



## Project ID: 521

JR - Behavioral and Social Sciences

**Trevor Rohling**

Grade 7

St. Gregory the Great Catholic School

Advisor: Sudipta Dasgupta



### *Do You Hear What You See?*

Aging is a natural part of life, and as you get older, your body starts to wear down, and you start losing your hearing, sense of smell, and much more things. Teens on the other hand are the complete opposite; the reason being they are very young and they haven't been on Earth as long as the older people. In this experiment, I will be showing that teens will be able to hear more of the correct words in the McGurk effect than the People over 30.

Procedure: The first step is to gather the materials. The second step is to find people who are able to take the test. Step three is to test them with the 5 different categories of testing. Finally, step four is to thank them, and continue with more people, and gather data.

Results: Once I finished testing all 50 people, I noticed that that the results of the teens differed a lot from the people over 30. This is because there are changes in the inner ear and auditory nerve, which changes along the nerve pathways from the ear to the brain. The teens brains tend to not fall for the McGurk effect and can understand that that the lips are saying different than the sound and can outsmart it. On the other hand, the adults not only fell for the McGurk effect most of the time but also didn't have enough power from the ear to hear the right sound, so they used their eyes on it, and say the lips, but not the sound. The Teens averaged 74% on No delay, 62% on 100 ms delay, 86% on 200 ms delay, 82% on 400 ms delay, and 100% on Looking away. On the other hand, the people over 30 averaged 31% on No delay, 46% on 100 ms delay, 28% on 200 ms delay, 42% on 400 ms delay, and 98% on Looking away.

**Project ID: 522****JR - Behavioral and Social Sciences****Lily Quezada**

Grade 7

St. John School – Encinitas

Advisor: Gena Heins

*Feelings of a Flower: Emotions Conveyed from Art*

This project is about how colors can affect someone's emotions and how they can make people react in separate ways. I did this project because I am an artist, and the way I use colors are important to me. I hypothesized that colors, specifically bright colors, would have a bigger impact on people's emotions. I researched how art can impact someone and produced a procedure. I decided to make 4 of the same exact drawing; sunflowers. After I created the drawings, each drawing would have its own style and art utensils. I would number the images, name the style of the drawing, and name the art utensils it used. Image 1, I used watercolor pens and had a bright, abstract look. Image 2, was a realistic drawing where I used graphite pencils and was black and white. Image 3, was a natural, original look that had pastels. Image 4, I used colorful alcoholic pens that had a "pop art" look. When testing subjects, I asked, "How does this make you feel? Does the picture change your mood?" Based on my results, my hypothesis was correct. People have more positive outcomes than negative outcomes based on bright colors.



## Project ID: 523

### JR - Behavioral and Social Sciences

**Bella Schere**

Grade 7

The Children's School

Advisor: Diana Quincannon



### *Modern Remake of the Stanford Marshmallow Experiment*

My project is a remake of the Stanford marshmallow experiment, a famous longitudinal study about delayed gratification in young children. I think that this is an important project because as was learned from the original experiment, it will help with a lot of things in later life and is an important quality to have. In my study 20 children ages, 3-5 were given a delayed gratification challenge but instead of earning marshmallows, they were offered to play a 3-minute video game immediately or earn 6 minutes for waiting. I hypothesize that if children delay gratification in my experiment, then those children will have similar survey responses. I also expect that my results will match the percentage of kids that delayed gratification in the original experiment. The results of my experiment showed that the percentage of children who chose to delay gratification to earn extra game time, 30%, was consistent with the percentage who delayed gratification for extra marshmallows in the original study, 32%. This study compared delayed gratification with IV (independent variable) of gender, birth order, time per week permitted on screens, compliance (per parent report), curiosity, and parents' gaming habits. The limitation of this study was my small sample size and a lack of diversity since all participants came from two private preschools in the same neighborhood.

