University of Passau

Chair of Economic Theory

Dr. Katharina Werner

Fate or Competitive Pressure?

A Field Experiment on Competition with Children

Summer 2019

Date of submission: 31 October 2019

Seminar Lab and Field Experiments (36328)

Mathilde Dräger and Muska Ibrahimi

M. A. International Economics and Business

Semester: 5 and 3

Characters (with spaces): 19,938

Table of Contents

Abstract

We ran an experiment with children to study the impact of supervising children on their honesty. We asked children to play against other children the dice in a cup game by Fischbacher & Föllmi-Heusi (2013). Their payoff depended on whether they won or lost or recorded the same number in the smartphone which gave an incentive to cheat. Hereafter, children payed themselves out in a separate room in order to create moral wiggle room. There was one treatment. Either the children played without supervision, or a childcare worker was present. Our findings suggest that children tend to cheat less if they are supervised. There is also a tendency for moral cleansing.

1. Introduction

Children, growing up in meritocracies, are from the very beginning under pressure to compete against each other. Whether its *Bundesjugenspiele*, *Jugend Forscht*, *Matheolympiade*, or *Jugend Musiziert* or even the grading in school: children compete with each other from an early age. Social pressure for example to wear certain brands or to own certain luxury goods additionally follows as they grow older. In Economic theory competition is widely seen as desirable as it improves the functioning of the market, fosters innovation and ensures the efficient allocation of resources (Schwieren & Weichselbaumer, 2008, p.2). In reality competition can also lead to an increase in unethical behavior such as corruption or even driving honest participants out of the market (Shleifer, 2004, p. 415). Conrads et al. (2014, p. 91f) show that in competition the higher the prize spread the more people cheat. Feltovich et al. (2018, p. 18/21) observe a reciprocal effect between unethical behaviour and competition: the harsher the competition the more prevalent is unethical behaviour e vice versa. As far as we know there is no literature regarding dishonesty in competition among children. However, there is literature regarding the willingness to compete (Andersen et al., 2013; Sutter & Glätzle-Rützler, 2015; Khachatyran et al., 2014) and experimental literature regarding dishonesty (Bucciol & Piovesan, 2008; Maggian & Villeval, 2015). Maggian and Villeval (2015, p. 675) find large aversion to lying among the age of 7 to 14-year-olds but Bucciol and Piovesan (2018, p.5) observe children cheating uniformly between the age of 5 and 15. In this paper we combine these two topics.

Strong institutions like the German Federal Cartel Office should prevent corruption and any collusion. The authorities often have no teeth against large corporations. This leads to the question if the prevalence of a competition supervision alone is able to decrease dishonesty

among participants of the market. Pruckner and Sausgruber (2008, p. 14) show in their newspaper experiment that a simple moral reminder leads to more honesty. Mazar et al. (2008) come to a similar conclusion with students. Reading the ten commandments before the game leads to significantly less cheating (Mazar et al., p.636). In this experiment children are confronted with competition. Furthermore, Bucciol and Piovesan (2008, p. 9) show that a small moral reminder not to cheat decreased the probability of cheating on average by 18 %.

Another question we asked ourselves regards the moral balance of misdeeds and good deeds. In reality large profit-oriented groups have charitable foundations. When does the aspiration for moral balancing arise? To our knowledge there is no literature regarding moral licensing and moral cleansing among children. There is however evidence for adults. Brañas-Garza et al. (2011, p. 10) observe a pattern of self-regulation in an economic lab-experiment. Monin and Miller (2011, p.34/36/38) show in three psychological studies that people are more willing to express attitudes that could be viewed as prejudiced when their past behaviour has established their credentials as non-prejudiced persons.

The paper is organized as follows: the first part deals with the experiment followed by the hypotheses. Then the results are presented and discussed. Finally, the conclusions are discussed.

2. The Experiment

This part is dedicated to the experiment. It first deals with the setup of the experiment, then continues with the experimental design and concludes with the hypotheses of the paper.

2.1 Experimental Setup

We ran the experiment in five day nurseries in Passau, with an average of 28.8 children per day nursery (SD = 5.97). In total 144 children aged between 6 and 11 years took part in this experiment (76 girls and 68 boys). The age range was chosen in accordance with the development of dishonesty among children. Newton et al. (2000, p. 302) observe that children start to tell lies at the age between 3 and 4. The most prominent lies in this age are to escape from punishment but other early lies are driven by the desire of obtaining rewards, first of material nature such as a cookie, and later of social nature such as receiving a praise (DePaulo & Jordan, 1982, p. 165). Fehr et al. (2008, p.1080f) show that 3 and 4-year-olds act most selfish, with a decrease to ages from 5 to 6. This is why we chose to conduct the experiment with 6-year-olds as the youngest participants.

We always started gathering the children in one room. We then introduced ourselves and asked the children if they wanted to play a game with us. The participation in the experiment was voluntary. Informing the children that the game would include a mobile phone and veggie bears as a prize lead to almost all children taking part in the experiment, except for a few in one day nursery. After assuring that all of them wanted to take part in the experiment, we randomly divided the children into two smaller groups by handing out black and red Canasta cards. One of the groups moved then into a waiting room where the children were randomly matched into pairs by handing out memory cards.

One after the other was allowed to enter the decision room in pairs. The instructions were given in the decision room in order to avoid children thinking about a strategy beforehand. To ensure that instructions were well understood, the experimenter cleared all questions.

After the competition children separately went to the payoff room. In the room there was a bowl of veggie bears as their payoff. The children had to pay themselves out which created a moral wiggle room.

The childcare workers agreed to not talk about the experiment with the children before and during the sessions. In one day nursery due to security reasons the childcare worker was present in the room where the competition took place. However, the latter remained strongly in the background.

2.2 Experimental Design

The experiment consists of two stages. The first stage contains a dice in a cup task introduced by Fischbacher and Föllmi-Heusi (2013) and the second stage involves children paying themselves out in a separate room.

