Luck or Lies - A Comparative Study of Honesty in Children

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¹ This study was conducted in June 2015, when Ms. Pritchard was in high school.

Abstract

The likelihood of honesty in children - when lying would be beneficial to them - was studied in children aged from five to twelve. Fifty-seven students from a local elementary school on the Sunshine Coast, BC were asked to flip a coin behind a screen, and report their result, age, and gender on a slip of paper, having been told in advance that a result of "heads" would be rewarded. The number of heads reported was compared to what the researchers would have statistically expected, using the chi-squared test. It was found with 98.08% certainty that the results were not random due to the dishonesty of participants.

Background

The origin of personal ethical standards has fascinated psychologists for generations. Many studies have examined this issue, and it has been observed that people are more likely to be honest when they know that they are being watched. Some speculate that this is due to their desire to avoid criticism, and the trouble that may arise from that.

Ethical and moral development begins in childhood. This means that children's ethics are often directly questioned and talked about openly, in order to foster the best moral and ethical standards in those children. Many children's books contain or are motivated by lessons in morality and honesty, and most parents work to ingrain these characteristics in their children. During adolescence, a person's ethics are much less likely to be openly questioned by adults. Often, ethical discussions only arise when a teen has done something wrong, and a correction needs to be made. Adults' ethics are questioned even less often. By this stage, it is expected that moral and ethical standards have already been developed. Generally, adults are only forced to face their breach of ethics in the context of faith, or in court.

I intend to compare the differences in the ethical standards between different age groups, in terms of their likelihood to be dishonest. Specifically, I will be asking elementary school students between the ages of five and twelve years old to flip a coin behind a screen, having told them that anyone with a result of "heads" will be given a prize, and then comparing the number of "heads" reported to that which would have been statistically expected, using the chi-squared test.

Review Of Related Research

Pascual-Ezama et al. (2014) studied the honesty in citizens from 16 different countries when tempted with a Lindt chocolate. Tables were set up on university campuses around the world, with signs reading "Is this your lucky day? Flip a coin and win a chocolate." The participants were completely random, as anyone had the opportunity to walk up and take part in the study. Participants were told that they would receive a chocolate if they reported that the coin landed white side up. The coin was flipped into a box, so the researcher could not see the result. The result of the coin flip was reported three different ways. Some participants had to report their result to the researcher directly, others wrote down their result and gave it to the researcher, and some wrote down their result, put it in a box, and helped themselves to a chocolate if they had reported white. Those who verbally reported a "white" result 53% of the time, those who wrote down their result and gave it to someone reported "white" 57% of the time, and those who self reported and put their result in a box reported "white" 62% of the time. Overall, there was a 57% outcome of "white" responses. When compared to the 50% result that should have been found given the probability of the coin, it was found that 86% of participants had resisted the temptation to lie. The results were also compared based on gender and the country in which they had participated in the study. There were no statistically significant differences found between male ($\chi 2 = 15.898$; *p-value*=0.389) and female ($\chi 2 = 10.679$; *p-value*=0.775) participants, or between participants in different countries, in all treatments: SRT ($\chi 2 = 16.953$; *p-value*=0.322); VRT ($\chi 2 = 15.691$; *p*-value=0.403) and WRT ($\chi 2 = 22.674$; *p*-value=0.091). This study shows a

very strong positive correlation between a person's feelings of anonymity and their willingness to lie.

