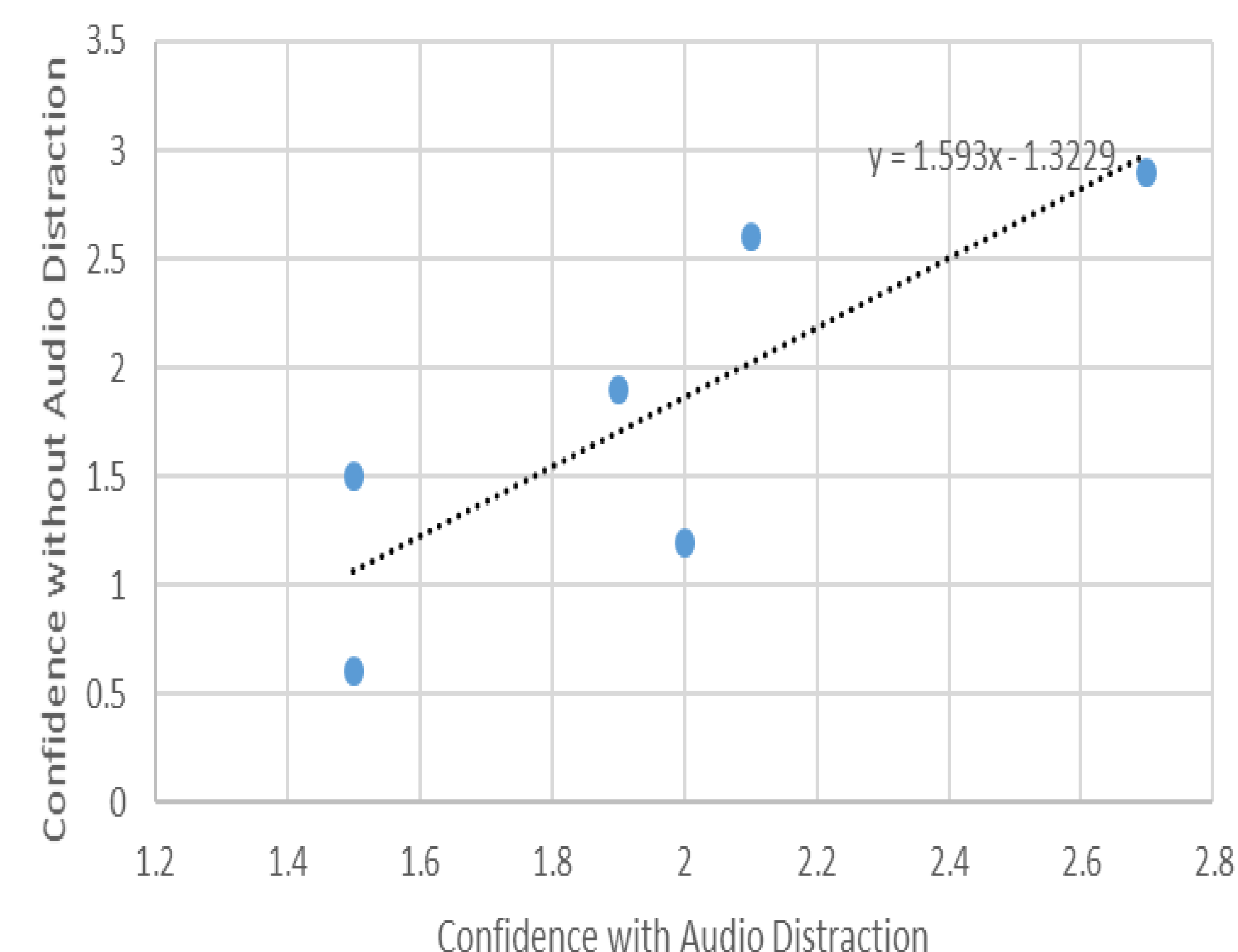


- Confidence with audio distraction has a significant positive correlation with confidence with no audio distraction

$$P = .045$$

$$r(4) = .821$$

Confidence with and without Audio Distraction



Discussion

The presence or absence of an auditory distraction has an impact on accuracy and confidence when doing a visual search

- Participants provided more accurate answers with no auditory distraction
- Participants were more confident in their responses with no auditory distraction

The presence or absence of an auditory distractor did not have a significant impact on confidence

- A participant's confidence in their response was not impacted by the addition of an auditory distraction
- Participants were still confident in their responses even with an auditory distraction

Limitations include:

- Individuals who rely on glasses may have been at a disadvantage
- Small sample size (n=6)
- Time constraint
- Confined to one room: bias
- Individual differences

References

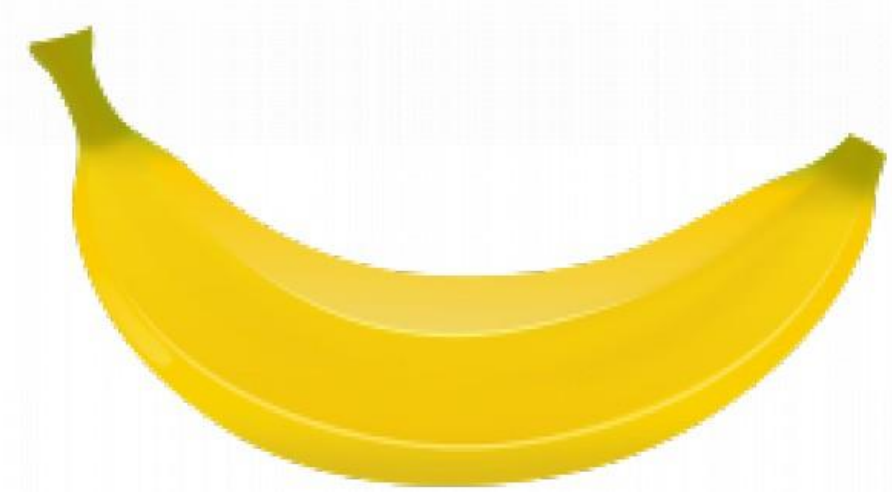
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Introduction

- I wanted to learn if having different colored food would effect participants taste expectations. In previous studies it was reported that color can affect the judgement of taste (Hidaka & Shimoda, 2014).
- People have a preference for food that looks good. Burger et al. (2011) found that visual presentation of food provides considerable information such as its palatability and availability, both of which can impact eating behavior.
- Some research shows that not every color is correlated with taste. Koch and Koch (2003) found that only limited colors are positively associated with preconceptions of taste.
- Color cues can influence the experience of flavor, both by influencing identification and perceived intensity of foods (Shermer & Levitan, 2014).
- I hypothesized that if the participant saw a food in a different color than they would rate the taste very differently than the normal looking food.

Method

- A PowerPoint with different colors of the same food was created. Example: a yellow banana and a blue banana. The participants rated how sweet, sour, salty, bitter and umami each food presented was. The survey also asked if they would eat the food and if they thought color played a role in their decisions.
n=11



Results

Taste and Food Data

Taste	Food	Color	P
Sweet, Sour, Salty, Bitter, Umami	Banana	Yellow & Blue	.000
Sweet, Sour, Salty, Bitter, Umami	Apple	Orange & Purple	.001
Sweet, Sour, Salty, Bitter, Umami	Broccoli	Green & Yellow	.018
Sweet, Sour, Salty, Bitter, Umami	Strawberry	Pink & Black	.001
Sweet, Sour, Salty, Bitter, Umami	Blueberry	Blue & Green	.000



Food Data

Food	Colors	P
Banana	Yellow & Blue	.033
Apple	Orange & Purple	.265
Broccoli	Green & Yellow	.055
Strawberry	Pink & Black	.265
Blueberry	Blue & Green	.280

Color **is not** significantly correlated with food type.

Taste Data

Taste	Food	Colors	P
Sweet, Sour, Salty, Bitter, Umami	Banana	Yellow & Blue	.038
Sweet, Sour, Salty, Bitter, Umami	Apple	Orange & Purple	.120
Sweet, Sour, Salty, Bitter, Umami	Broccoli	Green & Yellow	.064
Sweet, Sour, Salty, Bitter, Umami	Strawberry	Pink & Black	.015
Sweet, Sour, Salty, Bitter, Umami	Blueberry	Blue & Green	.003

Color is significantly correlated with taste expectation.

Discussion

- My research showed that there was a significant difference between taste in all of the pairs of food. I did not find a significant difference between food in many of the pairs. I found that most of the food and tastes had a significant difference in almost all of the pairs.
- Color is not correlated with food but, taste expectation is.
- Some limitations are
 - Food was different color on projector rather than on the computer.
 - Some participants don't like some of the food presented on a normal basis
 - Small population (11 participants)
- This study shows that people associate color with taste because when they get abnormally colored food they expect it to taste different than what the normal food product looks like.
- The research shows that there was a significant effect of taste.



References

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Introduction

Multitasking is widely debated on whether it is effective or not. Many studies have been done to see if the productivity of an individual is decreased when they attempt to multitask. People confuse the brain switching rapidly between tasks for doing them at the same time, yet the brain is not able to focus on two things at once (Visser, 2017). The debate on multitasking includes questions on if switching rapidly between tasks diminishes the quality achieved on each task therefore making multitasking pointless. If the quality of the work is diminished, then it would be more worth an individual's time to do each task normally with their full attention (Ralph, Thomson, Cheyne, Smilek, 2014).

In a study done by Katidioti, Borst, and Taatgen (2014) it was found that when participants self-interrupted to change between tasks, their pupils dilated several seconds before which they perceived as the decision to switch. This in turn took away several seconds that they would not have taken had they not been multitasking. By tracking participants pupil dilation and their reaction time during multitasking, this experiment will be able to determine whether multitasking is useful or not.

Method

I allowed the participant to play Doodle Jump for 30 seconds. I recorded their pupil dilation with the eye-tracking device. Then I asked them to continue playing Doodle Jump while I asked them intriguing questions. This forced them to focus on two tasks at once. The questions were: If you could go anywhere in the world, where would you go? If you could be any animal, what animal would you be? If you were given one million dollars, what would you do with it? If you could pick one superpower, what would it be? I recorded their reaction time from the end of the question asked to the beginning of their response.