As mentioned before children enter the decision room and are instructed by the experimenter. The experimenter informed the children that data collection was anonymously and asked them to state their age. The experimenter then enters the data in two mobile phones and hands them out to them. They were also provided with a dice in a cup. The Children sit on opposite ends of a table. Their seats are equipped with upside-down wooden boxes to ensure that neither their mates nor the experimenter are able to see their input into the mobile phone. They are instructed to not communicate with their mate. The dice in the cup game is programmed in classEx an online tool by Giamattei and Graf Lambsdorff (2019). The experimenter instructs the children to throw the dice three times. After every throw of the dice they enter a number in the mobile phone. Importantly the experimenter can neither observe the toss, as the dice is located in the cup, nor can he or she observe the input into the mobile phone due to the wooden boxes. Hence,

children could easily cheat by reporting a different number than which they had rolled. However, we are not able to tell how many children cheated but we can estimate the dishonesty of the aggregated group. The participants are informed that children who enter the higher number receive a payoff of 4 veggie bears, the lower number 1 veggie bear and if they insert the same value, they both receive 2 veggie bears. In total the children received 3 to 12 veggie bears. The veggie bears work as an incentive to insert high numbers in the mobile phone. Harbaugh et al. (2002, p. 71) emphasize that real rewards reduce the noise in children's behaviour. After every round the children receive feedback immediately and after the last round the display also states the total payoff. To avoid comprehension problems, the experimenter additionally informs the children about their payoff. Hereafter one after another enters the payoff room. It was assured that the bowl was always well-stocked in order to show that there was no control over the amount of veggie bears taken. This created moral wiggle room. Even in the day nursery where a childcare worker was present in the decision room, the children were unobserved in the payoff room.

The experiment includes one treatment. As mentioned before, children were divided into two groups at the very beginning. There was the control group (CG) playing unobserved and a treatment group (TG) which played supervised by one of the childcare workers.

In the treatment condition the childcare worker sat down at the table with the children. Importantly the childcare worker does not communicate with the children and is not able to see either the number they role nor the input into the mobile phone.

Overall 70 children joined the control group and 74 children the treatment group. The treatment group contains slightly fewer female participants and the average age is slightly higher as shown in table 1.

2.3 Further Considerations regarding the Experiment

Since the children in our experiment are between 6 and 11 years old and of both genders, it is worth taking a look at previous experiments and studies that consider gender and age effects. In the literature regarding competition Andersen et al (2013, p. 1439) find a strong gender gap in the willingness to compete beginning at the age of 13. Sutter and Glätzle-Rützler (2015, p.15) however show evidence for the gap starting at the age of 5. In contrast to these two studies Khachatryan et al. (2014, p.10f) do not find any gender gap in the tournament entry. The literature regarding gender differences in the topic dishonesty does not come to a uniform result either. While Gervais et al. (2000, p. 215) suggest that boys are less honest than girls between the age of 6 and 8, Childs (2011, p. 148) does not find any gender gap. DePaulo et al. (1996, p.

987) even find a reversed gender gap in their psychological experiment although they look at college students and adults. The experiment by Houser et al. (2016) focusses on the honesty of parents and their children. Houser et al. (2016, p. 249) find evidence for parents being more honest in front of their daughters than in front of their sons respectively. Children also might be more honest playing with girls than with boys.

As Andersen et al. (2013) and Sutter & Glätzle-Rützler (2015) find evidence in a gender gap in the willingness to enter competition and Gervais et al. (2000) suggest that boys are less honest than girls, we take their results into account in our considerations as well as the findings of Houser et al. (2016).

Focusing on the literature regarding age differences in honesty, Maggian and Villeval (2015, p. 676) show the trend that older children (age 9 and 10) cheat more than younger children (age 7 and 8) but their findings are statistically not significant. Jensen et al. (2004, p.106) show a reverse trend however for high school students and emerging adults. As Maggian and Villeval (2015) observe children we follow their results. Fehr et al. (2008, p. 1080) collect evidence for parochialism, the preference of favouring members of their own social group, among children. Children therefore might be more honest playing with children of the same age than with younger or older ones.

The considerations in the introduction and the further reflections in this part of the paper give rise to the following hypotheses.

Hypothesis 1: In competition children tend to lie more in the absence of supervision of a childcare worker than with one present.
there is a childcare worker present.

Hypothesis 2: Boys are more likely to enter a competition therefore they lie more often than girls and even more in the competition among their male peers.

Hypothesis 3: Older children lie more often than younger ones and lie less when they play with children of the same age.

Hypothesis 4: Children in the treatment group lie less and therefore take more veggie bears than their payoff would be (moral licensing).

Hypothesis 5: Children in the control group lie to a fuller extent and therefore calm their conscience by taking less veggie bears than their payoff would be (moral cleansing).

3. Results

Our findings can be summarized in five results and are organized as follows: first we report our findings regarding the lying behaviour of children without and with supervision. Hereafter, we'll go into gender effects followed by age effects. Finally, we outline our observations regarding moral licensing and moral cleansing.

3.1 Dishonesty in Un- and Observed Competition

The first finding is that in the overall example the average number entered in the smartphone is 4.0 as we can see in table 2 and thus clearly higher than the average of 3.5 which we would expect if every child plays honest. Children do not lie to the fullest extent which is in accordance with the results of Fischbacher and Föllmi-Heusi (2008, p. 533f). Some might not even not lie a little bit. Frank's model (1987, p. 602) and Levitt's bagel experiment (2006, p 290) suggest that there is an internal reward from being honest which could explain a low average, too. Regarding the first hypothesis we take a closer look on the data.

> *Hypothesis 1: In competition children tend to lie more in the absence of supervision of a childcare worker than with one present.*

First, we look at the distribution of the inserted numbers in graph 1. There seems to be a trend in favour of the first hypothesis. Table 2 shows that the decision's average in the control group is 4.12 in contrast to 3.88 in the treatment group. This is also in favour of our hypothesis; however, it is not statistically significant. If the samples are split into the different day nurseries there is statistically significant difference between the treatment and the control group for the day nursery Haklberg on the 5%-level. Furthermore, there is a statistically significant difference for St. Franziskus on the 10%-level, nevertheless the first hypothesis is not verified.