**Project ID: 524****JR - Behavioral and Social Sciences****Eric Rodriguez**

Grade 8

Mt. Helix Academy

Advisor: Kayla MacDonald

*Stroop Effect: Rotating Labels in Shapes and Their Effect on Response Time*

Stroop effect has proved invaluable in psychological tests with congruent decline and flexibility as important applications. Stroop effect consists of incongruent stimuli where the actual stimulus differs from the label that the experimenter provides. In this project, I hypothesized that incongruent combinations of shapes and their corresponding labels would lead to longer response times for participants to identify the shape given. Furthermore, I tested a second incongruence as well where the labels were flipped. I surveyed 30 people in 6th and 8th grade from XXXXXX Academy, ages 10-14. Each participant was asked 9 questions consisting of random Stroop combinations of pentagon, hexagon, and octagon alongside their labels in congruence, first incongruence, and second incongruence (i.e. flipped labels). I observed that participants were more likely to respond with the incorrect shape given the incongruent signals as compared to the congruent, especially for the more complex shapes like hexagon and octagon. Furthermore, I concluded that the congruent question had the smallest response time with incongruent stimuli expectedly causing an increase in response time in identifying octagon ( $p=0.007$ ). Surprisingly, however, the second incongruence didn't cause an additive effect as expected. Although it yielded more incorrect responses from participants than the congruent, it did better compared to the first incongruence. Furthermore, response times did not vary greatly with second incongruence, suggesting the non-additive feature of the Stroop effect. My study can be utilized in further psychological analyses considering Stroop effect in examining cognitive ability.



## Project ID: 525

JR - Behavioral and Social Sciences

**Josephina Perham**

Grade 7

The Children's School

Advisor: Diana Quincannon



### *The Effect of Age and Gender on Purchasing and Awareness of Purchases*

My project is about how age and gender affect awareness of purchases and the number of purchases. I hypothesized female Millennials would buy the most and be the least aware. My hypothesis was wrong. Gen X females bought the most and Gen X males were the least aware.

My procedure was to create a questionnaire for participants about actual and perceived purchases on Amazon.

Results showed that on average males in Generation X are the least aware of their purchases with a percent of change of -11.6% on average, meaning they thought they bought 11.6% more than they did. On the flip side, on average female Generation X is the most aware with an average percent of change of 0.4% on average. They thought they purchased only .4% less than they actually did. Gen X females bought the most with 8.5 purchases on average while Gen Z only made 3.4 on average. Females bought more (7.5 purchases) and were less aware of their purchases than men (5.1 purchases). Females had an average percent of change of -3.4% and males had an average percent of change of 1.7%. Finally, my data showed that Gen X purchased the most, making 7.7 purchases on average. Gen Z bought the least with 5.3 on average. Overall my data showed that no gender or generation is entirely aware of their purchases.

**Project ID: 526****JR - Behavioral and Social Sciences****Kira Bausch**

Grade 8

St. John School – Encinitas

Advisor: Gena Heins

*The Pressure in Personal Space Invasion*

This project examined how blood pressure is affected when the personal space of a human subject is invaded by another person. The hypothesis is that blood pressure will increase when personal space is invaded. The experiment procedure began with measuring the blood pressure of a seated human subject using a sphygmomanometer on their arm. After 30 seconds, blood pressure was measured a second time. This measurement served as the control, measuring the change in blood pressure after no intrusion of personal space. A different volunteer, with their identity disguised, was then instructed to enter the room and sit 30cm away from the subject. After 30 seconds, blood pressure was measured a third time. Twenty-seven subjects were tested in similar indoor home environments using the same sphygmomanometer and disguised intruder. Calculations were made to determine the change in the systolic blood pressure with no intruder present (measurement #2 less measurement #1) and after personal space is invaded (measurement #3 less the average of measurement #1 and #2). The experiment measurements show that blood pressure increased significantly for 19% of the subjects tested, which is slightly higher than the control measurements. However, 56% of the experimental measurements show an insignificant change in blood pressure. These results indicate that the hypothesis is not supported. In conclusion, a relatively low number of people may experience increased blood pressure when someone invades their personal space, but the majority of people do not experience any significant change.