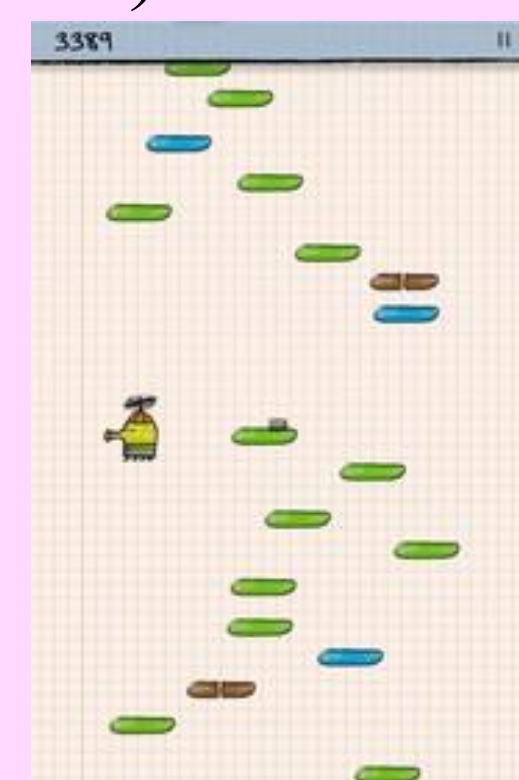
After they had completed these tasks, they were asked to rate their confidence levels of their own abilities to multitask on a multitasking abilities scale (PAMS).

Perceived Abilities to Multitask Scale

Items

- I believe that I am an efficient multi-tasker.
- I believe that I get more things done when I multitask.
- Multitasking is the only way I can get everything I need to do accomplished.
- I am good at multitasking.
- Being engaged in multiple tasks is easy for me.
- Multitasking feels natural to me.
- I get things done more quickly when I multitask.

Note. Items are rated on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).



Results

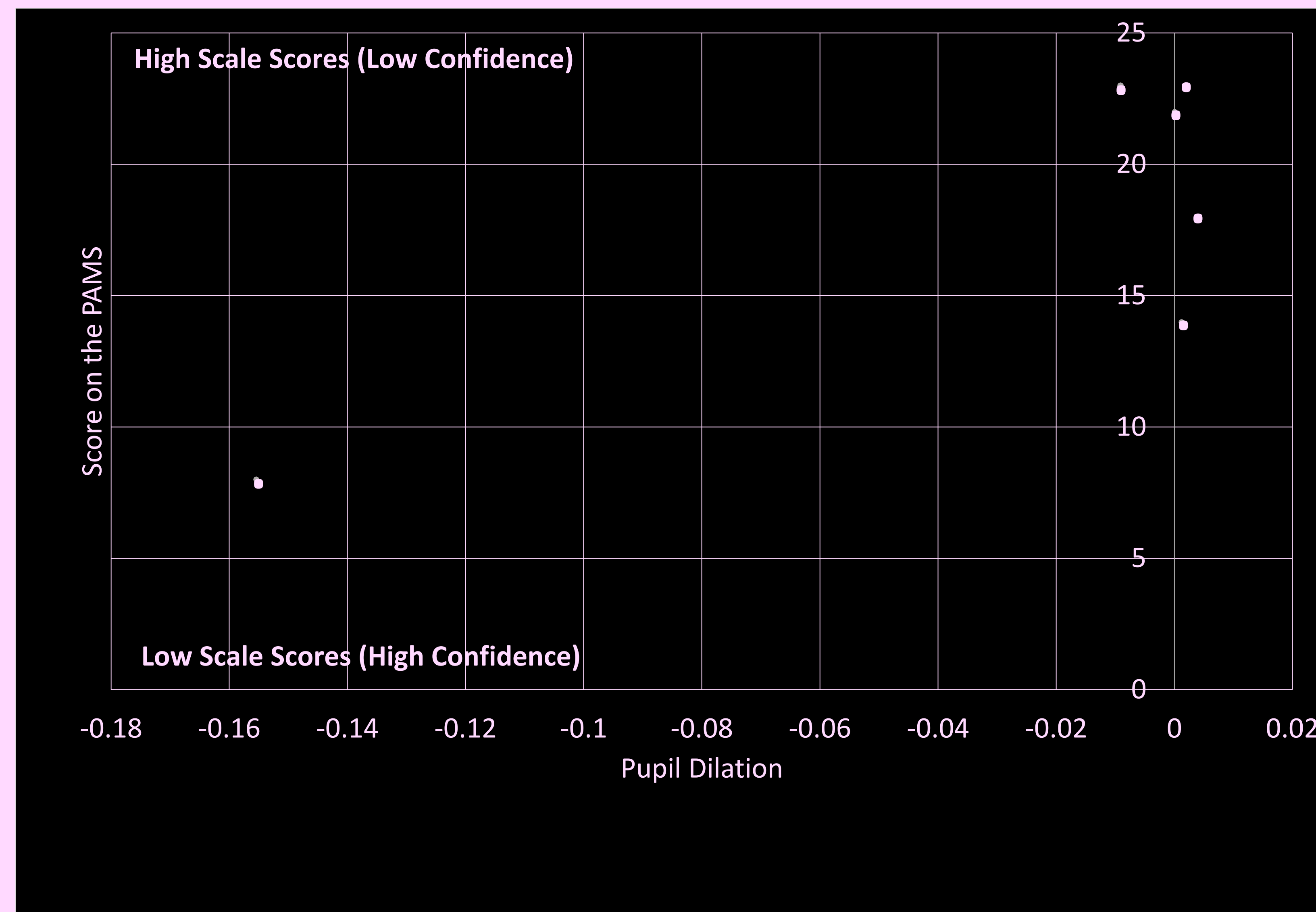


Figure 1: This scatter plot shows that there is no correlation between the score on the PAMS based on confidence levels in multitasking abilities and their pupil dilation during the act of multitasking activities ($P=.061$).

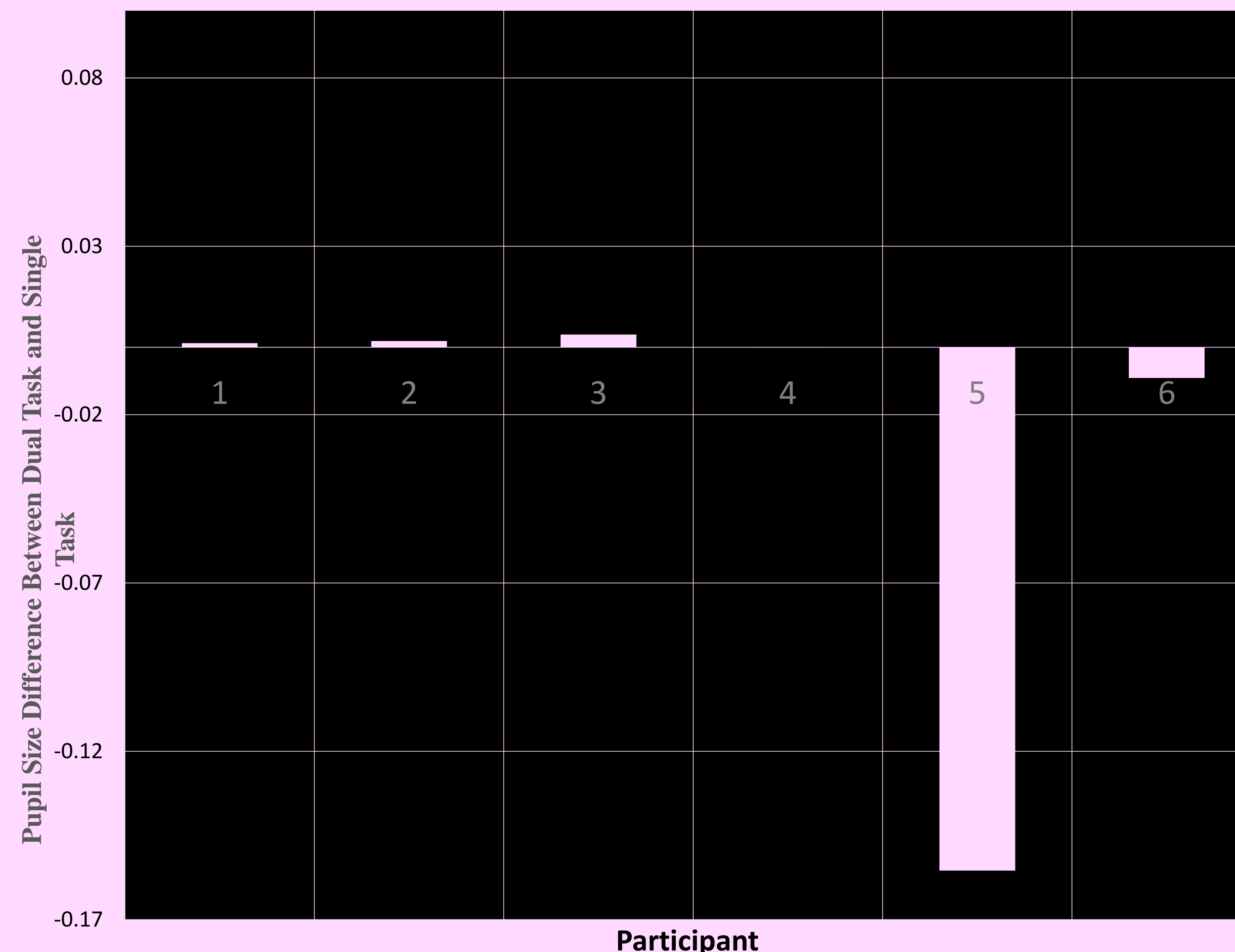


Figure 2: This graph shows that there is no significance in the results from this experiment between completing a single task versus dual tasking. ($t= 1.043 P=.345$).

Discussion

My experiment did not produce significant results. There were quite a few limitations in place that did not allow my experiment to succeed. If this experiment was repeated without the limitations, it may or may not have gotten significant results.