3.2 Gender Differences

The second hypothesis considers a possible gender gap.

> *Hypothesis 2: Boys are more likely to enter a competition therefore they lie more often than girls and even more in the competition among their male peers.*

The results do not suggest that boys lie more than girls. Table 3 shows even a reverse trend for three day nurseries. However, the result of the day nursery Altstadt show a significant gender gap on the 10%-level. If we look at table 4, we see a trend for boys cheating more in competition with their male peers, than with female, although the evidence is not statistically significant. Besides, the result is driven by boys in the treatment group as you can see in graph 2.

3.3 Age Differences

In order to draw conclusions about a possible age gap two age groups are defined. The age group "young" consists of 6 to 8-year-olds and the age group "old" consist of 9 to 11-year-olds. Piaget (1965, p. 145) shows that around the age 10 or 11 children verbalize the definition of a lie as being any false statement made intentionally therefore, we consider our distribution to be appropriate. Regarding the third hypothesis there is mixed finding as presented by table 5.

Hypothesis 3: Older children lie more often than younger ones and lie less when they play with children of the same age.

The general trend seems to be in favour of the hypothesis that older children are more dishonest than younger children, but this finding is only statistically significant on a 10%-level for one day nursery St. Anton. The day nurseries Altstadt, St. Bartholomäus and Haklberg as well as the subsample treatment group show a reversed trend. Therefore, we cannot confirm the first part of the hypotheses. The suggestion that children lie more when they play with children of a different age (min. 1 year in between) cannot be confirmed either as we can see in table 6. Even the trend does not suggest that children are more honest playing with children of the same age. Interestingly it seems that children lie less, when they play with children of another age, but the effects are statistically not significant.

3.4 Moral Licensing

The fourth hypothesis focusses on whether the first stage of the experiment influences the participants' behaviour in the second stage. According to Zhong and Liljenquist (2006, p. 1452) a reason for good deeds is the positive effect they have on moral self-worth: if this feeling is strong enough it could lead to a misdeed in the present. Applied to our experiment, this means that children play honestly which leads to a high moral self-worth which justifies taking more veggie bears than their payoff would be.

Hypothesis 4: Children in the treatment group lie less and therefore take more veggie bears than their payoff would be (moral licensing).

Although the results are not statistically significant, there is a difference between the lying behaviour of the children in the treatment and in the control group. Graph 3 shows that in four out of five day nurseries children took more veggie bears than they were allowed to. But the evidence is statistically not significant.

3.5 Moral Cleansing

The final hypothesis also focussed on whether the first stage of the experiment influences the participants' behaviour in the second stage. But moral cleansing is the reverse effect. People need to do a good deed to ease their conscience on a misdeed performed before (Brañas-Garza et al., 2011, p. 9). Related to our experiment children in the control group lie to a fuller extent which makes them feel bad. In order to calm their conscience, they therefore take less veggie bears than they earned.

> *Hypothesis 5: Children in the control group lie to a fuller extent and therefore calm their conscience by taking less veggie bears than their payoff would be (moral cleansing).*

The evidence of children cheating more in the control group is not statistically significant, but nonetheless the trend is consistent with the hypothesis. Nonetheless the trend regarding children taking less veggie bears than earned is not correct as graph 4 shows.

However, there is another hint for moral cleansing. Graph 5 shows a decline of the mean in round 3 especially for the treatment group. One could argue that children cheat in the first 2 rounds and calm their conscience in the third round. Table 7 shows that the effect is statistically significant for the control group as well as for three day nurseries.

4. Discussion and Conclusion

Shalvi et al. (2011, p.184) show the importance of maintaining a positive self-image while lying by throwing the dice several times contrary to the instructions and reporting the highest number. Some children did the same in our experiment. After the experiment in the discussion we held with the children many of them said that they had cheated although the data does not show this amount of cheating. Peer pressure is an interesting topic we should focus more on. Concluding this paper offers plenty of room to discuss. Although most findings were statistically not significant, we belief that our findings are worth a look at. The experiment had various limitations which we did not realize due to the lack of experience. Furthermore, it is to say that every day nursery had its own difficulties. Altstadthort was our first session, which is why we were very excited and unfamiliar with the situation. At the day nursery St. Bartholomäus we had to conduct the experiment outside and so on and so forth. We therefore would be pleased to collect the data again and avoid every difficulty we have had. We furthermore would like to dig deeper in the topic of competition among children. As a modification of the experiment children could play in groups in order to observe peer effects too.

Bibliography

Andersen, S. et al., 2013. Gender, Competitiveness, and Socialization at a Young Age: Evidence from a Matrilineal and a Patriarchal Society. *The Review of Economics and Statistics ,* 95(4), pp. 1438-1443.

Arnett Jensen, L., Jensen Arnett, J., Feldman, S. S. & Cauffman, E., 2004. The Right to Do Wrong: Lying to Parents Among Adolescents and Emerging Adults. *Journal of Youth and Adolescence ,* 33(2), pp. 101-112.

Brañas-Garza, P., Bucheli, M., Espinosa, M. P. & García-Muñoz, T., 2013. Moral Cleansing and Moral Licenses: Experimental Evidence. *Economics and Philosophy,* 29(02), pp. 199-212.

Bucciol, A. & Piovesan, M., 2008. Luck or Cheating? A Field Experiemnt on Honesty with Children. *Department of Economics - Discussion Papers - University of Copenhagen,* pp. 1-21.

Childs, J., 2012. Gender Differences in Lying. *Economic Letters,* Volume 114, pp. 147-149.

Conrads, J. et al., 2014. Honesty in Tournaments. *Economic Letters,* Volume 123, pp. 90-93.