**Project ID: 527****JR - Behavioral and Social Sciences****John Murphy****Ashton Brocious**

Grade 7

The Children's School

Advisor: Diana Quincannon

*Music and Math*

Our hypothesis is that if more calming sounds such as White Noise or Classical Music are played in the background while a person is performing a task, then they will get higher scores on a math test. . We also hypothesized that loud music, such as Pop or Heavy Metal, has the reverse result. Based on our research, we think this would have a negative effect on the brain because it interferes with focus and concentration.

The average test results were highest for each grade while playing the more relaxing music types: Classical at 75% overall and White Noise at 72% overall. Scores dropped lower when we played Pop Music, 63% overall, and Heavy Metal, which averaged 70%. In addition, we noticed students finished their tests much faster while listening to Classical Music and White Noise, rather than when Heavy Metal and Pop were played. When Classical Music was played grades displayed major improvements over the Control Group (Classical at 75.5% versus Control at 71%). We observed that when White Noise was played grades gained a slight advantage over those of the Control Group (72.3). Grades dropped by a significant amount compared to the Control Group when Heavy Metal was played (Heavy Metal 66.1% versus Control 71%). The test results demonstrate that our hypothesis was correct because the more calming the noise or music, the better the students' test scores.



## Project ID: 528

JR - Behavioral and Social Sciences

Brooke Kuckenbaker

Maya Loebig

Grade 8

The Children's School

Advisor: Diana Quincannon



### *The Bias Buster: Bias in a Photo Line Up*

Introduction: It is important in a legal trial that there is no bias for or against a certain party. In these instances, the results of the trial are, in some cases, blotched. Purpose of investigation: The point of this project is to test the root of a participant's bias if any and use that information to test whether it can be of any use in a court setting. The Hypothesis for this project states that the suspect wearing black clothing will be considered more guilty than those who are not. The purpose of this data was to test if bias is present in a photo lineup and why. Procedure: Participants were tested randomly, between thirteen to fourteen years old. There was no additional "pressure: added to the participants to gain the data. Each participant was tested in under 30 seconds, but the results varied. To obtain the data needed, the materials were gathered first. These included the panel of 4 suspects, a pencil, and paper. Participants were then asked to choose whoever they believed robbed a bank and why. Results: 50% of the participants explained that the suspect's appearance had influenced their decision. 75% participants had a strong opinion on who they believed was the robber. 44% of the 36 participants tested seemed to gravitate toward the suspect in the black shirt versus the other 3 suspects in red clothing. The probability of any one photo being chosen is  $\frac{1}{4}$  or 25% out of 100. Conclusion: With the data we collected, it was found that 44% of participants chose suspect D. Unsurprisingly, the hypothesis was supported.





## Project ID: 530

JR - Behavioral and Social Sciences

**Lily Goncalves**

Grade 8

St. John School – Encinitas

Advisor: Gena Heins



### *Acts of Deception*

Physical body language and facial expressions can help figure out and determine if someone is telling the truth or announcing falsehood. I've always wondered how I could tell if someone was lying or not. This project posed the question: physical body language and facial expressions can help figure out and determine if someone is telling the truth or announcing falsehood. I gathered 20 test subjects and interviewed them each with the same 10 questions. I explained to them that they were allowed to tell the truth or lie for the first part of answering the questions. Then, I would guess whether they were telling the truth or not based on my knowledge of body language and facial expressions. In the end, the test subject would either confirm or deny if my guess was correct. At the very end of the experiment, 104 Lies were told, and 96 truths were told. 78.5% of the guesses were correct while 21.5% of the guesses were incorrect.

**Project ID: 531****JR - Behavioral and Social Sciences****Robert Meehan**

Grade 7

Mt. Helix Academy

Advisor: Kayla MacDonald

*The Effects of Different Cell Phone Distractions While Driving*

My project examined the effects of cell phone distractions while driving. My hypothesis for this experiment was that texting while driving would have the most distraction. Driving was simulated in this experiment by participants using a wheel and gas pedal in a driving simulator. The procedure for this experiment was for the participants to simulate driving on a course 5 times with no distractions first. The participants drove the same course five times, but while talking on a phone, answering simple questions to keep them engaged. The participants then drove the same course 5 more times, but while continuously texting. The results showed that while talking on a cell phone and no distractions had almost exactly the same average time to complete the course, texting had a huge effect on driving, with a course time almost a minute higher than with no distractions. Some noticed things participants did while driving was that they would slow down on straightaways while texting. The hypothesis for this experiment was correct and texting was very distracting. My conclusion for this experiment is that calling has little effect while driving, but texting is extremely distracting and dangerous while driving.