Some limitations that I faced were only having 4 days to design a procedure, gather data, analyze the data collected, and create a poster demonstrating my results. This restricted me from being able to thoroughly go through the experimental design and fix an flaws that I would have been able to see. I only had six participants and only two trials (one with a distraction and one without). I also simply did not have the time and resources to complete an effective and accurate experiment. Another limitation was that I had participants play the game first before they tried playing it while multitasking, which may have given them experience that they needed to be successful while multitasking, therefore compromising my results. I also was not able to use the data I collected from their reaction times while answering questions because it was not relevant due to the fact that I did not ask them questions on their own to get a basis of their average reaction time.

References

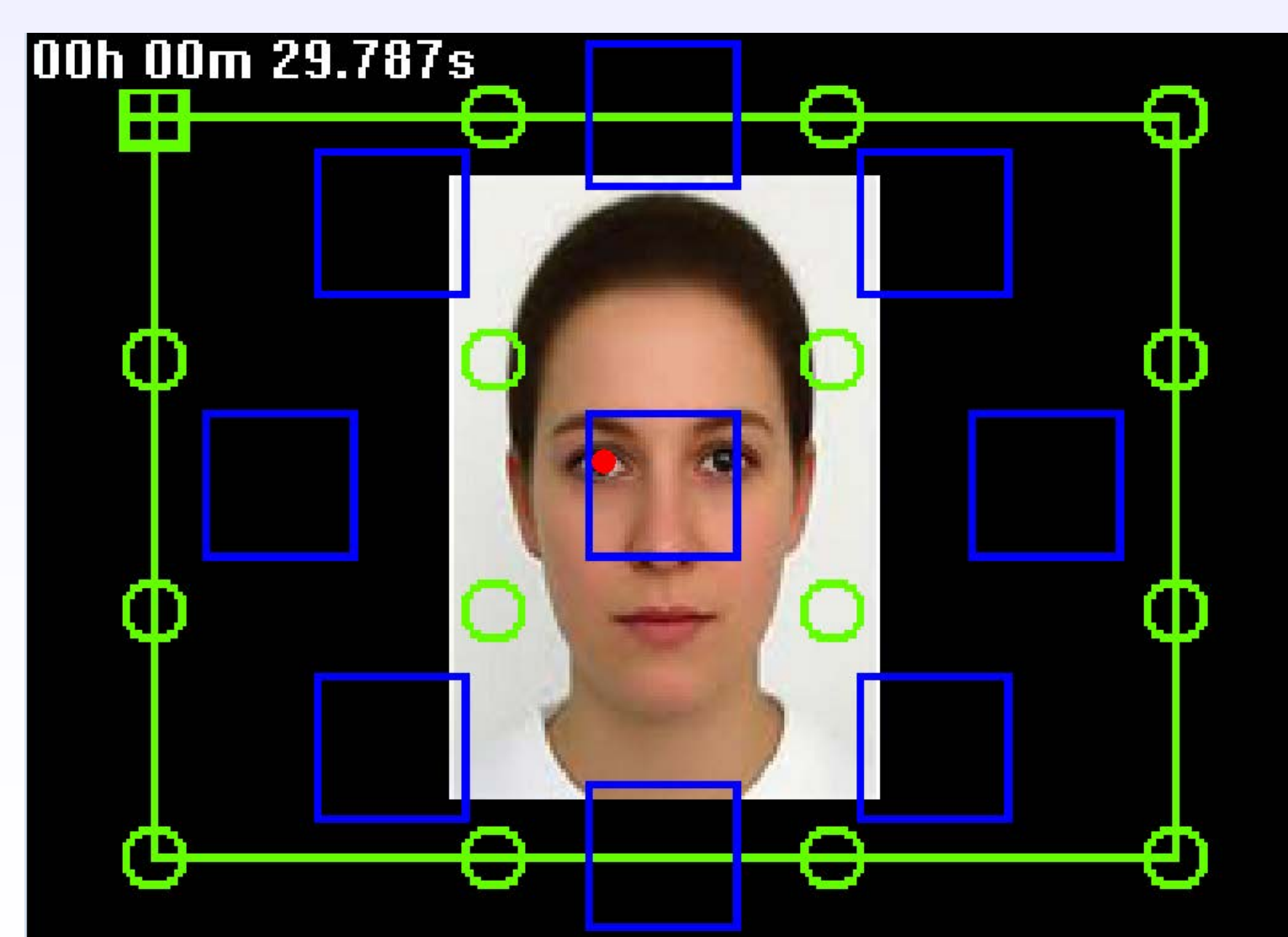
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Introduction

- Evolutionarily speaking, the ability to recognize faces is essential to human survival. Eye contact acts as an important social cue; and in infants, affects object processing (Okumura, Kobayashi, & Itakura, 2016). Pareidolia is an illusory perception in which we are able to find faces in objects that do not actually have faces (Mugitani, 2015).
- In this study, it was hypothesized that when participants look at an image of a face, the major features (eyes, nose, and mouth) would be shown to have similar percentages of fixations between real faces and “faces” that demonstrate the Pareidolia Effect (regardless of expression, because the aforementioned features generally help us to register a face as a face).