DePaulo, B. M. et al., 1996. Lying in Everyday Life. *Journal of Personality and Social Psychology,* 70(5), pp. 979-995.

Fehr, E., Bernhard, H. & Rockenbach, B., 2008. Egalitarianism in Young Children. *Nature ,* Volume 454, pp. 1079-1083.

Feltovich, N., 2019. The Interaction Between Competition and Unethical Behaviour. *Experimental Economics,* 22(1), pp. 101-130.

Fischbacher, U. & Föllmi-Heusi, F., 2013. Lies in Disguise - an Experimental Study on Cheating. *Journal of the European Economic Association,* 11(3), pp. 525-547.

Frank, R. H., 1987. If Homo Economicus Could Choose His Own Utility Function, Would He Want One with a Conscience?. *The American Economic Review,* 77(4), pp. 593-604.

Gervais, J., Tremblay, R. E., Desmarais-Gervais, L. & Vitaro, F., 2000. Children's Persistent Lying, Gender Differences, and Disruptive Behaviours: A Longitudinal Perspective. *International Journal of Behavioral Development,* 24(2), pp. 213-221.

Giamattei, M. & Graf Lambsdorff, J., 2019. classEx - an Online Tool for Lab-in-the-Field Experiments with Smartphones. *Journal of Behavioral and Experimental Finance,* Volume 22, pp. 223-231.

Harbaugh, W. T., Krause, K. & Vesterlund, L., 2002. Risk Attitudes of Children and Adults: Choices Over Small and Large Probability Gains and Losses. *Experimental Economics,* Volume 5, pp. 53-84.

Houser, D. et al., 2016. Dishonesty: From Parents to Children. *European Economic Review,* Volume 82, pp. 242-254.

Khachatryan, K., Dreber, A., von Essen, E. & Ranehill, E., 2014. Gender and Preferences at Young Age: Evidence from Armenia. *Journal of Economic Behavior & Organization ,* pp. 1-27.

Levitt, S. D., 2006. White-Collar Crime Writ Small: A Case Study of Bagels, Donuts, and the Honor System. *The American Economic Review ,* 96(2), pp. 290-294.

Maggian, V. & Villeval, M. C., 2016. Social Preferences and Lying Aversion in Children. *Experimental Economics,* 19(3), pp. 663-685.

Mazar, N., Amir, O. & Ariely, D., 2008. The Dishonesty of Honest People: A Theory of Self-Concept Maintenance. *Journal of Marketing Research,* 45(6), pp. 633-644.

Monin, B. & Miller, D. T., 2001. Moral Credentials and the Expression of Prejudice. *Journal of Personality and Social Psychology,* Volume 81, pp. 33-43.

Newton, P., Reddy, V. & Bull, R., 2000. Children's Everyday Deception and Performance on False-Belief Tasks. *British Journal of Developmental Psychology,* Volume 18, pp. 297-317.

Piaget, J., 1965. *The Moral Judgement of the Child.* 1st ed. Glencoe, Illinois : The Free Press.

Pruckner, G. J. & Sausgruber, R., 2009. Honesty on the Streets. *Labor & Welfare State - Working Paper,* Volume 0924, pp. 1-25.

Schwieren, C. & Weichselbaumer, D., 2008. Does Competition Enhance Performance or Cheating? A Laboratory Experiment. *IZA Discussion Paper,* Volume 3275, pp. 1-26.

Shalvi, S., Dana, J., Handgraaf, M. J. J. & De Dreu, C. K. W., 2011. Justified Ethicality: Observing Desired Counterfactuals Modifies Ethical Perceptions and Behavior. *Organizational Behavior and Human Decision Processes,* Volume 115, pp. 181-190.

Shleifer, A., 2004. Does Competition Destroy Ethical Behavior?. *The American Economic Review,* 94(2), pp. 414-418.

Sutter, M. & Glätzle-Rützler, D., 2010. Gender Differences in Competition Emerge Early in Life. *IZA Discussion Paper,* Volume 5015, pp. 1-33.

Zhong, C.-B. & Liljenquist, K. A., 2006. Washing Away Your Sins: Threatened Morality and Physical Cleansing. *Science,* 313(5792), pp. 1451-1452.

Appendix

Table 1: Descriptive statistics

	Number of observations	Children	Female	Young (6-8 years)	Age average	Average decision
Total	432	144	53%	52%	8.39	4.0
Control group	210	70	56%	59%	8.23	4.12
Treatment group	222	74	50%	46%	8.54	3.88
Altstadt	102	34	41%	53%	8.09	3.83
St. Anton	126	42	67%	55%	8.40	4.17
St. Bartholomäus	48	16	50%	56%	8	3.81
St. Franziskus	66	22	50%	41%	8.91	4.24
Haklberg	90	30	50%	53%	8.53	3.86

Table 2: Lying Behaviour of children with and without supervision

	Mean: CG	Mean: TG	Trend	p-value	Statistical significance
Total	**4.12**	**3.88**	**yes**	**0.1178**	**no**
Altstadt	3.91	3.75	yes	0.6345	no
St. Anton	4.05	4.29	no	0.3004	no
St. Bartholomäus	4.07	3.39	yes	0.1283	no
St. Franziskus	4.72	4.06	yes	0.074	yes (10%)
Haklberg	4.25	3.4	yes	0.01573	yes (5%)

Table 3: Do boys lie more than girls?