## Project ID: 533

JR - Behavioral and Social Sciences

**Mason Potter**

**Philip Perkins**

Grade 7

St. Gregory the Great Catholic School

Advisor: Sudipta Dasgupta



### *The Effect of Video Games on Short-Term Memory*

This project examined 30 middle school students playing easy and difficult video games on an iPad to determine if the games and difficulty of the games affected the students' short-term memory/ability to recall words vs. when they did not play video games (control).

It is hypothesized that the number of recalled words will be lower after playing the difficult video game than after playing the easy video game and no video game at all.

A different list of 5 words was used and read aloud to the students for each of the 3 tests: control (no video game), easy video game (Geometry Dash Lite), and difficult video game (Retro Bowl). Data was recorded for the number of recalled words after 1 minute of playing/not playing the game.

Results showed that the initial hypothesis was supported - the average number of recalled words after playing the difficult game was the lowest (3.57, which was 7% less than the easy game and 17% less than the control).

Playing the difficult video game resulted in the largest impairment on short-term memory. As the difficult game was played, students needed to concentrate more and were more distracted, and this may have interfered with the student's short-term memory and their ability to recall words.

**Project ID: 534****JR - Behavioral and Social Sciences****Lana Robertson**

Grade 7

Mt. Helix Academy

Advisor: Kayla MacDonald

*Which Factors Indicate If a Yawn Could Be Contagious*

Which Factors Indicate if a Yawn Could Be Contagious? I looked at the different amounts of yawning based on the way the yawn was produced during three trials with each of the three groups. In each group I yawned in a different way, audible and visible, silent and visible, and audible and blindfolded. I yawned in a room with little to no distractions to make sure there were little to no distractions. I hypothesized that a yawn would be the most contagious when the test subjects heard and saw the yawn in front of them. My results showed me that a yawn is most contagious when it is seen rather than heard. My recorded data says that overall in the three trials of each group that with no sound, but visibility, there were seven yawns. Overall in the group with sound and visibility, there were four overall yawns, but in the group with sound and no visibility, there were no yawns. I think that the reason for these results is because of the way that the yawn was projected in front of the test subjects. Maybe if the yawn was more subtle or louder it might have affected the results. If I were to do the experiment again, I probably would try it with another age group and see if it made a difference on the results and data.

**Project ID: 535****JR - Behavioral and Social Sciences****Emma O'Dea**

Grade 7

Nazareth School

Advisor: Marilyn Reed

*Do Different Colors of Paper Affect the Way a Student Does on a Test?*

My science fair project is testing if different colors of paper affect students' test scores. I picked this project because I wanted to find out if different colors of paper actually affect students test scores and if so teachers could use the colors that work the best to improve test scores and help students improve their academics scores. I also picked this project to see if I could somehow help students that struggle with test taking or anxiety during test taking by using calming colors and colors that help with focus. For this project, I started with lots of research on how students learn and what helps students learn. Then I did research on which colors are most calming, relief stress, help with focus, improve mood, and overall just colors in general. I also did research on what stress is. After all my research I created my review of literature filled with that information. After I did my research I started my experiment. In this experiment I created two different tests, one on white paper and a different test on colored paper. I gave these two tests to the seventh and sixth grade students to take. After the two classes took the test I graded the tests and figured out the means and made two graphs one for the seventh grade and one for the sixth grade. In my hypothesis, I hypothesize that light green paper would work the best because of my research and my data logs. I did not support my hypothesis. The total results of my project are that pink paper had the highest test scores, then blue, yellow, green, and white had the lowest. My conclusion is that pink paper works the best and most effective for high test scores.