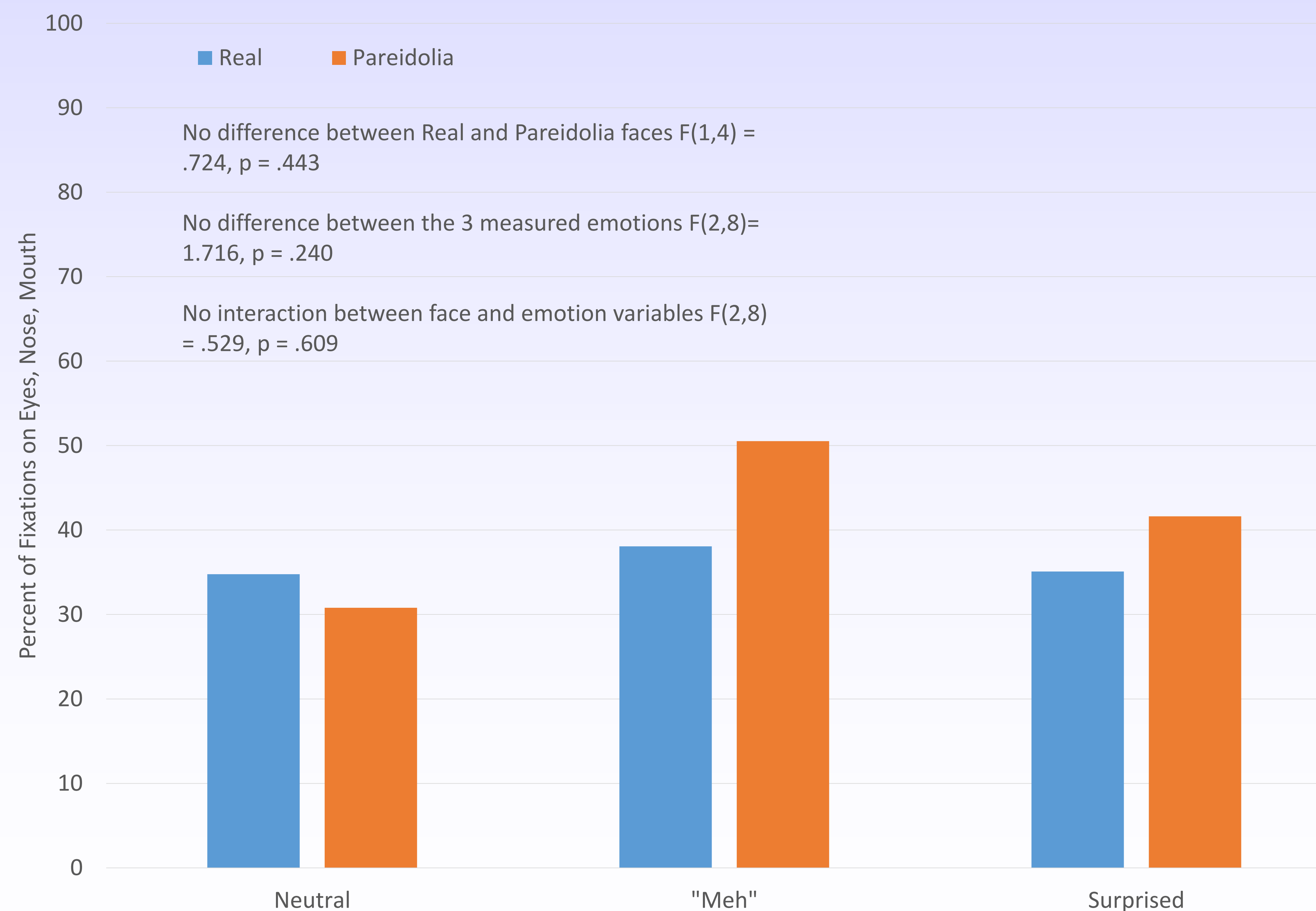
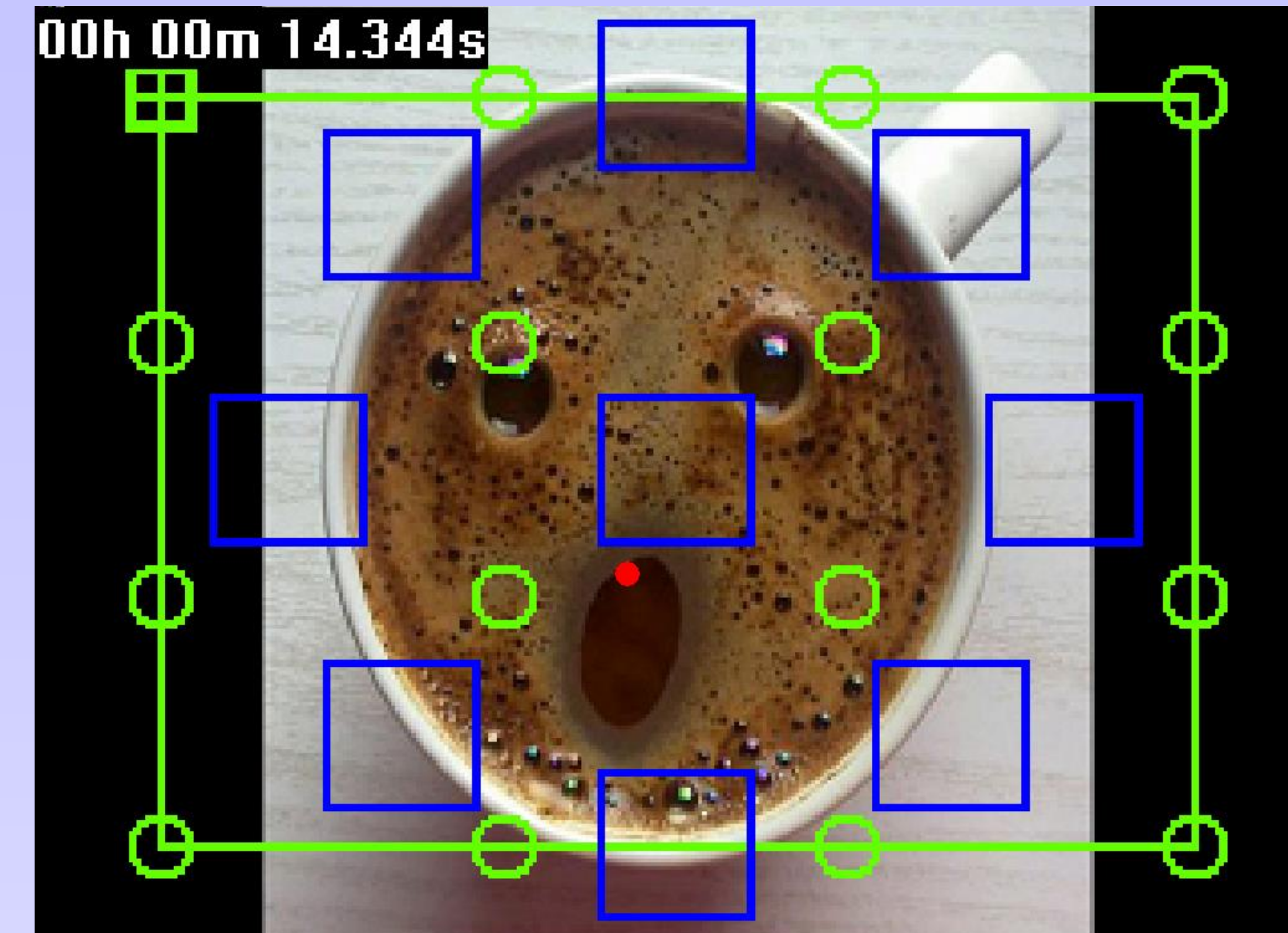
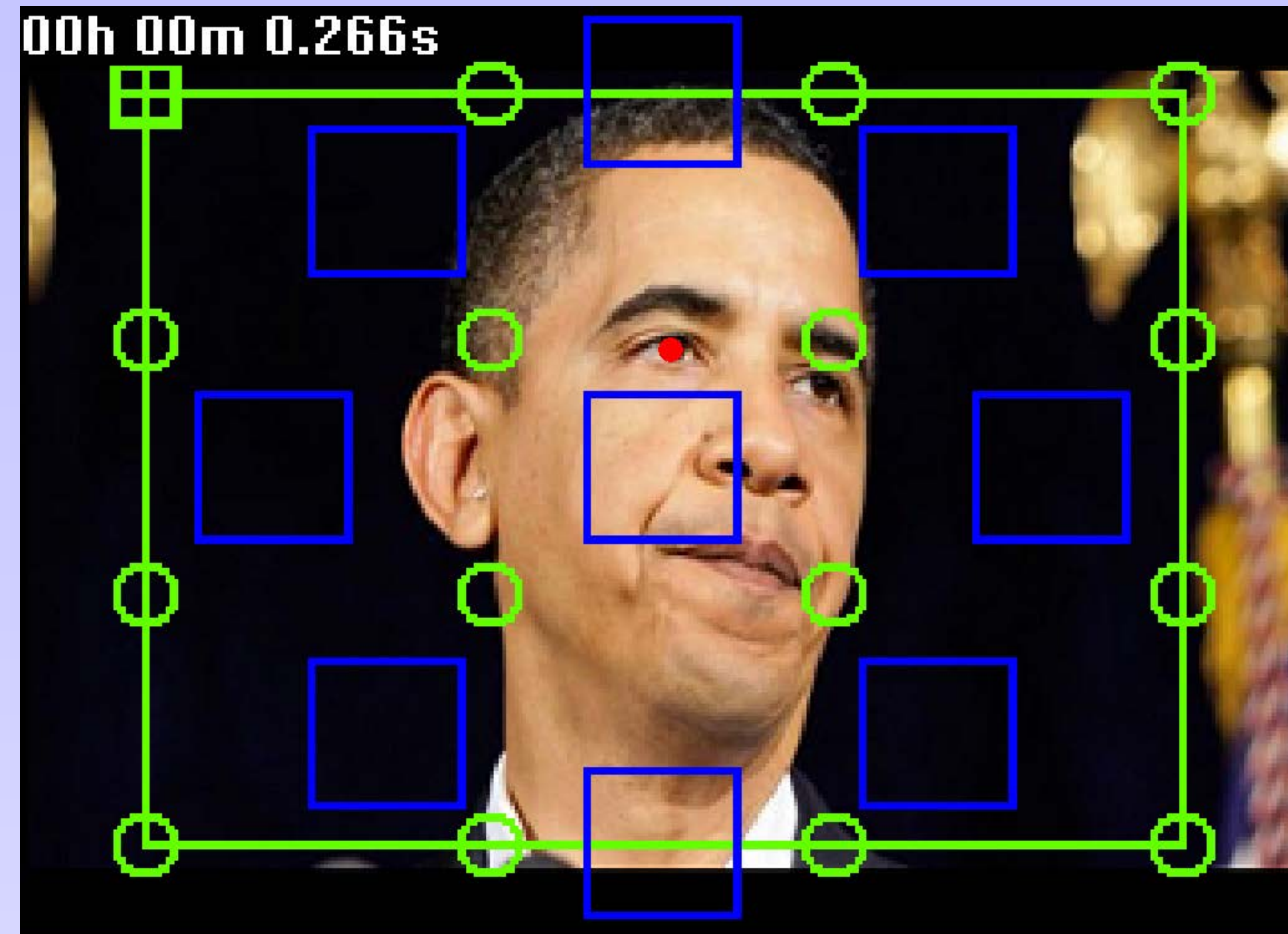
Method

- Five participants sat in a chair and used the eye tracking equipment, and were exposed to six images for 30 seconds each. Three images were fake and examples of pareidolia (a trash bin, a clock, and a cup of coffee), and the other three were of real faces (one was an averaged face, one was of Barack Obama, and the other was a stock image of a surprised woman), there were three expressions (neutral, annoyed/“meh”, and surprise, respectively). The number of times participants fixated on the eyes, nose, and mouth of the face presented were tallied up and converted to percentages of total fixations and then statistically analyzed.



Results

- The results of this experiment indicate that there is no difference in the proportions of fixations on eyes, nose, and mouth on faces that are real and pareidolia; showing consistency with the initial hypothesis.



Discussion

- It was interesting to find that in several cases, many of the initial fixations that participants had were on the three main features that were being measured for-- ears, mouth, and nose (EMN), whether the faces were real or not, and regardless of the expression presented.
- Limitations of the study include human error in time-keeping with a stopwatch, as well as distracting elements of an image, such as Obama's ears in the Real/Annoyed condition, and the trash-bin lid in the Fake/Neutral condition made the box inside look like it could be, funnily enough, Donald Trump. Another distraction in an image could have been the hands and arms that lead the eyes downward in the image in the Real/Surprised condition. In most cases, participants had a tendency to focus on the hairline in images in which a hairline appeared about half of the time, and another limitation were the presence of words in some images used- which have a tendency to draw people's eyes anyways. It is important to note that the sizes of images were also limitations- for the eye tracker, they should take up the full screen, and a few of them didn't quite meet that suggestion, because some were smaller than others. Another limitation was the limited number of stimuli (6); had there been more, there would have been more diverse data to go off of when collecting and analyzing statistical information.
- Facial recognition is an extremely important adaptation, and having more research done to understand how we process and register faces would significantly add to our current understanding of our own evolutionary history.

References

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Introduction

- When perceiving colors, an associated feeling is induced in the brain called a “color emotion” (Yildirim, Hidayetoglu, & Capanoglu, 2011).
- The eye perceives the color shown as a stimulus, and then the brain processes that perception, resulting with an emotion evoked (Yildirim et al., 2011).
- “Color emotion” has indicated that each color, and certain combinations of colors, convey certain feelings and meanings (Yildirim et al., 2011).
- Color preferences and emotional characteristics can start as early as 3 to 4 years old (Zentner, 2001).
- For example, in one study, children were told a “sad story,” then chose to color a picture with a brown crayon after, then chose to color with a yellow crayon after being told a “happy story” (Hemphill, 1996).
- Colors impact peoples’ lives by emotions felt, self-presentation, and tangible life objects.
- **Hypothesis:** Based on research, warm colors will produce a more stimulating reaction when presented, while cool colors will produce a more soothing, calming emotion.