Bucciol and Piovesan (2008) studied the development of children's honesty with age. The study was conducted at a summer camp in Italy, and had 182 participants ranging in age from 5 to 15. The children were told that everyone who flipped a coin, which was white on one side and black on the other, and reported that the coin had landed white side up, would be given tokens that were redeemable at the summer camp's clubhouse for things like ice cream, beverages, and snacks. The children tossed the coins in private, recorded their outcome on a piece of paper, and then redeemed the slip for tokens if they had reported the coin landing heads up. The study was split into two groups, a control group and a reminder treatment. In the control group, those running the study were careful not to mention the possibility of cheating, and in the reminder group, the children were both verbally reminded not to cheat, and it explicitly said "Don't Cheat!" on the form they had to record the outcome of their coin flip on. 85.4% of the children in the control group recorded the coin landing white side up, compared to the reminder group, in which only 68.8% of the children reporting getting a result of white on their coin toss. Overall, 76.9% of the study's participants reported the coin landing white side up. From these results, they determined that telling children not to cheat has a large impact on their willingness to be dishonest. The age, gender, school performance, number of siblings, and BMI of the children were also taken into account and compared, but the researchers conducting this study concluded that none of these elements significantly affected the results. This study shows that reminding children to be honest has a much greater effect on their behavior than other suspected factors,

and that encouragement to be morally upright is an effective way to improve the likelihood of a child being honest.

Gross (1946) studied the levels of honesty in school children in terms of their willingness to change their answers when marking their own tests. A total of 227 Grade 7 students from two schools participated in the study. Participants were split into three groups, one control group, and two experimental groups. Participants all took a pre-test on Monday, then Tuesday, Wednesday and Thursday were devoted to practice, and the final test was taken on Friday. The test used was the Clapp-Young Arithmetic Test, as it was constructed with a self-scoring device. Every answer recorded also left an imprint on a second sheet attached to the original test paper, which was removed after the test was first taken and before it was marked by the students, so the researchers had a copy of their answers before and after the tests had been marked from the answer key. The first of the experimental groups used self-competition as a motivator, and the second experimental group used competition between them and another class to motivate the students. Both of these groups were informed of Friday's test in advance, but the children in the control group were not, and were just given the day to day work without adding motivational factors. On Monday, 31.6% of the children in the control group changed at least one answer while marking their test, compared to 13.6% of students in the first experimental group, and 23.3% of students in the second experimental group. On Friday, 29% of the control group changed an answer, along with 9.6% of the first experimental group and 22% of the second experimental group. There was a wide variation in the levels of honesty in the children of these three groups, and that gap was made even larger on Friday than on Monday. It was also found that those children with a greater

intelligence quotient were less likely to cheat, and children who did better on the test were less likely to change their answers. The motivational factors or a lack of motivation did not seem to have much of an effect on the levels of honesty in the children when they were marking their test papers. It was determined by those conducting this experiment that it was too short to have appreciable gains. Overall, the motivation for students to do well on tests, whether for the sake of winning a competition between their class and another class or bettering their own score, seems to be sufficient to create a significant amount of dishonesty.

These studies demonstrate a strong positive correlation between a child's willingness to lie, and the benefit that they believe they will receive by lying.

It seems reasonable to suggest, given the data from these studies, that citizens from many various demographics would demonstrate a similar likelihood of honesty. These studies clearly show that perceived benefit is a primary motivation for dishonesty.

Methods

I conducted my study at a local elementary school on the Sunshine Coast in British Columbia, with participants ranging in age from five to twelve years old. I obtained informed consent and permission from the school's principal. The principal was fully informed of what I intended to study, and how I planned to gather my data, and readily consented. The teachers were then notified of the opportunity to have their classes participate in the study, and four teachers volunteered. Permission forms were distributed to the members of those classes, and sent home to receive parental consent for the students to participate in the study.

Methods for data collection varied, depending on the age of the participants. When collecting data from the Grades 2/3 and 5/6 classes, I asked the participants to line up along one side of the hall, and told them that they would be flipping a coin and receiving a prize if the coin landed "heads". One by one, the students went behind a screen and flipped a coin. They also recorded their age, gender, and the result of the coin flip on a slip of paper. After this, they stood on the other side of the hallway, waiting for the other participants to do the same. After everyone had flipped the coin, and were standing with their slips of paper, I asked all those who got "heads" to stand on one side of the hall, and all those who got "tails" to stand on the other. I then collected the slips of paper from all those who had reported "tails", and sent them back to class. Each child who had reported "heads" was given a gummy bear, their slips were collected, and they returned to class. I returned to the class along with them, and thanked them for their participation before continuing along to the next class.