	Mean: Boys	Mean: Girls	Trend	p-value	Statistical significance
Total	**4.04**	**3.96**	**yes**	**0.5424**	**no**
Control group	**4.17**	**4.08**	**yes**	**0.6907**	**no**
Treatment group	**3.94**	**3.82**	**yes**	**0.5799**	**no**
Altstadt	4.08	3.48	yes	0.09733	yes (10%)
St. Anton	4.12	4.20	no	0.7915	no
St. Bartholomäus	3.67	3.96	no	0.481	no
St. Franziskus	4.21	4.27	no	0.911	no
Haklberg	4	3.71	yes	0.4525	no

Table 4: Boys encourage to cheat more

	Mean: only boys	Mean: only girls	Mean: different gender	Trend	p-value boys & girls	p-value boys & mix	p-value girls & mix	Statistical sign.
Total	4.01	4.12	3.94	yes	0.6185	0.8439	0.4163	no
CG	3.8	4.17	4.19	no	0.2346	0.1348	0.8005	no
TG	4.17	4.06	3.71	yes	0.7115	0.1062	0.2134	no

Table 5: Age gap

	Mean: young	Mean: old	Trend	p-value	Statistical sign.
Total	**3.96**	**4.04**	**yes**	**0.6425**	**no**
Control group	**4.02**	**4.25**	**yes**	**0.2983**	**no**
Treatment group	**3.88**	**3.88**	**no**	**0.9804**	**no**
Altstadt	3.94	3.71	no	0.4747	no
St. Anton	3.97	4.42	yes	0.0969	yes (10%)
St. Barth.	3.88	3.71	no	0.6183	no
St. Franc.	4.22	4.26	yes	0.8253	no
Haklberg	3.85	3.86	no	0.9902	no

Table 6: Do children lies when they play with children of the same age – parochialism

	Mean: same age - old	Mean: same age - young	Mean: different age span (min 1 year in between)	Trend	p-value	Statistical significance
Total	4.06	4.08	3.82	no	0.15	no
CG	4.17	4.11	4.05	no	0.9595	no
TG	3.95	4.03	3.72	no	0.1953	no

Table 7: Round effects as a hint for moral cleansing

	Mean 1st round	Mean 2nd round	Mean 3rd round	p-value 1st & 2nd	p-value 1st & 3rd	p-value 2nd & 3rd	Statistical sign.
Total	**4.01**	**4.22**	**3.76**	**0.338**	**0.1676**	**0.0142**	**no**
CG	**4.01**	**4.29**	**4.06**	**0.4572**	**1**	**0.3981**	**no**
TG	**4.01**	**4.16**	**3.47**	**0.5668**	**0.04326**	**0.009459**	**no/ yes (5%)/ yes (1%)**
Altstadt	3.85	4.03	3.62	0.6794	0.5867	0.3344	no
St. Anton	4.19	4.48	3.86	0.3682	0.3205	0.07753	no/ yes (10%)
St. Barth.	3.25	4.375	3.8125	0.05941	0.3279	0.244	no yes (10%)
St. Franc.	4.55	4.36	3.82	0.506	0.09638	0.2199	no yes (10%)
Haklberg	3.97	3.9	3.7	0.8388	0.4972	0.6093	no

Graph 1: Frequency of the inserted numbers divided in control and treatment group

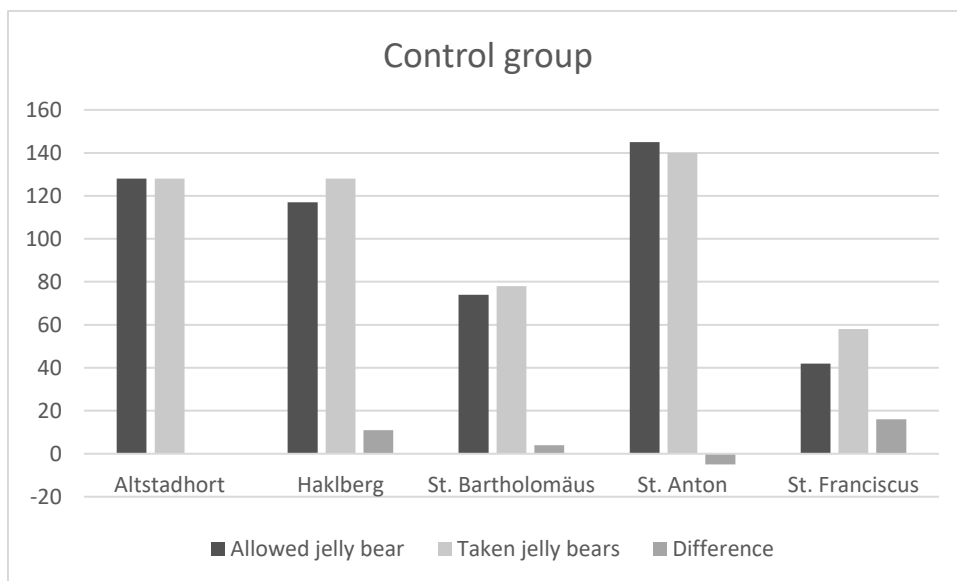Control group

Treatment group

Graph 2:

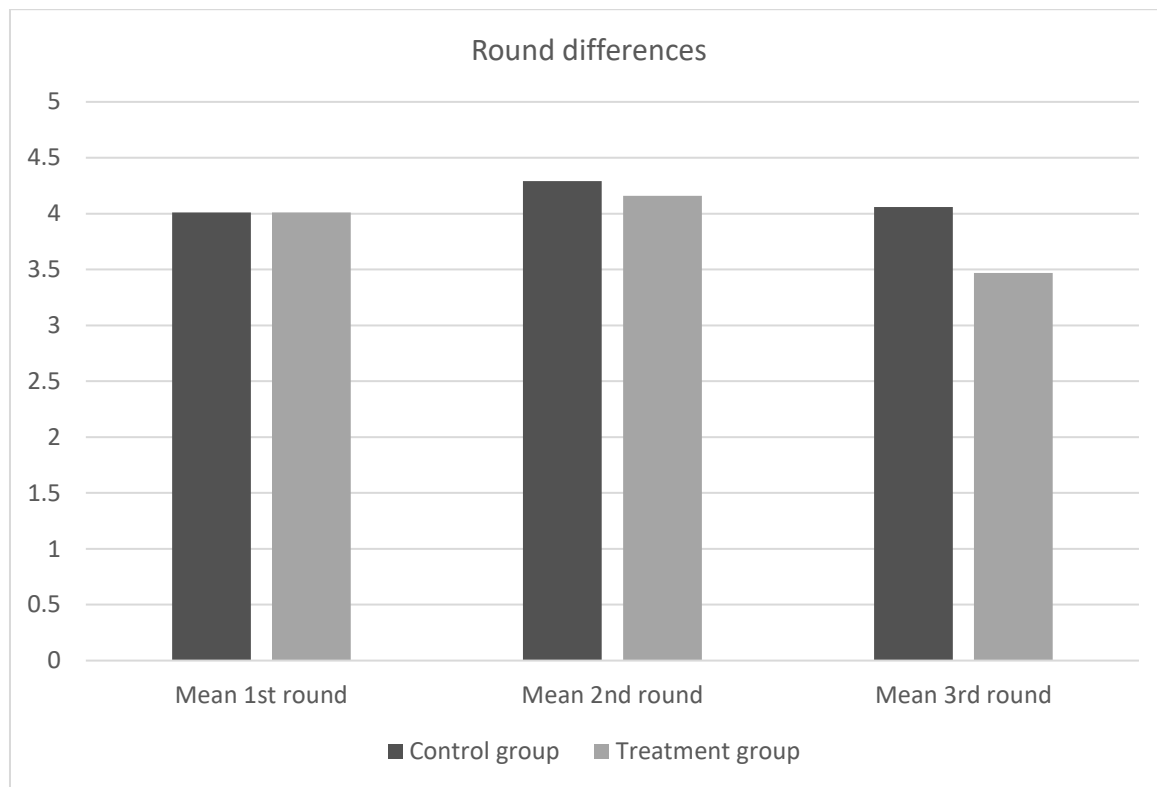Partner's gender effect
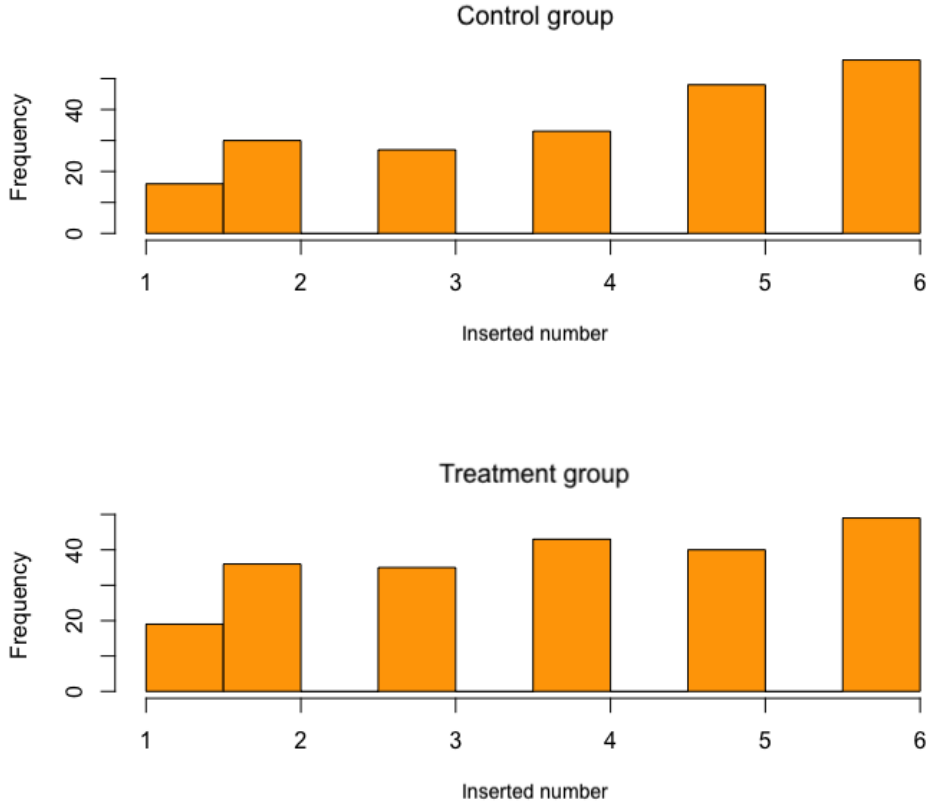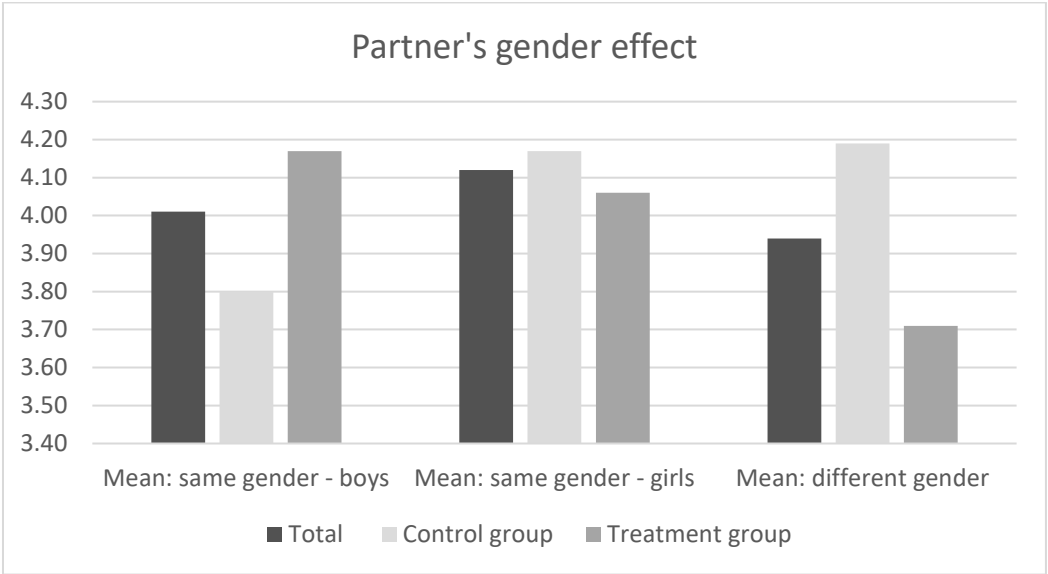
Graph 3: Taken veggie bears as a hint to moral licensing
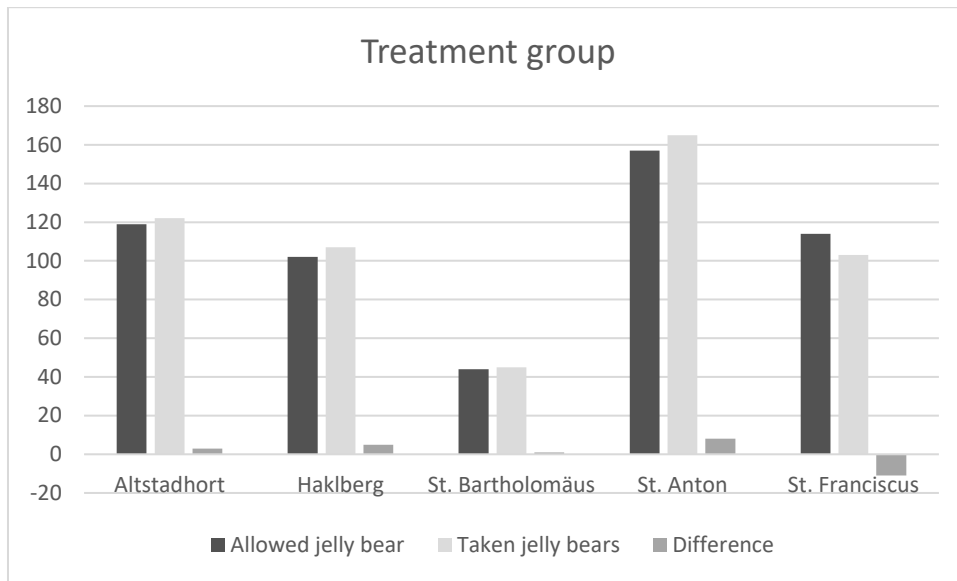
Graph 4: Taken veggie bears as a hint to moral cleansing