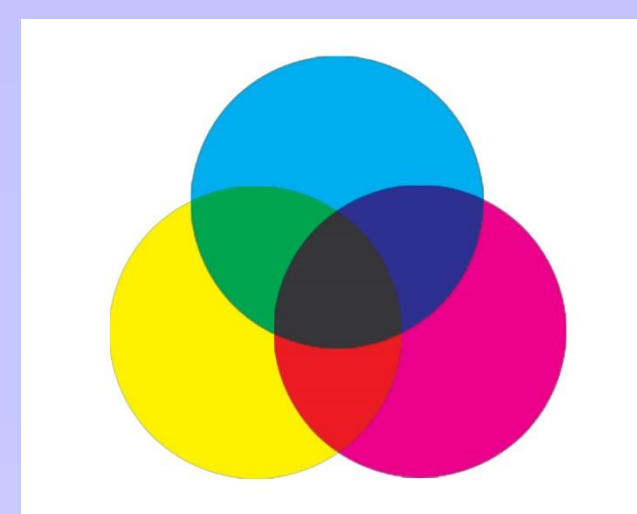
Categories:

Warm Colors= Red, Orange, Yellow

Cool Colors= Green, Blue, Purple

Method

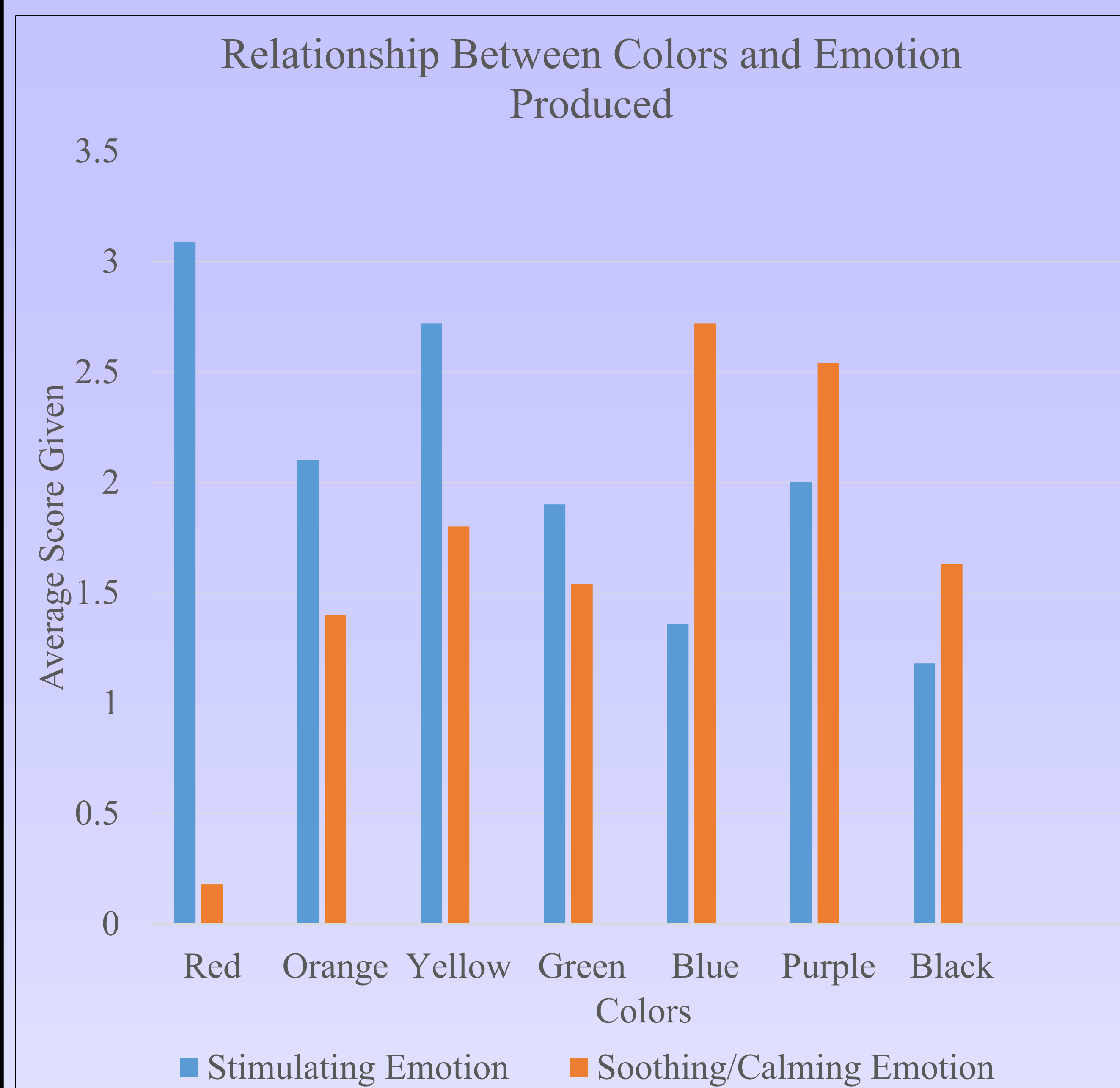
- Display a completely colored screen, of one color for 60 seconds.
- Provide 30 seconds of a blank white screen in between each color presented.
- Each participant (n=11) scores between 0-4 for each color and each emotion whether that emotion is not felt at all, barely, somewhat, very, and totally felt for that specific color.
- The scoring for each color must be done in the 60 seconds that the color is presented, or the 30 seconds immediately following it.
- There are 18 emotions to be scored, and 7 colors total.



Emotions Scored:

- ❖ Excited
- ❖ Happy
- ❖ Secure
- ❖ Soothing/Calming
- ❖ Cheerful
- ❖ Powerful/Strong
- ❖ Stimulating
- ❖ Angry
- ❖ Stressed
- ❖ Envious
- ❖ Unhappy
- ❖ Hostile
- ❖ Frustrated
- ❖ Upset
- ❖ Sadness
- ❖ Protective
- ❖ Anxious
- ❖ Defensive

Results



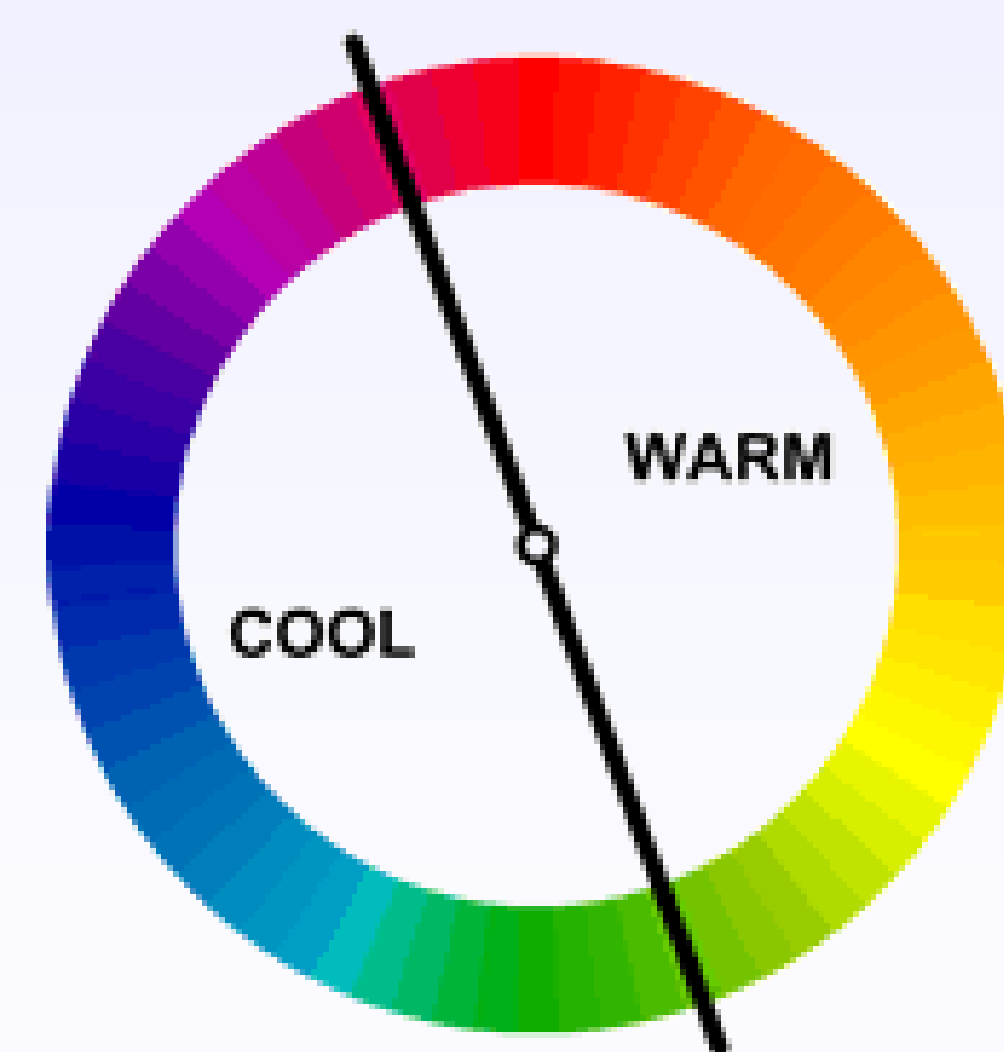
The main effect for emotion was significant. (P=0.030).

There was a significant interaction between each color category and what emotion was felt for each (P<0.001).

Most Stimulating Color-**Red**, 3.09 Average Score

Most Soothing/Calming Color-**Blue**, 2.72 Average Score

Color	Highest Average Emotions Reported	Lowest Average Emotions Reported
Red	❖ Stimulating-3.09 ❖ Powerful-3.0 ❖ Excited-1.81	❖ Sad-0 ❖ Envious-0.36 ❖ Unhappy-0.45
Orange	❖ Stimulating-2.1 ❖ Happy-2.1 ❖ Secure-1.8	❖ Defensive-0 ❖ Envious-0.09 ❖ Unhappy-0.18
Yellow	❖ Stimulating-2.72 ❖ Cheerful-2.72 ❖ Happy-2.63	❖ Unhappy-0 ❖ Hostile-0 ❖ Envious-0
Green	❖ Stimulating-1.9 ❖ Cheerful-1.54 ❖ Soothing- 1.54	❖ Angry-0.09 ❖ Frustrated-0 ❖ Sad-0.09
Blue	❖ Soothing-2.72 ❖ Secure-2.09 ❖ Cheerful-1.8	❖ Angry-0 ❖ Stressed-0.09 ❖ Frustrated-0.09
Purple	❖ Soothing-2.54 ❖ Happy-2.45 ❖ Secure-2.18	❖ Hostile-0 ❖ Angry-0 ❖ Stressed-0.09
Black	❖ Powerful/Strong -1.9 ❖ Anxious-1.72 ❖ Cheerful- 1.63	❖ Envious-0 ❖ Frustrated-0.54 ❖ Happy-0.54



Discussion

- The summarized results of this study show that warmer colors produce a more stimulating emotion when presented and cooler colors produce a less stimulating response.
- Generally, cooler colors produce a more soothing, calming emotion than the warmer colors.
- Black produces the stronger, most powerful emotion.
- Red is the most stimulating out of all the colors, then yellow, then orange.
- Blue is the most calming color, with purple and green following.
- This study shows how peoples’ emotions do change and correspond with different colors or color categories.
- Certain colors do evoke particular, specific emotions for each color category.
- This would help people when selecting certain items in their life, or what colors they surround themselves with.