When collecting data from the kindergarten students, the procedure had to be altered slightly. The students in this age category were unfamiliar with the two sides of their coin, and had no experience flipping coins, so I showed them each side, telling them what they were, and how to identify each, and showed them how to toss the coin in the air to flip it. I completed the form for them, asking their age, and having them verbally report their result to me. I was still on the opposite side of the screen, so I did not see the result of their flip. I also could not gather data from all of the kindergarten participants at once, so I took groups of four students at a time. I explained the procedure to them and then conducted the experiment.

Data

Age	Gender	Result
5	F	т
5	М	н
5	F	н
5	F	н
5	F	н
5	м	н
5	м	н
5	М	н
5	F	т
6	М	н
6	F	т
6	F	н
6	М	н
6	М	н
6	F	т
6	F	н
6	м	н
6	М	т
7	м	н
7	М	н
7	М	н
8	М	т
8	М	т
8	F	т
8	F	н
8	м	н
8	F	н
8	М	н
8	м	н
8	F	н
8	м	н

Discussion

Of the 57 participants from this study, 16 reported a result of "tails". Using the Chi-squared test with p=0.05, we can say there is a 98.08% likelihood that there is a non-random factor operating; that is to say, that a significant number of participants were not telling the truth.

In participants from the kindergarten class, five of 18 students reported a result of "tails". Four of these students were female, and only one was male, out of a class consisting of nine students of each gender. This means that there is an 81.3% chance that all female students were honest, and only a 9.8% chance that all male students were honest.² Overall, the kindergarten students were found to have an 18.2% likelihood of complete honesty.

Three of the 16 Grade 2/3 participants report "tails". That is, one of the six female students and two of the ten male students in this age category. This informs us that there is a 7.71% probability that all students reported honestly. It also demonstrates a 24.8% probability that all female students reported honestly, compared to 18% of male students.

Of the 23 Grade 5/6 participants, eight reported a result of "tails". Six of the fifteen female participants reported this result, along with two of the seven male participants. Overall, the Grade 5/6 students had a 30.2% likelihood of complete honesty, compared to a 58.4% of female students and 42.2% of male students.

In each age category, male students were shown to have a higher likelihood of dishonesty than female students. Female students in kindergarten had the overall highest likelihood of complete honesty, at 81.3%. Female students in Grade 5/6 were next, at 58.4%. Third, came the male students in Grade 5/6, at 42.2%. Male students in kindergarten were shown to be the most

² It should be noted that in sample sizes this small, the Chi Squared test loses its statistical power.

likely to be dishonest, with a probability of honesty of only 9.8%. Next, came the male Grade 2/3 students, with a likelihood of 18%, and third came the female Grade 2/3 student, with a 24.8% likelihood of honesty. In each category, male students were shown to be less likely to be honest that female students. The likelihood of male students' honesty increased with age, and the likelihood of female students' honesty fluctuated, with the greatest likelihood in kindergarten, the least in Grade 2/3, and an approximate medium in Grade 5/6.

Conclusion

The results of this research demonstrate clear differences in a child's likelihood of honesty when compared based on their age and gender. There was a strong negative correlation shown between age and the likelihood of honesty in boys between the ages of five and 12. In kindergarten, female students were much more likely to be honest than male students. In Grade 2/3, that margin decreased, but female students still demonstrated an increased likelihood of honesty when compared to male students. By Grade 5/6, male students were only slightly less likely to be honest than female students. Overall, we found only a 1.92% chance of complete honesty from every participant in the study, and can say with almost complete certainty that students are willing to be dishonest if they feel it will benefit them in some way.

References

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