Graph 5: Round differences as a hint to moral cleansing

Round differences

Legend: ■ Control group ■ Treatment group

A.1 Timeline

Dates of the days when the experiments were conducted

Date	Day nursery	Number of children
02.07.2019	Altstadthort, Altstadt	34
05.07.2019	St. Anton, Haidenhof Nord	42
11.07.2019	St. Bartholomäus, Grubweg	16
12.07.2019	St. Franziskus, Haidenhof Nord	22
15.07.2019	Kinderhort Haklberg	30

A.2 Instructions (script)

A.2.1 Welcoming speech and division into treatment and control group (10 min.)

Guten Morgen, wir sind Mathilde und Muska. Vielen Dank, dass wir heute hier sein dürfen in eurem Kinderhort. Es ist sehr schön hier zu sein. Heute habt ihr die Möglichkeit mit uns ein Spiel zu spielen. Es ist ein ganz einfaches Spiel und wir hoffen, dass es euch auch Spaß macht. Ihr könnt zwischen 3 und 12 Gummibärchen gewinnen. Für das Spiel brauchen wir immer 2 von euch gleichzeitig. Die dürfen dann zu Mathilde in den nächsten Raum. Wir anderen warten hier und spielen hier was anderes so lange.

A.2.2 Instructions game (individually in pairs)

Hallo ihr beiden. Bitte setzt euch auf den und der andere auf diesen Stuhl. Bitte hört mir nun gut zu. Vor euch seht ihr einen Plastikbecher. In diesem Plastikbecher befindet sich ein Würfel. Ihr könnt den Becher schütteln und dann oben durch das Loch reinschauen, welche Zahl ihr gewürfelt habt. Niemand anderes kann die Zahl sehen außer euch. Ihr werdet gleich dreimal gegeneinander würfeln. Derjenige, der die höhere Zahl hat, bekommt 4 Gummibärchen, der andere einen. Wenn ihr die gleiche Zahl würfelt dann bekommt jeder 2. Die Gummibärchen dürft ihr euch dann nach dem Spiel aus dem Kuschelraum holen.

Wenn ihr gleich gewürfelt habt, dann dürft ihr die Zahl in das Smartphone eintippen und bestätigen, danach seht ihr, wer gewonnen und wie viele Gummibärchen ihr schon insgesamt euch danach nehmen dürft. Bitte redet während des Spiels nicht miteinander. So jetzt habe ich noch kurz eine Frage und zwar wie alt ihr seid? Dann können wir jetzt loslegen.

A.2.3 Instructions payoff (individually in pairs)

Ihr seht jetzt auf dem Bildschirm wie viele Gummibärchen ihr euch insgesamt nehmen dürft. Vielen Dank fürs Mitmachen. Magst du kurz warten und du gehst als erstes in den Raum (immer der rote Spieler zum Beispiel) und nimmst dir deine Gummibärchen.

A.2.4 Follow-up discussion and farewells (10 -20 minutes)

Erst einmal möchten wir, Mathilde und ich uns ganz herzlich bedanken, dass wir heute da sein durften. Wir hoffen, dass ihr genauso viel Freude hattet wie wir. Nun wollten wir euch mal fragen, wie es euch jetzt nach dem Spiel geht.

Vielleicht hat der ein oder andere ja geschummelt, weil er so schlechte Zahlen gewürfelt hat. Aber davon geht die Welt nicht unter.