**Project ID: 537****JR - Behavioral and Social Sciences****Omar Abdulaziz**

Grade 7

Bright Horizons Academy

Advisor: Najwan Naserelddin

*Gender Stereotypes in Early Childhood Development*

Gendered parenting teaches children the reality of gender roles in society but interferes from recognizing their true skills. This project aimed to investigate how early childhood gender-based stereotypes can affect the emotional and physical resilience of children. It was hypothesized that gender stereotypes have no impact on physical strength of children but may make little boys emotionally weaker than girls.

Data was collected through surveys and two experimental studies were conducted on 5-6-year-old children to validate the hypothesis. One study observed emotional responses to a movie, while the other compared physical strength through different exercises.

The emotional strength survey results showed that 42% of people believe that boys and girls aged 0 to 7 years old have the same emotional strength, 34% believe that boys are stronger, and 23% believe that girls are stronger. Additionally, 44% of people would have long conversations with girls, 41% with both genders, and 15% with boys. The physical strength survey results showed that 50% of people believe that boys are physically stronger than girls, 42% believe both genders are equally strong, and 9% believe that girls are stronger than boys. Additionally, 52% of people would play physical games with little boys, 44% with both genders, and 4% with girls.

In conclusion, gender stereotyping not only causes a negative impact on the emotional strength of little boys but also alters the mindset of both genders into making them believe that boys are stronger than girls, even though both scored similarly on their physical strength test.



## Project ID: 538

### JR - Behavioral and Social Sciences

#### Olivia Go

Grade 7

The Rhoades School

Advisor: Roxanne Hunker



### *Assessing Empathetic Results Based on Audio vs Visual Stimuli*

**Statement of the Problem:** Sometimes when I see or hear advertisements which are fundraisers for charities or ecological causes, I feel concerned about the plight of the animals in the video or the humans in need. I wondered if the emotions I experience might influence heart rate. My hypothesis was that viewing a sad video regarding animals or listening to the same information in an auditory form would impact heart rate due to the range of empathetic emotions elicited in the viewer or listener. My hypothesis was that heart rate would be affected by both the auditory or visual message, and that the video message would have a greater impact.

**Procedure:** Sixty middle school students were shown two different videos. Their heartbeats were recorded to see if an empathetic response might affect heart rate. The first video was the control video. The second video was a sad video regarding ocean pollution impacts on marine organisms. All test subjects watched the control video. Half of the test subjects then listened to an auditory message, and the other half viewed a video delivering the same information. All students were tested individually while wearing an Apple Watch to document heart rate. Seventy five middle school students also participated in a survey containing ten questions from a standard empathy test along with five decoy questions. I included decoy questions so the survey would not simply be an obvious empathy survey. I tallied the responses using a numerically weighted scale and analyzed the results.

**Results:** The results for heart rate were inconclusive and overall did not show differences between the control, the visual videos or auditory messages. However, the results of the survey revealed girls to be consistently more empathetic in every grade level. The girls altogether scored an average of 8.87% higher on the survey than the boys. The empathy scores also consistently increased with age, and the eighth graders scored on average 11.75% higher on the empathy test than the sixth graders.

**Conclusion:** Through the results of my survey, I discovered that empathy appeared to increase with age. I also found that the girls in sixth, seventh, and eighth grade consistently scored higher on average on an empathy test than the boys in their respective grade levels.



## Project ID: 539

JR - Behavioral and Social Sciences

**Medha Ravi**

Grade 7

The Rhoades School

Advisor: Roxanne Hunker



### *EarYe! EarYe!: Effects of Earbuds, Ordinary Headphones, and Noise-Canceling Headphones on Desired Music Decibel Level*

Earbuds are very popular with adolescents. I wondered if my friends were listening to music at volumes loud enough to result in ear damage. I believed using noise-canceling headphones instead might be a good solution. I tested the hypothesis that the decibel level at which middle school students listen to music will be higher with earbuds compared to standard or noise-canceling headphones.

I performed a total of 426 tests on 71 students aged 11-14 years old. I used the app Decibel X to verify the average decibel level throughout the music. Each participant performed six variations of the experiment, under conditions of headphones, earphones, or noise-canceling headphones, in randomized order. I then repeated this same process, but with ambient noise playing in the background. I analyzed the data on a computer as a CSV file and compared the results.