Limitations:

- The projector did not display exactly the same color on the computer screen when displaying the colors.
- It was a small sample size of 11 participants.



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Introduction

I am interested in the development of eating disorders and how social media plays a role. Nishizawa et al. (2003) looks at the influence of physique perception on eating behaviors and wanting to be thin. Wade and Lowes (2002) looks at perfectionism and body index as the primary influencers of the overvalued fixation on body image. However, there is no current research on Instagram pages influencing the eating behaviors of women.

Hypothesis 1:

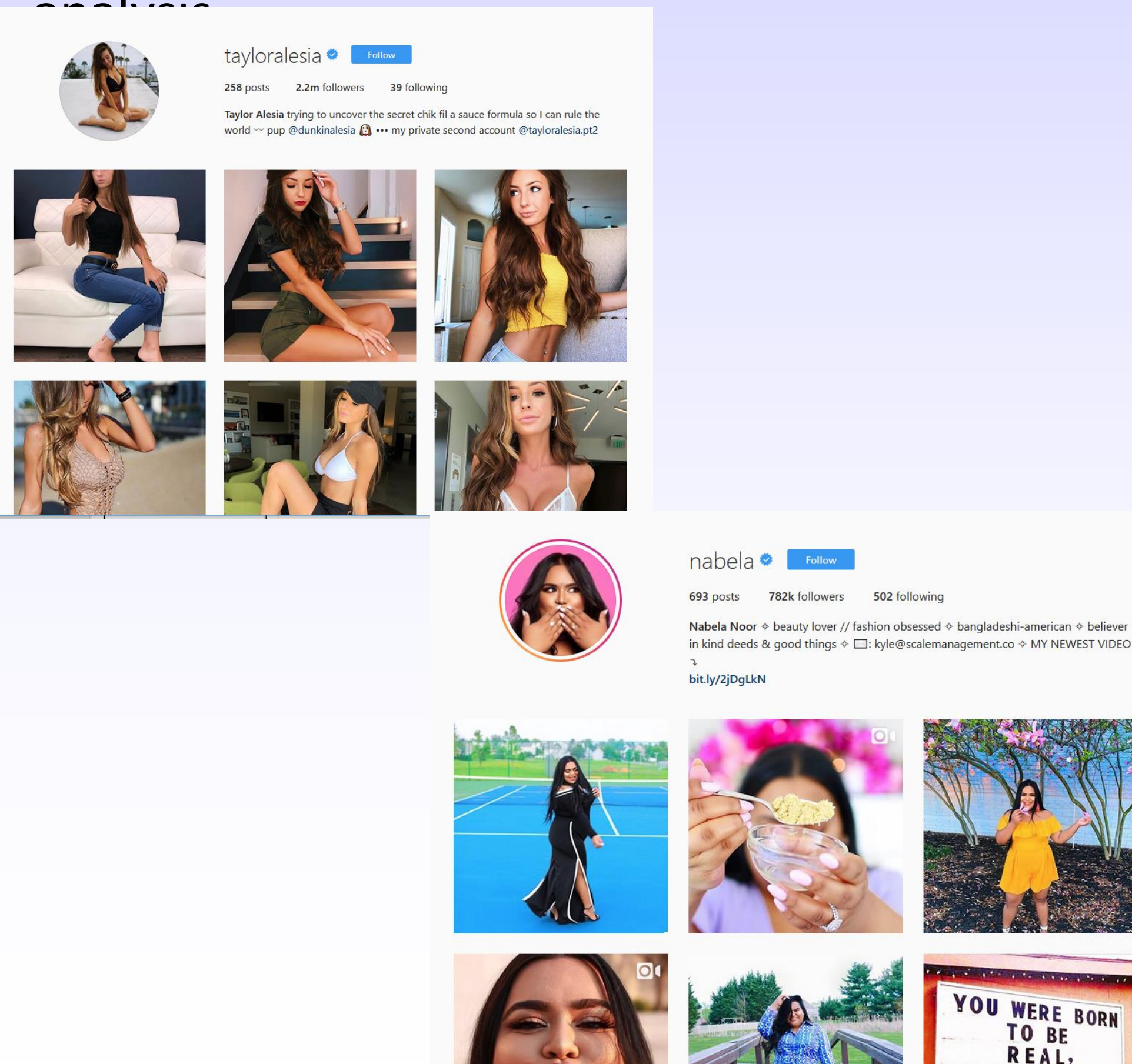
People with body image anxiety are most likely to pick more healthier food items to eat than those who do not have body image anxiety.

Hypothesis 2:

People with no body image anxiety are most likely to pick more unhealthy food items to eat than those who have body image anxiety.

Method

- I had 11 participants view two different Instagram pages (a model's and a "real" person) with a gap of 20-30 minutes in between both pages.
- After viewing the pages, they took a survey rating from 1-7 their desire to eat the food item written if presented at that moment.
- The sum of the scores for each food item in Unhealthy, Healthy, and Neutral food groups gave me the statistics I needed to run my analysis.



Results

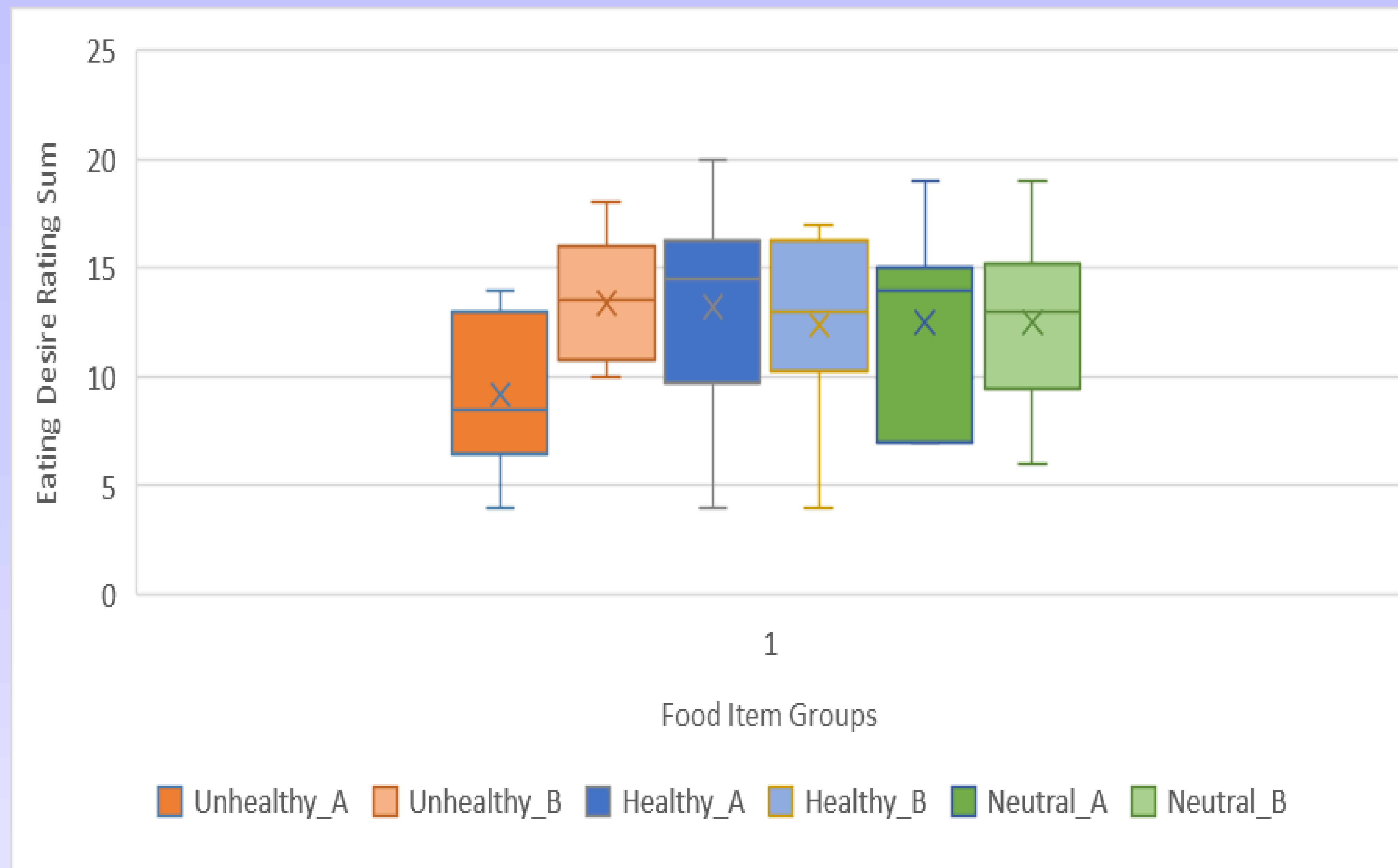


Figure 1. A dependent *t* test was calculated to view the difference between Model's Page (A) and Real person's Page (B) impact on the desire to eat certain food items.

A paired samples *t* test was calculated to compare the mean Unhealthy food items of page A to the mean Unhealthy food items of page B. The mean of the unhealthy food items of Page A was 9.2000 ($SD = 3.45768$), and the mean on the unhealthy food items of Page B was 13.4000 ($SD = 2.71621$). A significant difference from page A to page B was found ($t(9) = -3.042, p = .014$).