A.3 classEx input

A.3.1 Age & gender (input by the experimenter)

A.3.2 Decision (input by child)

A.4 classEx output

A.4.1 Winners screen

Du hast diese Runde gewonnen. Gummibärchen: 4

A.4.2 Losers screen

Du hast diese Runde verloren. Gummibärchen: 1

A.4.3 Drawn game screen and payoff

Es ist ein Unentschieden. Gummibärchen: 2

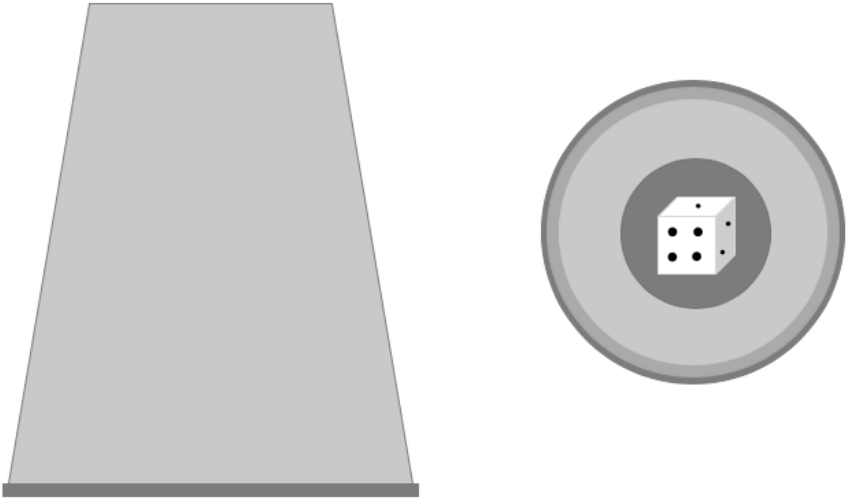Insgesamt hast du 7 Gummibärchen verdient.
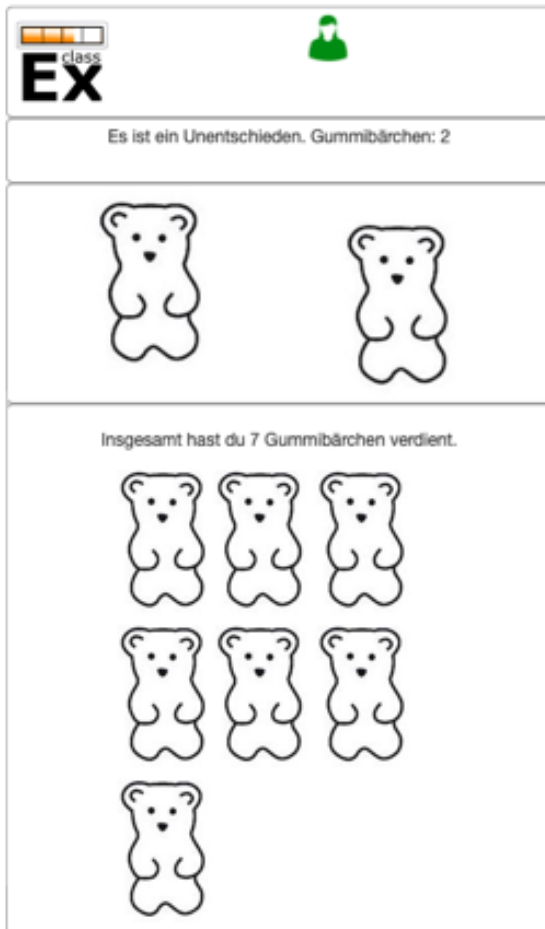
A.5 Room sketch: Altstadthort
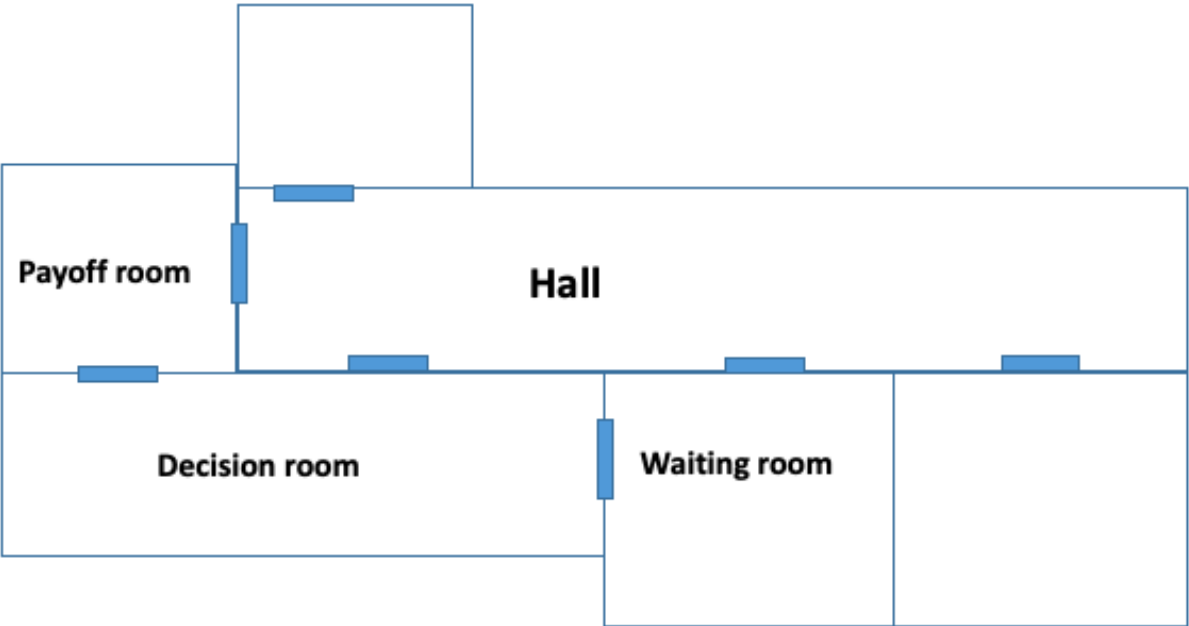
A.6 Material

A.6.1 Dice in the cup

Declaration of Authorship

We hereby declare that the thesis submitted is our own unaided work. All direct or indirect sources are acknowledged as references.

This paper was not previously presented to another examination board and has not been published.

Mathilde Lea Editha Dräger

Passau, 31 October 2019

Muska Ibrahimi

Passau, 31 October 2019