All 71 participants on average listened to music 10.71 dB lower (at volumes of 10.40 times less intensity) when wearing noise-canceling headphones, rather than earbuds, and 5.81 dB lower (3.81 times less intensity) when wearing standard headphones. When ambient noise played in the background, subjects wearing noise-canceling headphones listened to music at volumes 5.64 dB lower (with 3.66 times less intensity) compared to students wearing earbuds. But, unexpectedly, with ambient noise students listened to the music at similar decibel levels, whether wearing noise-canceling or standard headphones.

According to my results, using noise-canceling headphones or standard headphones, rather than earbuds, may decrease the risk of developing significant ear damage. Surprisingly noise-canceling headphones did not consistently provide a superior advantage over standard headphones, but noise-canceling and standard headphones consistently provided clear advantages over earbuds under all test conditions.





## Project ID: 540

JR - Behavioral and Social Sciences

**Sofia Stidman**

Grade 7

Nazareth School

Advisor: Marilyn Reed



*Does Screen Time Affect How Often You Blink?*

This project evaluates how the amount of screen time one is exposed to affects how often you blink.

**Project ID: 541****JR - Behavioral and Social Sciences****Molly Gardner**

Grade 7

Mt. Helix Academy

Advisor: Kayla MacDonald

*How Color Affects Perception of Foods and Drinks*

This project examined the effects color has on food and drinks. It is hypothesized that food or drinks with certain colors are associated with certain flavors rather than what the actual flavors of it are. I had 35 people take a questionnaire to see if color really does affect perception of foods and drinks. I dyed water red, blue, yellow, and green, and then showed it to the people and they had to answer with their best guess to what the flavor really was. The results showed that cherry was most commonly associated with red, blue raspberry was most commonly associated with blue, orange was most commonly associated with yellow, and green apple was most commonly associated with green. This shows that certain flavors are associated with certain colors. As you can see the color of the drinks affected what people thought the flavor was. Research shows that if the color of a food is off, then people tend to think that it has a different flavor than it really does. One thing I think I could do differently next time is not to give the people choices of flavors, and just let them decide themselves what flavor they think it is. This might have affected my answers because they could just choose one I put and not their own. In my project you can see that color does play a part in what people think the flavors of food and drinks are.

**Project ID: 542****JR - Behavioral and Social Sciences****Lily Long**

Grade 8

The Rhoades School

Advisor: Roxanne Hunker

*Exploring Academic Setting Applications of a Turing Test Derivative*

Chat GPT is a groundbreaking technology that is currently the most quickly downloaded app in the history of the internet, and is subsequently the subject of a raging debate over the ethics and future of language model AI in the world of academia. The goal of my project is to see if teachers and students can tell the difference between essays written by students and ones generated by AI. My hypothesis was that teachers and students would not be able to tell the difference between the two.

I used Google Forms, Google Sheets, and Chat-GPT to conduct and analyze my research. I generated a test set for middle school, and one for college. I tested 75 middle school students and 166 teachers and professors, which gave me a grand total of 241 participants. Scores ranged from 0% correctly identified as either by a student or AI-generated, to 100%. There was no statistical correlation between the participants' scores and the years participants had been teaching, their gender, or whether or not they had heard of Chat GPT. When trying to identify the essays, the most popular strategies were personality (36.93%), structure of the essay (31.95%), and spelling and grammatical errors (25.73%). The most effective strategies were looking for accurate citations (61.67% average score) and looking for signs of personality, such as the use of first person or emotion (55.90%). Overall, 79.24% of participants had a strategy, while 20.76% did not. The overall average was 49.63% correctly identified, which is similar to statistical chance (50%).

This suggests that more studies need to be done to develop tools for teachers and students to evaluate whether or not a written work is AI-Generated.