A paired samples *t* test was calculated to compare the mean healthy food items of page A to the mean healthy food items of page B. The mean on the healthy food items of Page A was 13.2000 ($SD = 4.91709$), and the mean on the healthy food items of Page B was 12.4000 ($SD = 4.06065$). No significant difference from Page A to Page B was found ($t(9) = .840, p > .05$).

A paired samples *t* test was calculated to compare the mean neutral food items of page A to the mean neutral food items of page B. The mean on the neutral food items of Page A was 12.5000 ($SD = 4.17000$), and the mean on the neutral food items of Page B was 12.5000 ($SD = 4.24918$). No significant difference from Page A to Page B was found ($t(9) = .000, p > .05$).

Discussion

- There seemed to be a significant difference between looking at a model's Instagram page (which society deems perfect) and a "real" person on the choice of eating more or less unhealthy food items.
- I found there was less desire to eat unhealthy foods after viewing the model's page.
- There was no difference in neutral food items, which I did expect considering they were universal (neither bad or good, normal).
- Surprisingly there was no difference between the healthy food items for the two pages.
- My limitations of this study are the small sample size and not true randomization of participants in the study.
- This study shows the importance of social media usage and the influence it has.
- The influence is important to acknowledge because of the effect it may later have on abnormal eating behaviors (eating disorders).

References

- Wade, T. D., & Lowes, J. (2002). Variables associated with disturbed eating habits and overvalued ideas about the personal implications of body shape and weight in a female adolescent population. *International Journal Of Eating Disorders*, 32(1), 39-45. doi:10.1002/eat.10054
- Nishizawa, Y., Kida, K., Nishizawa, K., Hashiba, S., Saito, K., & Mita, R. (2003). Perception of self-physique and eating behavior of high school students in Japan. *Psychiatry And Clinical Neurosciences*, 57(2), 189-196. doi:10.1046/j.1440-1819.2003.01100.x

Introduction

Color Contrast:

The Hermann Grid reveals that perception of the illusory dot seen at the intersections of the lines occurs when attention is directed away from the intersections, even when the saturation levels of the lines vary, suggesting that color and attention alter perception (Batchley & Moses, 2012).

Using identical, slightly different, and completely different squares:

Mixed-effects models detect confidence-accuracy relationships and adjust for the fact that average accuracy may differ between items and between participants, as well as confidence judgements (Kurdi et al., 2018).

Time Exposure:

Optimality theory suggests that the predictability of accuracy for high confidence levels varies with how optimal the information-processing conditions are during the time of processing the memory (Deffenbacher, 1980).

Surrounding colors being either completely different or similar:

In instances where environmental context and the target stimulus presented are more different, the probability of relating the two with each other in the same category decreases (Hampton, Estes, & Simmons, 2005).

Method

Participants:

11 members of the ECSU Psychology Summer Research Institute 2018

Materials:

Data Sheet
Indicate if small squares are the same color or not and level of confidence in your answer

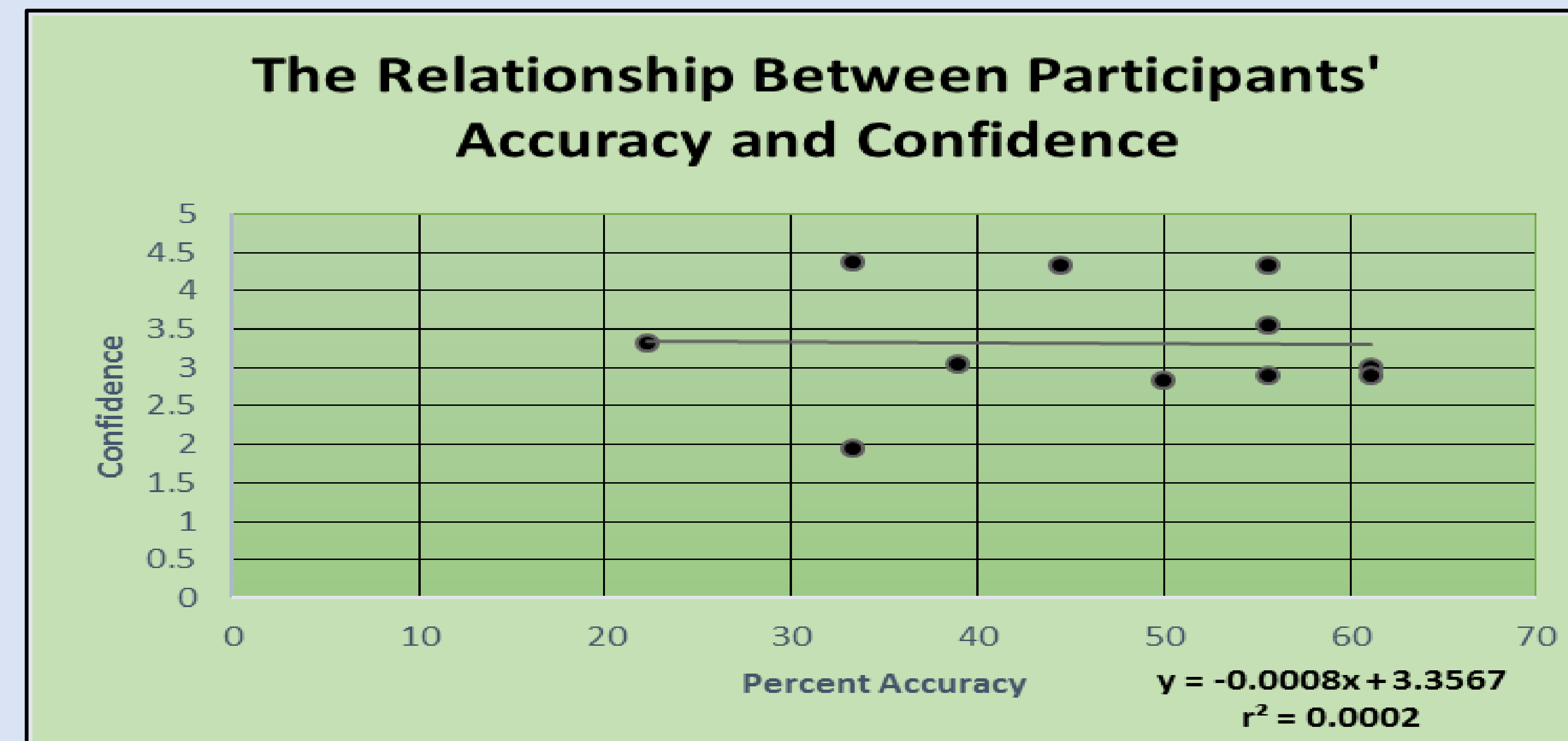
Slide show

18 Color Contrast Images

Procedure:

Images are shown on a timer (either 00.10 sec. or 01.00 sec.) and participants must fill out the data sheet

Results



There is no significant correlation between a person's accuracy and their confidence

Percent Correct = 46.46 ± 12.97

Confidence = 3.32 ± 0.77

$r(9) = -0.013, p = 0.970$

Discussion

It was hypothesized that participants who were more confident in their answers would be accurate a higher percent of the time than those who were less confident. The study instead found that there is no relationship between accuracy and confidence. The average score for confidence was 3.32 on a 5 point scale. It would appear that participants generally were unsure; perhaps this has to do with the concept of having a 50% chance of being right when asked a yes or no question.

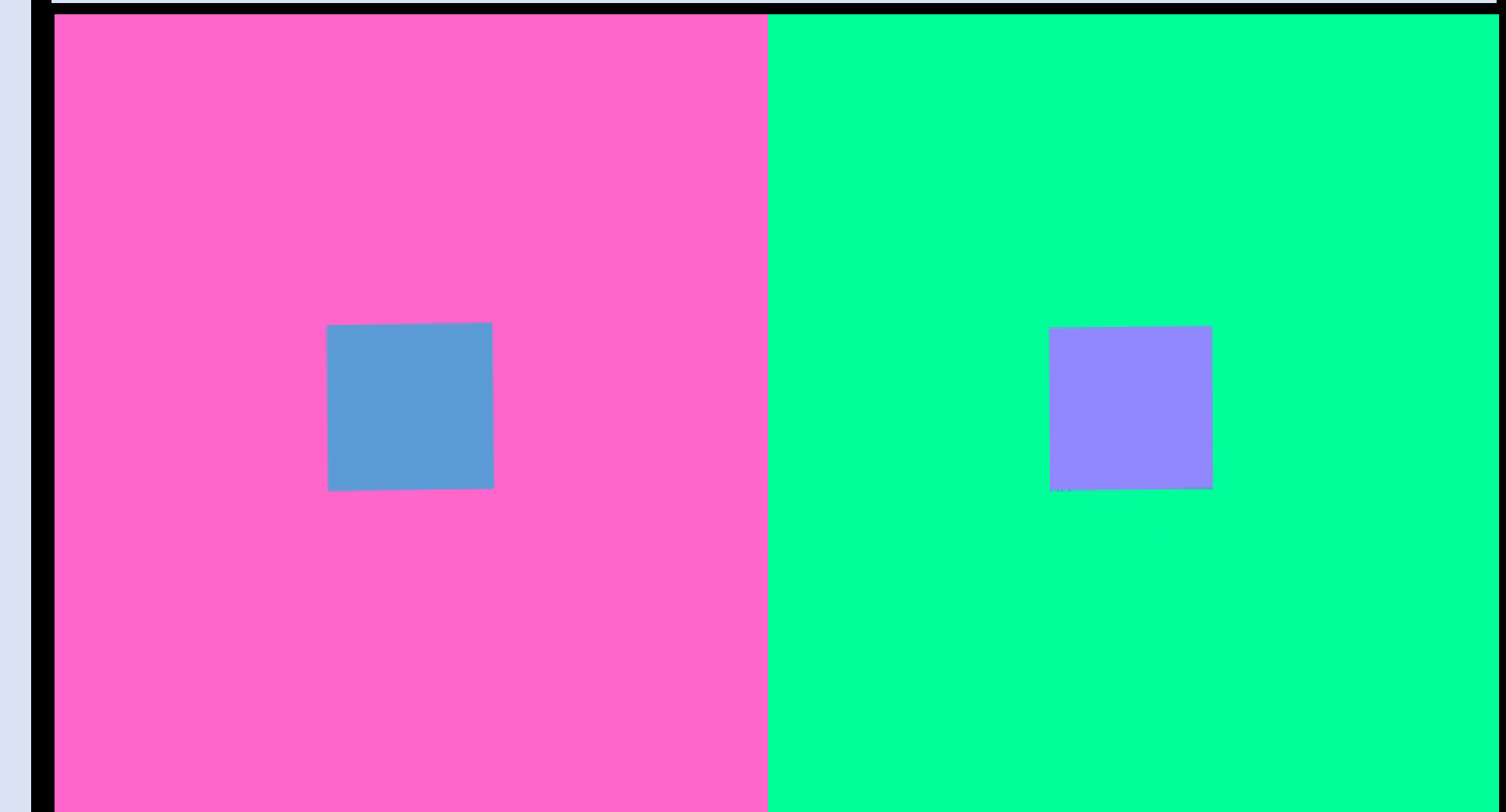
Limitations:

- Small sample size of 11 people
- 91% of participants were female
- Study was conducted in a short amount of time, limiting the amount of variables that could reasonably be examined
- Color contrast slides were not tested for validity

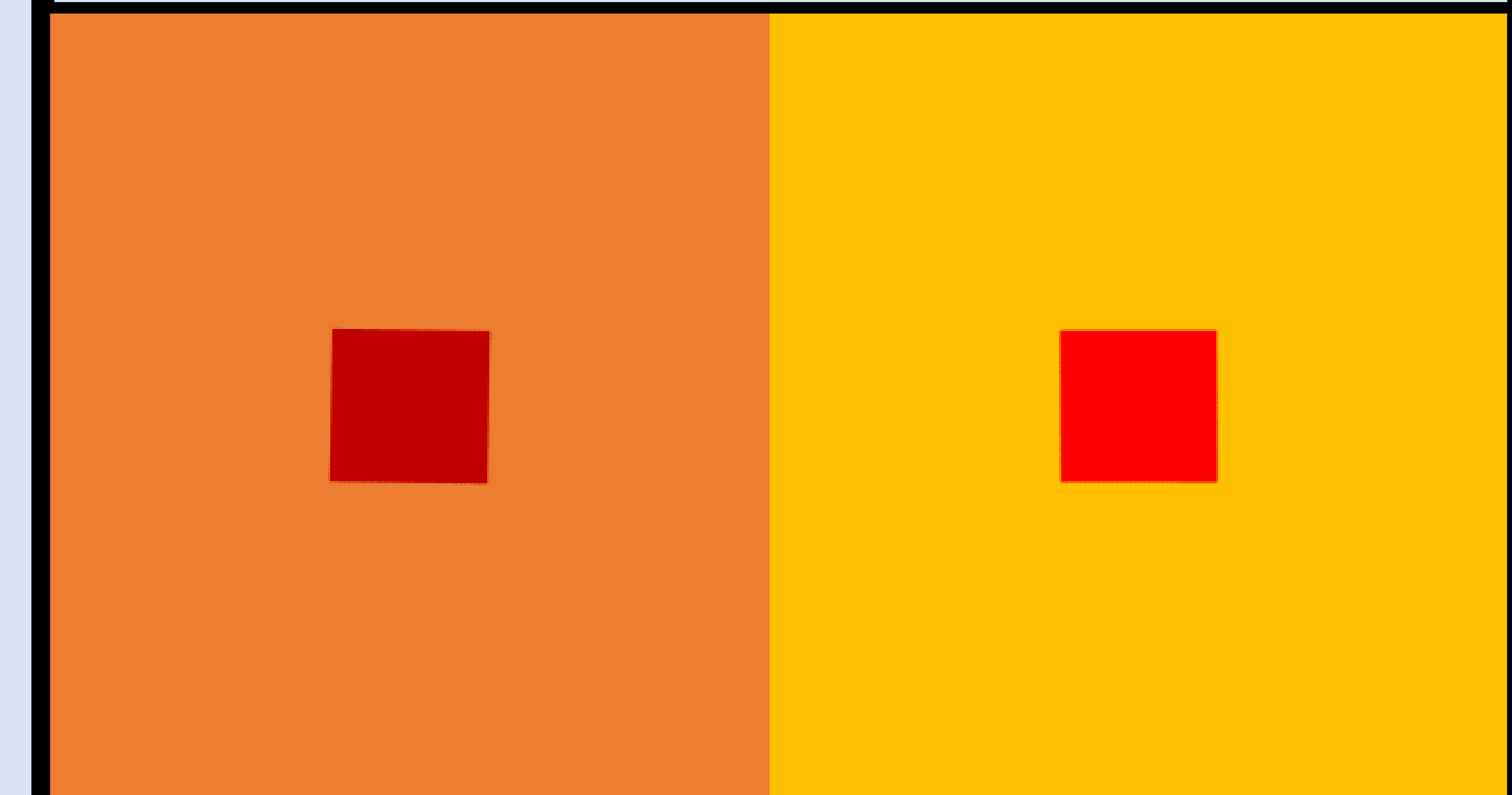
Implications:

- Many other studies in cognition (memory, for example) have shown that accuracy and confidence are not correlated, and since the significance is 0.97 it would be surprising if a larger sample size changed the outcome drastically
- Future studies...
 - time exposure to the color contrast images vs accuracy or confidence
 - examine whether certain colors are easier to correctly identify when surrounded by contrasting colors than other colors

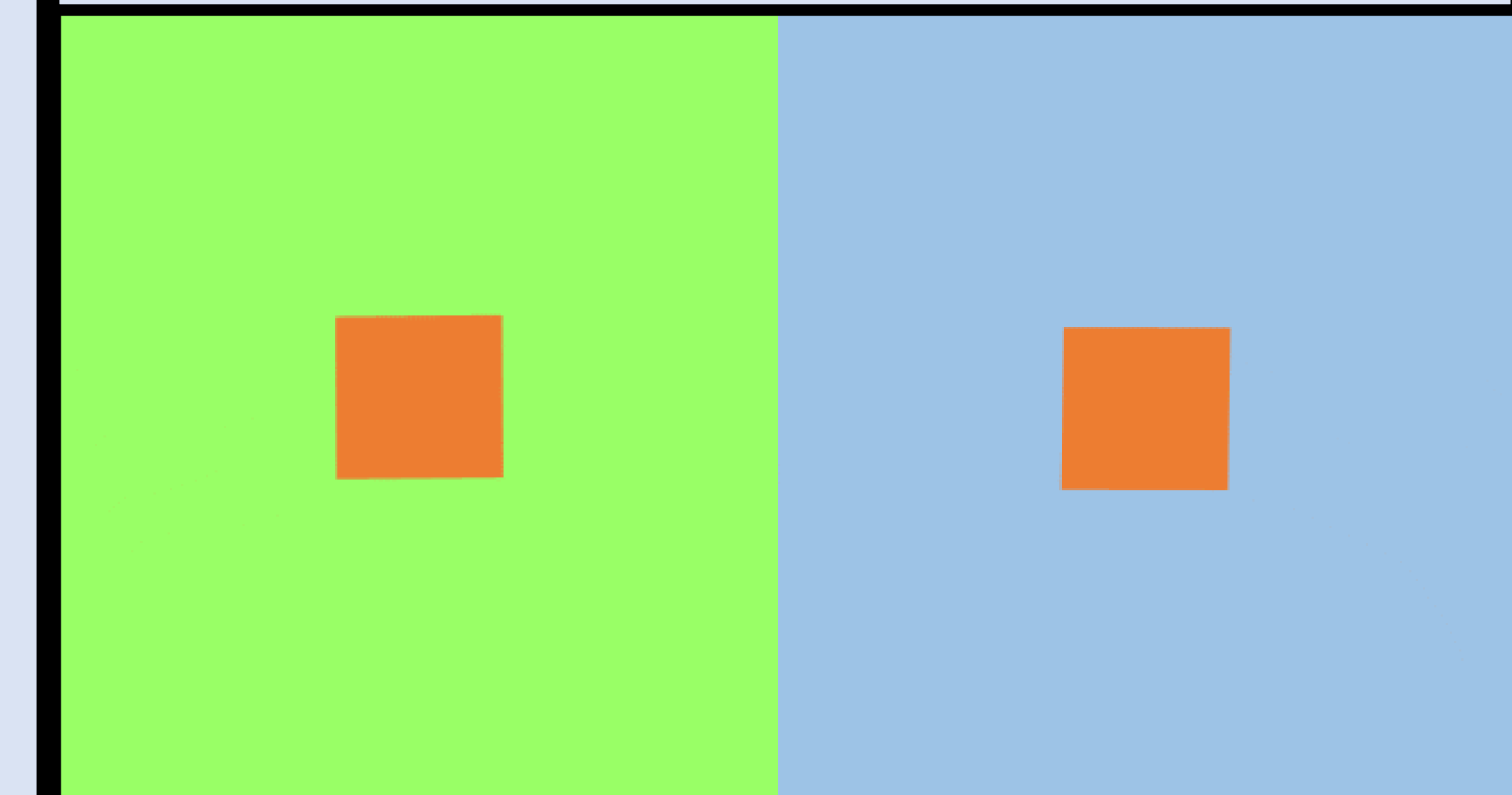
Color contrast image examples:



The above slide is an example of the small squares being *completely different* with different surrounding colors



The above slide is an example of the small squares being *similar, but different*, with similar surrounding colors



The above slide is an example of the small squares being *identical* with different surrounding colors

References

- Blatchley, B. J. & Moses, H. (2012). Color and saturation effects on perception: the Hermann Grid. *North American Journals of Psychology*, (14)2, 257-268.
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