## Project ID: 543

### JR - Behavioral and Social Sciences

**Isabella Kalapala**

Grade 8

St. Peter the Apostle Catholic School

Advisor: Elena Czarnowski



### *The Zodiac Personality Test*

My project “The Zodiac Personality Test,” is an attempt to prove that zodiac signs predictions about human personalities are correct. By proving this is true, it could help people understand their own personality types, and the personalities of people around them better. Knowing your personality type and other personality types could also help you find someone you might be able to connect with or who you maybe won’t be able to relate to. In order to prove this I used the following procedure:

First, I created a personality test of 13 questions. Each question was specifically targeted at a certain sign; for example the first question, “Do you think of yourself as mischievous?” was targeted towards Capricorns because they are known for being mischievous. Once I created the questionnaire, I researched what zodiacs predicted each sign would answer each question, asking people with that sign what they would answer, and averaging it all out. With that information, I created an answer key using all the predictions.

Next, I gathered 120 people in total, 10 of all 12 zodiac signs, and gave each of them the questionnaire. I analyzed answers by comparing each submission to my answer key. After figuring out how similar or different each one was from what the zodiacs predicted, I put it all into a chart. The chart consisted of 120 answers, so I broke it up into 12 different charts each one had 10 participants' scores that had the same zodiac. Their represented letter was a fraction out of 13 of how similar their answers were to the zodiac's predictions.

My results were an average of 63.84% match between the personalities and the zodiac predictions. With an average of below 70% I can conclude my hypothesis was disproved, however after completing this experiment, I saw many patterns and things that may have been able to change their answers. I noticed that many people with the same sign had the same answer on certain questions, but the answer key said it was incorrect.

In conclusion, my hypothesis was disproved which may have been for the best because of the number of people who live by zodiac signs.

**Project ID: 544****JR - Behavioral and Social Sciences****Menachem Weiser**

Grade 8

San Diego Hebrew Day School

Advisor: Stephen Jones

*Forward Engineering vs Reverse Engineering*

It was hypothesized that challenging children to build a bridge using two different methods, one being a step by step video, and the other showing the finished product, will result in the step by step video having a higher success rate in building the bridge by time. By testing the step by step video versus showing the finished product it will help assess which process has a stronger outcome. The instructional video had its own group of testers and the finished product also had its own group of testers. For the finished product the participant would see the bridge for 20 seconds then the bridge will be covered. After, the participant would wait for about 10 seconds and then rebuild the bridge with only a minute to build it. The instructional video had the participant watch a 20 second video about how to build the bridge. Then they would wait for 10 seconds and then rebuild the bridge with only a minute to build it. In the end, the testing results came out almost identical. The finished product had an average of 13.28 blocks correctly placed. The step by step video had an average of 13.33 blocks correctly placed. The percentage of participants that were able to complete the bridge by seeing the finished product was 11 percent. The step by step video had a percentage of 8 percent. This testing shows that the hypothesis was not supported by the testing evidence.

**Project ID: 545****JR - Behavioral and Social Sciences****Joey Boniske**

Grade 8

San Diego Hebrew Day School

Advisor: Stephen Jones

*Does Test Format Affect Reading Comprehension Performance*

Do people comprehend information better when read on screens or on paper? It is hypothesized that when giving a reading comprehension test on a computer screen to a younger Millennial or Gen Z, they will score higher than a member of the Baby Boomer generation. If the reading comprehension test is on paper, then the Baby Boomers will score higher than the Gen Z and younger Millennials. Participants ages 11-35 and 50+ were administered a reading comprehension test with a ten-minute time limit, which was graded according to how many questions were answered correctly. The test subjects were divided by age and gender, and half of each group of participants were given the test on paper, while the other half were administered on screen. The tests were graded by how many questions were answered correctly out of ten. Within the three age groups on both the paper and screen tests, young adults (18-35) had the highest average score (6.10). The older adults (50+) scored almost a full point higher on the screen test than the paper test (5.60 and 4.67 respectively). Overall, two of the three age groups' scores were higher on screens than paper. It is possible that the older adults scored better on screens than they did on paper because of their educational background and more consistent reading habits, or potentially because technology has become much more mainstream such that older age groups are getting more familiar with screens and digital resources.

**Project ID: 546****JR - Behavioral and Social Sciences****Cielo Bartos****Sofia Sisitki**

Grade 8

Stella Maris Academy

Advisor: Sara Eckmann

*Do Right-Handed or Left-Handed Teens Adapt Faster to Switching Dominant Hands?*

The information discovered in this project helped to prove whether right-handed or left-handed teens adapt more quickly to switching dominant hands in tasks utilizing fine motor skills. We hypothesized that left-handed teens would adapt faster as they may have had more experience using right-handed tools in their daily lives.

Results were found through physical tests performed by subjects, first using their dominant hand as control and then non-dominant to observe changes. Recorded times for each test were averaged and categorized. Averages were compared and percentage increases were recorded. Participants also ranked the difficulty level of using their non-dominant hand out of five.

The analysis of a mixed variety of recorded times revealed that right-handed subjects were about 1.375 times slower than left-handed subjects when using their non-dominant hands to write. They were 25% faster when typing with their dominant hand. Left-handed subjects were significantly faster when using their non-dominant hand to type.

Through the results of this project, right-handed and left-handed subjects were proven to have roughly the same skill level and dexterity when using their dominant hands. Previous development of certain skills in subjects may have affected the results slightly, although this was minimized in our tests. Right-handed subjects were found to be slower to adapt when using their non-dominant hands, while left-handed subjects adapted quicker to most tasks when using their non-dominant hand. In this project, differences in adaptation when using a non-dominant hand in right and left-handed teens were demonstrated, with left-handed teens adapting more quickly.

**Project ID: 547****JR - Behavioral and Social Sciences****Yosef Kantorovich**

Grade 8

San Diego Hebrew Day School

Advisor: Stephen Jones

*How Does Your Temperament Affect Your Team Working Ability?*

This project examined which temperament pairing works most efficiently in a group. It is hypothesized that when melancholic and sanguine temperament are paired together, they will have a higher efficiency rate in their work as opposed to a random combination of temperaments put into a group. A total of 30 groups and 60 participants partook in the experiment. The experiment was conducted by pulling 2 students of similar age and the same gender out of class. Once they arrived in the testing room they had to complete an online questionnaire to determine their temperament. They were also tasked to complete a 40 piece block puzzle in the fastest time possible while each participant's placement of blocks was tracked. Results indicated that the initial hypothesis was partially supported, one of the two temperaments in the hypothesis for the most efficient temperament pairing, sanguine, commonly finished in the top ten slowest times for the experiment. The other temperament predicted to be part of the most efficient temperament pairing, melancholic, was supported. The most efficient temperament pairing was a melancholic, choleric pairing. Few patterns were apparent in the experiment's results. The only pattern that seemed to not be random was that the choleric temperament seemed to be the single most efficient temperament that partook in the experiment. With an average time of 182.57 seconds, the least of all temperaments and the second highest placement amount with 27.57.





## Project ID: 548

JR - Behavioral and Social Sciences

**Giuliana Kent**

Grade 7

Nazareth School

Advisor: Marilyn Reed



### *Fidgets Are Just Toys...Or Are They?*

I choose to work with kids and fidgets because I wanted to see if fidgets are helpful when it comes to stress and anxiety for my project. I chose to work with fidgets because it seemed like a very fun project. So for my science fair project I tested 6th, 7th, and 8th graders by giving half of the class a fidget and the other half no-fidget, to see if fidgets are helpful when it comes to stress and anxiety. My hypothesis is that the fidgets will help kids (with the fidget) take a quiz and will make it feel easier and less stressful. For my procedure, I gave half of the class a fidget and the other half of the class did not have a fidget. It was random there were two per table so I gave one person at every table a fidget. Each class and half of the classes received the same math quiz and both halves took them at the same time. I gave both halves of the class 5-8 minutes to take and finish the quiz. After they all finished taking the math quiz I collected the quizzes and fidgets and collected the data from that class. I first tested 7th grade class then I tested 8th grade class. Lastly, I tested 6th grade class. After I repeated my procedure to each class, 6th, 7th, and 8th grade I collected all the data in total, by grading the quizzes and separating them by if they had a fidget or not. From all the data I collected, my hypothesis was not supported. My data shows me that the kids with the lower scores were the kids who had the fidgets and the people who didn't have the fidgets had the higher scores. The kids with fidgets had the percentage of 69% of average scores. And kids without the fidgets had a percentage of 60% average score.